Evaluating the Impact of Job Training Programs in Latin America: Evidence from IDB funded operations*

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ABSTRACT

Among active labour market programs, job training is popular in Latin America as an attempt to help the labour market insertion of disadvantaged youth, and also as a way of providing skills to low-income groups to enable them to deal with the challenges of globalization. This paper summarizes the findings from the first rigorous set of evaluations to job training programs in Latin America that were made in the context of a project undertaken by the Office of Evaluation and Oversight at the Inter-American Development Bank. This research was complemented by two independent impact evaluations of similar training programs in Chile and Colombia. We report the results of two evaluations with an experimental design (the Dominican Republic and Colombia), one with a natural experiment (Panama) and four non-experimental evaluations (Argentina, Chile, Peru and Mexico). Overall, the results suggest that employment effects range from modest to meaningful – increasing the employment rate by about 0 to 5 percentage points—although higher and significant for some groups such, as women in Colombia and Panama –with impact of 6 to 12 percentage points in the employment rate. In most cases there is a larger and significant impact on job quality, measured by getting a formal job, having a contract and/or receiving health insurance as a benefit. Finally, we present an operational definition of the impact of training on "employability" in the context of a dynamic model with state dependence and unobserved heterogeneity, which we were able to apply in the evaluations of the Dominican Republic, Panama and Argentina.

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1. **Introduction**

The insertion of low-income low skilled youth in the labour market is a major concern in Latin America.[1] The poor quality of basic education compounded with early school dropout has resulted in a large group of poorly educated youth with dire labour market perspectives. In order to address this issue, several policies have been implemented. Some deal with the structural causes, such as the coverage, access and quality of basic and secondary education. Others focus on the pool of youth that have already dropped from school and are unlikely to go back to the formal education system. For this group, a common intervention that has been promoted through the region since the eighties is short training programs aimed at providing basic job readiness skills as well as some trade-specific abilities. The purpose of these programs is to provide with some form of social and/or human capital that might increase the employability of disadvantaged youth and enables them to achieve a successful insertion in the labour market.

Two influential demand driven training programs, the Mexican *Probecat* and *Chile Joven*, have laid groundwork for this type of programs. *Probecat*, which started in 1984, aims to increase the employability of its beneficiaries. The program is not centred on the youth or disadvantaged population, although in practice the eligibility criteria favour these groups. It offers short-term, demand-driven courses that are complemented by internships, emphasizing on-the-job training. Private firms offer both the courses and the internships. Variants of *Probecat* have been implemented in Honduras and El Salvador.

The *Chile Joven* program, which started in 1992, was centred exclusively at a group of urban youth considered to be "at risk". The Chilean authorities envisioned the model behind this program and the Inter-American Development Bank (IDB) contributed to its definition and implementation. Other countries in the region faced similar challenges, and given the attractiveness of *Chile Joven*, the model has been more popular than the Mexican *Probecat* and it was replicated throughout the region, many times with the support of the IDB and the

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[1] According to ILO (2007), youth unemployment in Latin America was 16 percent in 2005 while it was only around 5 percent for adults. Of a total population of 106 million between 15 and 24 years old, more than 10

International Labour Organisation (ILO). The commonality of the model is based no only on its goal (to ease labour market insertion and improve the performance of groups that face difficulties in accessing the formal labour market) but also on its operational design. The mechanism to achieve the goal is to provide short-term semi-skill training in specific occupations demanded by the private sector.

Three main features characterize both the Mexican and the Chilean models. The first is the separation of the financing and the provision of training. The government selects training courses competitively, through a process where private and (in most cases) public firms or training institutions can participate. The second is that the nature of the training is demand driven, i.e. the government does not set what the content of the courses should be. The third is that an initial classroom-training phase is followed by an internship in a firm to complement the training.

This paper attempts to determine if demand driven labour training programs have been effective. There are two main contributions in this paper. First, to summarize the findings from a thematic impact evaluation project launched by the Office of Evaluation and Oversight (OVE) at the IDB in 2005/06 (lead by the authors). Second, to analyze the job training programs funded by the Bank since the early nineties. Although the IDB has emphasized job training closely following the Chilean and Mexican models, a systematic effort to measure the impact of these policies is missing. The evidence on whether these programs have worked in the region is extremely scarce: few rigorous evaluations exist, and even within the same countries these are not comparable, so the possibility to learn from the existing literature is limited.

Hence, the first objective of this thematic evaluation is to answer the traditional evaluative questions, in terms of the impact of training on the employment rates and earnings of participants. This was done following a rigorous identification strategy, relying either on randomization (which resulted from a careful design or through the use of a natural

million were unemployed, 22 million were not working nor studying and around 30 million were working in the

experiment) or non-experimental designs. We analyze individual project evaluations with the objective of assessing whether these models have met their core objectives. Additionally, in order to increase the sample of rigorous evaluations, we analyze two impact evaluations of IDB funded projects in Chile and Colombia, which were not part of the OVE thematic evaluation project.[2] An additional contribution of this paper is to provide an operational definition for employability. We use a dynamic random coefficients logit to estimate the impacts of job training programs on employability. This is done for programs in Argentina, Panama and the Dominican Republic.

Contrary to the existing evidence on the impacts of similar job training projects in the US and Europe, we find that in Latin America the results are slightly better, as two of the three more rigorous (random) evaluations show that these programs have significant positive impacts in terms of employment for women, and overall the impacts range from null to positive. These programs increase the employment rate of participants by about 0-10 per cent and the impact in terms of quality of jobs (measured by wages, social security and/or formality) is slightly higher. We also find positive results when the private sector shares the costs of training.

The second purpose of the thematic evaluation project was to understand the institutional and implementation features that seem to be systematically correlated with better results. Although this analysis will not be discussed at length in this paper, as context to the impact analysis it is important to mention some of the findings. This is also critical because, in many cases, a specific objective of the program was to contribute to the functioning of a competitive labour training system in the countries. Two key lessons can be drawn from the analysis. First, in countries where a national training institution (NTI) exists, IDB projects have not paid enough attention to the political economy of such institutions, and have largely operated around them. This has caused problems in terms of the expansion and sustainability of these projects. Second, the participation of the private sector is critical to

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informal sector.
[2] The papers we survey are the following: Argentina: Alzua and Brassolio (2006); Mexico: Delajara, Freije and Soloaga (2006); Peru: Diaz and Jaramillo (2006); Dominican Republic: Card et al. (2007); Panama: Ibarraran

ensure that courses are effectively demand driven. It appears that the best way to achieve this is by sharing some of the costs with the private sector.[3]

The paper has six sections. After this introduction, section 2 provides a background on the rationale for training programs, results from previous evaluations of similar interventions, and fundamentals of the training model implemented in Latin America with support from the IDB. Section 3 presents the empirical strategy and briefly describes the data for each country. Section 4 presents the results from the evaluations, while section 5 presents the employability model and its application for Argentina, Panama and Dominican Republic. The final section gives some concluding remarks.

2. Background

a. Rationale for Job Training Programs

Publicly funded job training is a policy instrument within the active labour market policies framework, which consists of "policies aiming at improving the access of unemployed to the labour market and jobs, job-related skills and the functioning of the labour market" (Martin, 2000).[4] Within this set of policies, training is one of the most common instruments. It has several modalities (training for unemployed, displaced or active workers) and it is used to impact on labour supply, by providing or updating relevant skills to the population, with the

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and Rosas (2007); Chile: Aedo and Pizarro (2004); and Colombia: Attanasio et al (2007). The last two papers were not commissioned by OVE.

[3] For example, in Mexico, under the on-the-job training modality (by which training is provided by the firms and not by training institutions) firms cover the direct costs of training, while the program covers the stipends to participants. In Peru, firms pay a minimum wage to participants during the internship phase. The most common mechanism for ensuring support from the private sector, a letter of intent from an employer offering to host interns who are provided free of charge by the program, has repeatedly been shown to be insufficient.

[4] Other definitions include "activities intended to increase the quality of labour supply, to increase labour demand; or to increase the matching of workers and jobs" (Betcherman et. al, 2000). It is thus possible to identify the central elements as a direct intervention of the government aimed at impacting the functioning of the labour market, centered around two issues: improving the opportunities for the unemployed and improving the skills of the labour force.

ultimate goal of increasing employment and incomes. In some cases, training is also closely linked with labour-intermediation services.[5]

Failures in labour markets may justify government intervention to increase efficiency: First, there is the presence of imperfect and asymmetric information. Labour market models that incorporate asymmetric information provide a theoretical rationale for training when training is seen as a signalling instrument for prospective employers.[6] Considering two types of unskilled workers: one with high marginal productivity and another with low (or negative) marginal productivity, a firm may prefer not to hire additional workers, even though it would be beneficial to do so if the probability of getting a high-type is sufficiently high. High-type workers would like to work, and would even be willing to pay in order for a third-party to certify their true type. In this setting, training could work as a signalling instrument: if only high-type workers are willing to pay the costs of training (or only they are able/willing to complete the requirements), then firms would know that a trainee is a high-type, thus solving the information issue. In this case, training could be increasing total employment, by satisfying the "unmet demand" of firms for high-type workers.[7] This is the rationale for training as a labour intermediation instrument, with its emphasis more in closing information gaps than increasing human capital.

Second, labour markets might have failures associated with the lack of complete contracts (the prohibition of long-term binding contracts in labour relations). This failure may affect investments in human capital: firms are hesitant to invest in general training due to worker mobility, and workers are hesitant to invest in firm-specific training. The private and social rates of return of training differ, and public sector interventions may result in training levels closer to the social optimum.[8]

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[5] The most representative case in Mexico, were the labour intermediation office manages the program. For a recent conceptual discussion on labour intermediation services, see Autor (2008).

[6] The literature on training or education as signaling in the labour market is vast. For a very simple and intuitive explanation, see Kaufman and Hotchkis (2000), appendix 7A.

[7] The notion of unmet demand is troublesome, for it implies that either supply and demand curves do not cross, or that the prices are not allowed to operate as the equilibrating factor in the labour market.

Cahuc and Zylberberg (2004) show several circumstances under which the absence of government intervention would result in underinvestment in both general and specific training. The authors show how transaction costs affect the amount of general training acquired by workers even in the presence of complete contracts. In the case of specific training, the optimal investment is achievable with complete contracts, but arguably this is not a characteristic of labour markets, which again leads to underinvestment in training.

Also, insofar as training creates knowledge that may be considered to have positive externalities, public money could be efficiently spent in training. It is common to consider that training increases productivity, and thus long-term economic growth. If positive spillovers exist from the knowledge generated through training, this would also justify public spending to close the gap between social and private rates of return. [9]

A major political economy rationale for job training programs is to gain public support for economic reform. [10] An added motivation is that of equity concerns. Given that in most cases the beneficiaries of these programs are poor people with low endowments of human, social and physical capital, other motivations may be related to distributional and fairness concerns. Under this scheme, some authors have proposed to look at training for the unemployed programs as income support mechanisms, arguing that the labour market impacts of the program are small (see next section), and the largest effect is that of income support. [11]

b. Evaluations of Job Training Programs

Job training programs have been evaluated extensively. Training programs have been a catalyst for the development and application of cutting-edge evaluation methods, in many

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[8] See Becker (1994), ch. 2; Kaufman and Hotchkis (2000), ch. 7. This can be particular important in many countries of Latin America where labour mobility is high and the quality of jobs very low (see BID, 2004).

[9] Note that this could happen in addition to the failure due to incomplete contracts. This is the typical case of under provision of public goods.

[10] In several Latin American countries, this was an important motivation for this type of programs. An explicit objective of active labour market programs in general and labour training programs in particular has been to help workers in face of technical change and greater competition that result from globalization This motivation is mentioned explicitly and importantly in the Labour Programs in Mexico, Argentina and Paraguay.

cases applied to especially collected micro data samples. This has led to a proliferation of research on job training and to the emergence of a significant body of evidence on its effectiveness. [12]

Overall, although strong beliefs exist on the pros and cons of active labour market policies, the majority of the existing empirical evidence suggests that their impact on the labour market impacts is limited. For job training programs in particular, most of the existing evidence is derived from programs in the United States and Europe. In the U.S. case, the literature focuses on randomized evaluations conducted of the Job Training Partnership Act (see Bloom et al., 1997; GAO, 1996; Heckman et al. 1999), the Job Corps (Burghart and Schochet, 2001) and of a series of programs for welfare recipients (Friedlander et al., 1997). There seems to be substantial heterogeneity in impacts depending on the characteristics of the participants and the type of training. For example, many studies have concluded that women benefit more from training than men. On-the-job training is often thought to be more effective than classroom training, although this is by no means a universal finding. Voluntary programs are generally found to be more effective than mandatory programs (Friedlander et al., 1997 and Greenberg et al., 2003). Finally, in the case of work experience programs, private sector programs are found to be more effective than public sector programs (Kluve et al., 2005).

With respect to youth, randomized evaluations from the two main programs serving disadvantaged youth in the U.S. –the Job Training Partnership Act (JTPA) and the Job Corps– yield quite different results. The short-run impacts for young women in JPTA are essentially zero, although the longer-term impacts appear to be more positive while the short-run impacts for young men are negative (see GAO, 1996). In contrast, the Job Corps

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[11] World Bank (2000)

[12] Four recent examples: Heckman et al. (1999), "The Economics and Econometrics of Active Labour Market Programs"; Dar and Tzannatos (1999) "Active Labour Market Programs: A Review of the Evidence from Evaluations"; Greenberg et al. (2003) "A Meta-Analysis of Government-Sponsored Training Programs"; and Betcherman et al. (2004) "Impacts of Active Labour Market Programs: New Evidence from Evaluations with Particular Attention to Developing and Transition Countries". A recent survey concentrated on youth programs is provided by Betcherman et al. (2007)

had a significantly positive effect on both genders. For example, Lee (2005) shows that Job Corp had about a 12 percent increase on earnings three years after training.

The European evidence is far more uncertain (Heckman et al., 1999) in part because of the lack of experimental studies and the wide variation in evaluation methods. Nevertheless, one key finding that emerges from the meta-analysis by Kluve et al. (2005) is that programs serving youth are substantially less likely to show positive impact effects than programs for adults.

Evidence on the effectiveness of training in developing countries is limited. Betcherman et al. (2004), for example, reviewed 69 impact evaluations of unemployed and youth training programs, only 19 of which were in developing countries. Of those, five were specific to youth training –all in Latin America. The authors conclude that training impacts in Latin America are more positive than the impacts of programs in the United States and Europe. Likewise, Ñopo and Saavedra (2003) analyzed the limited available evidence in the early 2000's on job training programs in Latin America and suggest that employment and income impacts of the programs seemed to exceed the impacts in developed countries. However, Calderón-Madrid (2006) argues that the majority of the existing evaluations of labour training programs in developing countries do not distinguish between finding a stable job versus finding any job (that is, the duration of the new job is seldom considered), and he shows that this problem can lead to misleading conclusions about the effectiveness of training programs. Finally, Betcherman et al. (2007) reviewed 289 interventions designed to incorporate young people into the labour market in more than 80 countries around the world. The majority of these interventions were skills training, specially in the case of Latin America. They found that labour training programs have a lower incidence of positive employment impact than other types of labour programs oriented to youth.

While a number of studies of training programs in Latin America have been produced, to the best of our knowledge most of them have used non-experimental methods –most notably propensity score matching methods. And the positive results notwithstanding, as in

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European case the variability in methods and data have produced widely varying results, even for the same program. A notable case in point is Peru's youth training program. Seven existing evaluations have produced a very wide range of estimated impacts for this program.

Thus, there is a need of a rigorous thematic evaluation of job training programs in Latin America. In a review of evaluations of labour market policies in Latin America, Weller (2004) concludes that "it is necessary to recap on the improvements and obstacles that have been encountered in the practice of evaluation in Latin America, to learn from its findings and errors and to create tools that effectively allow feedback to policymakers…". The current paper aims to fill this gap in the literature. Additionally, it develops a formal analysis of employability in the context of Latin America.

c. Job Training Programs in Latin America

The traditional training model

Training has been traditionally important in Latin America. During the import-substitution industrialization process, many countries followed a centre-based model, in which a national training institution (usually financed by a payroll tax) provided training. The government was responsible for the regulation and provision of training, and the content of the courses was determined centrally (supply-driven contents). There is large variance within this model across countries, but the most common institutional arrangement for training was that of a large public institution (SENA in Colombia, SENAI in Brazil, SNPP in Paraguay, INFOTEP in Dominican Republic, and INAFORP in Panama).[13] The main purpose of this type of training was to provide with skilled technical workers to a growing economy in the framework of the import substitution industrialization model. It was not a central objective to train unemployed first time job seekers with low levels of formal education, or to attend vulnerable groups such as women.

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[13] The following link provides information on each of these institutions: http://www.cinterfor.org.uy/public/spanish/region/ampro/cinterfor/ifp/index.htm

The traditional training model was increasingly questioned during the eighties because the economic crisis and the stabilization measures and structural reforms that were implemented. Since then, national training institutions have been under pressure to reform in order to better respond to the needs of the economy and to train other segments of the population, such as the unemployed and youth.[14] Also, these institutions have to compete with a private supply of training that has increased since the nineties. The overall goal has been to adapt the mechanisms used in the training-intermediation programs to the traditional technical and vocational training: separation of financing, planning and provision of training, increased participation of the private sector in competitive bids and determination of contents in a demand-driven fashion. However, the majority of these institutions maintain the original model and the same type of beneficiaries.

The demand driven training models

In order to improve the labour market insertion of young and disadvantaged groups, the Latin American governments have been implemented several policies. Some policies deal with the structural causes, such as the coverage, access and quality of basic and secondary education. Others focus on the pool of youth that have already dropped from school and are unlikely to go back to the formal education system. For this group, a common intervention that has been promoted through the region since the eighties is short training programs aimed at providing basic job readiness skills as well as some trade-specific abilities. The purpose of these programs is to provide with some form of social and/or human capital that increases the employability of disadvantaged youth and enables them to achieve a successful insertion in the labour market.

Two influential demand-driven training programs, the Mexican *Probecat* and *Chile Joven*, have laid groundwork for this type of programs. *Probecat*, which started in 1984 and has been financed by the IDB since 1996, aims to increase the employability of its beneficiaries. The program is not centred on the youth or disadvantaged population, although in practice the eligibility criteria favour these groups. Its most salient feature is that it does not rely on

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[14] According to Abdala (2007), in 1998 the NTI trained 10 percent of the active population (around 21 million of people) from which only 5 million were young.

training institutions to provide the courses. Instead, the program provides a stipend equivalent to the minimum wage to beneficiaries while the private sector businesses provide the training and the internship (for a minimum of 3 months) and cover the training costs: this is the in-firm training modality. To participate in the program private firms have to agree to keep for one year at least 70 percent of the trainees. Variants of the "Mexican" model have been implemented in Central America (Honduras and El Salvador).

The *Chile Joven* program, which started in 1992[15] with the support of the IDB, was based on youth training experiences in Great Britain and the United States. Chilean policymakers envisioned a program that would train disadvantaged young people and would provide them with a practical experience in the formal labour market, thus helping them to improve their labour market insertion.[16] Building upon the existing training system in which the State had a regulatory and supervisory role, and in which private training firms had to be accredited by the state agency and could provide tax-deductible training to firms, the government created a new program that was under the supervision of the national agency that oversees the private vocational training, which is named the National Training and Employment System (SENCE).

The mechanism innovated in Chile was internalized by the IDB and (with the participation from the International Labour Organization, which also supported governments in preparing proposals for this type of operations) it was later replicated throughout Latin America: in Venezuela (1993), Argentina (1994), Paraguay (1994) and Peru (1996) in the early to mid nineties, and later in the Dominican Republic (1999), Colombia (2000), Panama (2002) and Haiti (2005).[17]

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[15] When democracy was reinstated in Chile in 1990 there was a large social debt with the youth population of the country, a group that was central in the quest for democratic change and that had experienced particularly hard times during the military regime. In this context, the Chilean government explored various venues through which to provide opportunities the youth and to help marginalized sectors within that broad population to participate from what was expected to be an era of economic growth.

[16] See Marcel (1989), particularly "El desempleo juvenil en Chile y los desafíos del gobierno democrático", and "El programa de Entrenamiento de Jóvenes en Gran Bretaña", both by M. Marcel.

[17] Uruguay also has a similar program, which is named PROJOVEN and started in 1994. Recently, Honduras and Bolivia have lunched, with the support of the World Bank, similar training programs named: "Mi primer empleo".

There are three basic features of the training model introduced in Chile. First, it focused on the youth and disadvantaged population with low chances of insertion into the formal labour market. Second, the purpose is to increase the social capital and the employability of participants. In this context, two salient characteristics of the model of training/intermediation are the social-skills or job readiness module and the internship phase that follows the training to allow the participants to gain valuable experience in a formal sector job. Third, it is explicitly oriented towards the market as it relies on the market to reveal the demand for training (the participation of the private sector by providing internships is intended to guarantee the pertinence of the courses), and the provision of courses is determined competitively through the functioning of a market of training institutions (where public and private training providers compete to offer courses).

It is important to emphasize three additional aspects that were specific to Chile and that were not necessarily present in other countries where similar programs were implemented. First, *Chile Joven* was conceived as a one-time intervention to address a specific situation, the existence of a delimited group of young people that abandoned the formal schooling path during the crisis of the mid eighties. The diagnosis made by the Chilean government indicated that this was a stock problem. Second, a solid market of training firms with a working relationship with the private sector was in place, and the State, through the SENCE, had an established supervisory and regulatory role since the eighties. Third, the Chilean government estimated that the economy would enjoy sustained growth, and that the jobs that would be created would be suitable for the trainees.

Although *Chile Joven* had four training modalities, it was one of them that served as benchmark for the other countries: *Training with practical experience at firms*. It was designed to develop skills for work as the employee of a company. The training would be offered in two successive stages: a stage of working training lectures conducted by a training institution (about 200 hours); and a stage involving on the-job-learning in business (a full time internship in a firm for a period of 3-6 months). The training firm was responsible for the placement. To guarantee that the content of the course was effectively demanded by the

private sector, the course proposals submitted for this subprogram must be accompanied by *letters of intent* or some other equivalent written commitments with businesses or business associations that cover at least 80 percent of the course enrolment. The purpose of these "letters of intent" was to show that there has been some contact between the institution proposing the course and one or more businesses, to identify those where students can be placed for their on-the-job learning experience. The program covered the cost of the training courses and a stipend to the beneficiaries.

In most of the countries where the mechanism has been imported the purpose has been different. Although in many cases it has been targeted to the young, low-income, poorly educated population (hence in many countries the name *Joven –"young"* is used, such as Argentina, Peru, Colombia, Uruguay and the Dominican Republic), in many cases the nature of the problem that the program aims to address is not cyclical but structural. In Chile the target population was identified as a stock, while in other countries there is a continuous flow of people with these characteristics.[18]

The traditional centre-based model differs from the demand-driven model both on its objectives and in it its mechanism. First, the objective of the new training-intermediation model is to provide short-term semi-skill training to increase the employability of the young and/or disadvantaged population, while the traditional training model concentrated on training or retraining for active or experienced workers, with the goal of providing skilled technicians to the economy. Second, the new model is market-oriented and relies on the participation of the private sector for the provision of training, while in the traditional model the financing, planning and provision of courses was done centrally by the government and, arguably, poorly articulated with the demands of the private sector.[19]

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[18] The program has also been used to challenge the center-based model. In Paraguaythe program explicitly called for the radical transformation of the national training institution. In other cases, the program is intended to provide a small scale demonstrative effect.

[19] We did not find rigorous studies showing this, but this has been to be considered a "stylized fact" in the literature of training institutes in Latin America.

The underlying assumption of these programs is that potential beneficiaries –this does not apply to the general population– are not able to find a job because they lack the skills that are demanded by the productive sector, and/or because they lack relevant labour market experience. This may be the result of changes in labour demand, due to the adoption of a new development model –from import substitution industrialization to export lead growth– that resulted in a structural change of the economy. Also, the young population that dropped from the formal schooling system and that had no relevant work experience would have enormous difficulties entering the new, more dynamic and modern labour market. So, if these groups receive adequate training in the specific areas that are demanded and they are provided with a minimum experience, they would be able to find a job.

Final considerations

If the primary purpose was to increase the human capital of the trainee, it is uncertain that three-month part-time courses could reasonably aim at providing with enough skills or techniques to effectively improve the productivity of workers. However, these courses aim at providing social capital in the form of general job readiness skills complemented with simple yet pertinent basic specific skills, coupled with a meaningful job experience. In most cases training was for semi-skilled positions, for which the basic skills could be acquired in a short course (common courses are on construction, food industry, agricultural exploitation, basic mechanics, industrial operators, management, general services and personal services). It could be argued that three months are enough to provide someone with the basic elements to work in these occupations. In other cases, the discussion is centred on a system of certification of competencies, so the trainee could upon graduation earn a certificate for a particular skill.

Additionally, there are other important underlying assumptions. One is the existence of training providers that are responsive to the private sector. This is not a minor point, because in some countries the new programs have been used as an instrument to develop a competitive, responsive, and efficient market of training providers. Another one is that these projects train for dependent employment and that participants' expectations are consistent with this.

3. Data and Methods in the Impact Evaluations[20]

The data

The main data used by the paper comes from five impact evaluations of similar training programs that were undertook under the framework of the OVE thematic impact evaluation project. Different authors under OVE's supervision developed the project evaluations in Argentina, Mexico and Peru. Additionally, OVE undertook the evaluation of Panama and co-authored the evaluation of the Dominican Republic. These data are completed by two additional evaluations that were not part of the OVE project: the evaluation of the Chilean training program made by Aedo and Pizarro (2004) and the evaluation of the Colombian training program made recently by Attanasio et al. (2008).

As shown in tables 1 and 2, the training programs that were evaluated had similar objectives: they aimed at increasing the employment or employability of beneficiaries and to develop a private market for training services. They also share some basic characteristics: all are demand-driven; all provide a basic stipend to participants; and in all of them training is publicly funded, with the private sector participating in the provision of training. Except in the case of Mexico, the other six programs considered both stages of working training lectures and internship in a firm. However, each of these programs introduced some innovations or developed specific features of the basic model. For example, in the case of Colombia the social skill module was strongly developed while in the case of Peru firms have to remunerate the internships. In Panama two modalities were implemented, in one the classroom training was only of basic competencies and in the other modality this was followed by specific training for a given trade. Finally, the programs of Mexico, Chile and Argentina were large-scale operations while in the other countries programs had a smaller scale.

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[20] Given the vast literature on econometric methods for impact evaluations in general and on evaluation of job training programs in particular, the discussion will center on the basic approach and how it was implemented in each evaluation.

Table 1: Labour training programs under consideration.

Country	Program Name	# of IDB programs	Implementation period	Main Objectives	# of beneficiaries
Argentina	Proyecto Joven	2	1994-1998	Increase employment/employability, wages, productivity, social insertion, the private supply of training	100,000 and 180,000
Chile	Chile Joven	1	1992-1997	Increase employment/employability, social insertion, the private supply of training	100,000
Colombia	Jóvenes en Acción	1	2002-2005	Increase employment/employability,social insertion, the private supply of training	80,000
Dominican Republic	Juventud y Empleo	2	1999-	Increase employment/employability, social insertion, the private supply of training	30,000 up to 2006
Mexico	Probecat	3	1984- (with IDB support since 1996)	Increase employment/employability, productivity, labour market efficiency	Around 5 million between 1984-2000
Panama	ProCaJoven	1	2002-	Increase employment/employability, productivity, the private supply of training	11,400
Peru	Projoven	1	1996-	Increase employment/employability, wages, social insertion, the private supply of training	160,000. However, during the implementation around 4000 beneficiaries were trained by each call

Notes: Sample restricted to IDB programs that started before 2004.

Table 2: Characteristics of the training programs considered in the paper

	Argentina	Chile	Dominican Republic	Colombia	Mexico	Panama	Peru
Main Objectives							
Increase Employment/Employablity	X	X	X	X	X	X	X
Increase Wages							X
Social Insertion	X	X		X			X
Enhance Labor Market Efficiency	X				X		
Raise Productivity	X				X	X	
Develop a Private Market for Training Services	X	X	X	X		X	X
Reform a National Training Institution							
Components							
Labor Intermedition Services	X		X		X	X	X
Information / Counseling					X		
Fin support for Job Search							
Public Works				X			
Training for Unemployed							
School Based Training	X				X		
School + Work Experience	X	X	X	X	X	X	X
For Self Employment		X	X	X	X		
For at-Risk Population						X	
Training for Active Workers							
Training in MSM firms	X				X	X	
Institutional Strengthening	X	X	X	X	X	X	X
Reform Component							
Mechanisms							
Demand Driven	X	X	X	X	X	X	X
Supply Driven	X				X		
Stippend to Participants							
Trans/ Lunch/Health Ins	X	X	X	X	X	X	X
Income Support			X	X	X		
Publicly Funded Training	X	X	X	X	X	X	X
Provission of Training Courses							
Public	X	X		X	X		
Private	X	X	X	X	X	X	X
Interships arranged by training provider	X	X	X	X		X	X
Institutional Basis							
Executing Agency							
Existing Institution	X	X			X	X	
Reestructuring							
New, parallel to regular bureaucracy			X	X			X

Methodologies used for the evaluations

The individual impact evaluations followed the standard methodology for program evaluation as described by Heckman et al. (1999). The evaluations centred on the measurable impact of the programs on the relevant indicators, following a public-policy perspective: "do social programs have any impacts on participants and, if so, what are they?"

The starting point is the estimation of the treatment effect, which for each participant is defined as the difference in the outcome, i.e. the employment status, depending on whether the individual received training or did not receive training. The fundamental problem of

evaluation is that, for any given individual, it is impossible to observe both scenarios simultaneously, for only one of them actually occurred. The comparison of the same individual before and after the training is not valid because many other relevant events and factors that affect the outcome are likely to have changed. This means that the difference in employment for a person before and after the program is not entirely attributable to the program itself. In order to solve this issue, the evaluation problem is redefined to the population level.

For the population of beneficiaries the interest is on the average impact of the program, the average difference in the outcome with and without the training. We know the employment rate for the beneficiaries, but not the employment rate that they would exhibit had they not taken the course. We need to estimate that rate, known as the counterfactual: what would have happened in the absence of the program? To do so, we estimate the employment rate of a group of people that are, ideally, identical to the beneficiaries in every relevant way (i.e. in every way that affects employment) except that this group did not take the training. This includes both observable characteristics such as age, gender, and education, as well as unobservable aspects such as motivation.

The best way to be sure ex-ante that both groups are entirely comparable in every relevant way is by randomizing training among eligible interested applicants. This was done by the evaluations of Colombia and the Dominican Republic. That is, a comparison group is a valid counterfactual (called control group) only when the treatment is assigned randomly. For example, if the program selects randomly twenty out of each thirty people that are interested and eligible for taking the course (as in the Dominican Republic), then the condition of having similar observable and unobservable characteristics holds, because all those interested and eligible share these characteristics and the selection process does not take this into account. In this case the comparison of participants and non-participants yields the impact of training on the probability of employment. Another mechanism to get a control group with the same observable and unobservable characteristics than the trainees is by luck, which is known as a natural experiment. This was the case in Panama, where absent any evaluation design, a control group was available due to complications in the administrative process for

the approval of courses. In these three cases, the individual evaluations performed randomness tests, i.e. they verified that ex-ante the treatment and control groups were statistically identical, and that no pre-program information could have predicted whether an individual would be selected for the treatment or control group.

With experimental design, the simple comparison of the means of the outcome variables yields a valid measure of the treatment effect.[21] Additionally, the individual impact evaluations also used additional methods to verify robustness. Hence, in the Dominican Republic the data was reweighted using the probability being selected as treatment, in Colombia OLS regressions and instrumental-variable specifications were used, and in Panama reweighting and OLS regressions were done. In all cases the simple comparison of means results were confirmed. Table 3 shows the methods used by each of the impact evaluations considered in this survey.

In the absence of randomization, as in the cases of Argentina, Chile, Mexico and Peru, the central issue is how to create a valid comparison group, in the sense that the differences in the outcome between the two participants and non-participants are explained by the training and not by other characteristics. Non-experimental methods aim at identifying individuals that have the same observable relevant characteristics as the participants, and may also try to control differences in non-observable characteristics.

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[21] Also, with experimental design there is no distinction between average treatment effect (ATE) and the average treatment effect on the treated (ATT), which is the estimator that is computed in the non-experimental evaluations.

Table 3: Characteristics of the impact evaluations

Country	Evaluation Method	Comparison Group	Baseline/Pre-Program Data?	Months between training and data for evaluation	Papers
Dominican Republic	Experimental	Defined ex ante by random design	Yes	10-14 months and 22-24	Card et al. (2007)
Colombia	Experimental	Defined ex ante by random design	Yes	19 – 21 months	Atanasio et al. (2008)
Panama	Natural Experiment	Defined ex post from eligible applicants excluded by natural experiment	No baseline, pre-program data from retrospective questions in follow-up	9 – 20 months	Ibarrarán and Rosas Shady (2007)
Peru	Non-Experimental	Defined ex ante from eligible non-applicants	Yes	6, 12 and 18 months	Diaz and Jaramillo (2006)
Chile	Non-Experimental	Defined ex post from eligible non-applicants	No	12 months	Aedo and Pizarro (2004)
Argentina	Non-Experimental	Defined ex ante from registered applicants that did not start course	Yes	11 and 19 months in 2nd and 3rd calls, 12 months in 5th call	Alzua and Brassolio (2006)
Mexico	Non-Experimental	Defined ex post from similar individuals from labour market survey	No, baseline reconstructed from ex post data.	3 and 6 months	Delajara and al. (2006)

Within the non-experimental evaluations, there is heterogeneity in the selection of the comparison group. The most well thought case is Peru, where the comparison group was selected ex-ante from a group of eligible non-participants.[22] In Chile the impact evaluations also use eligible non-participants, but in this case they were selected ex-post. In the case of Argentina the comparison group was selected from a group of eligible, registered would-be participants that eventually did not receive training. Finally, in Mexico there were no

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[22] Youngsters that did not participate in the selection of program beneficiaries, but would qualify as eligible form the group. Once the treatment sample was selected, a sample of comparison youngsters was defined based on a survey fielded in the same neighborhoods where individuals from the treatment sample resided. These individuals would have been considered eligible at the program's Registration Centers, because the same protocols to select eligible individuals were used during the fieldwork to choose comparison individuals.

provisions to create a comparison group, so this was defined ex-post with data from the quarterly nation urban employment survey.[23]

In the non-experimental evaluations different identification methods were used. In the case of Peru, given the availability of longitudinal data, the difference-in-difference matching procedure proposed by Heckman et al. (1998) was used. While matching controls for any difference in observable characteristics, the difference-in-difference method controls for unobservable time-invariant differences between beneficiaries and non-beneficiaries.[24] In Argentina cross-sectional propensity score matching was used. In Chile propensity score matching was also used, both in a cross-section analysis and in an analysis using retrospective data to construct before-after analysis.

Finally, in Mexico two methods were used: a propensity matching score with nearest neighbour, and a selection correction parametric procedure assuming selection on unobservables. The former was adopted from the methodology developed by Becker and Ichino (2002) based on Rosenbaum and Rubin (1983). The latter followed the methodology proposed by Heckman et al. (2003). With these techniques the authors of the impact evaluation discuss the presence of *overt bias* –due to selection on observables—and *hidden bias*, when there are unobservable variables that explain the participation in the program.

There are other differences between the evaluations considered by the paper (see table 3). The time elapsed between the completion of the courses and the evaluation varied across countries, from short-term impacts in Mexico (three and six months after graduation) to medium term impacts in the Dominican Republic (where the second follow-up data was collected about two years after graduation). Also, in some cases, one cohort was used for the evaluation (in Chile those enrolled in 1997 in the top of the program's implementation, in the Dominican Republic those enrolled in 2004, in the first full-scale cohort; in Colombia those enrolled in 2005, the last cohort of the program). In Panama the universe of

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[23] Individuals with the same probability of receiving training were selected, considering pre-training variables such as employment status and previous experience besides the usual covariates (gender, education, age). A detailed analysis was done in order to compare individuals that were unemployed at time To, a given number of weeks after unemployment began, in order to incorporate some of the dynamics.

[24] More formally, the assumption is that the evolution of outcomes in the untreated state is independent of program participation conditional on pre-treatment characteristics.

beneficiaries were all trainees (the program was implemented very slowly and thus it had only trained about a thousand individuals at the time of the analysis, in 2005). In Peru and Mexico several cohorts covering a long period were used (1996-2005 if the former and 1998-2004 in the latter).

4. Results

a. Evidence from the Experimental Evaluations

The Dominican Republic

In the first evaluation based on a random design in Latin America, Card et al. (2007) do not observe program impacts on participant employment rate: at the time of the follow-up survey 57 percent of individuals in treatment group were employed versus 56 percent of those in the control group. The results from the reweighted comparison confirm this finding. When the authors disaggregate the results by gender, age, education and region they find a pattern of uniformly statistically insignificant impacts on participants' employment rates. Nevertheless, the point estimates are positive and economically significant for the youngest age group (17-19 years old), and for those in the East and Santo Domingo regions.

While the main focus of the *Juventud y Empleo* program was on employment, it is also interesting to consider the effects of the program on earnings. To explore these effects, the authors begin by looking at monthly labour earnings and hours per week and show that for total monthly labour income members of the treatment group have monthly total labour earnings which are RD$484 (or 17%) higher than the control group. While this is a large effect, it is imprecisely estimated, reflecting the small samples sizes and the underlying variability in earnings. Examining various subgroups, the estimated earnings impacts are larger for the youngest age group and for residents of Santo Domingo –and the impacts are only statistically significant in Santo Domingo when they analyze the re-weighted differences. The impacts also seem to be larger for those with some secondary education (a 21 percent impact versus a 9 percent for people with only primary education). The evidence of a modest impact on earnings per month (conditional on employment) is economically significant, and large enough to potentially offset the costs of the JE training in about 2 years, if the impact persisted.

The data for the original evaluation of the program in the Dominican Republic used by Card et al. (2007) was collected in 2005. However, in 2006 new data was collected for a slightly larger sample (1111 treated and 750 controls in the second survey, versus 786 and 563 in the original survey). The most salient preliminary findings from this data are the following. First, an analysis of the employment dynamics shows that the impact on employment was positive for about ten months, starting just after the first survey was completed. Second, the findings of large formal/employment effects and positive impacts in Santo Domingo and in the East are corroborated. However, the finding of positive earnings impact was not corroborated (for earnings it was not possible to reconstruct monthly wage data, so we can only compare the results at the time of the two surveys).

Colombia

Atanasio et al. (2008) find that being selected into the training offered by *Jóvenes en Acción* had widespread and large effects on women, but fewer and less pronounced effects on men. In particular, they report that women offered training are more likely to be employed and work more days and longer hours. In particular, being offered training increases paid employment by about 14 percent and increases days and hours worked by about 11 percent. The monthly wage and salary earnings of women offered training are about 18 percent higher than those of women not offered training. Moreover, the likelihood of being employed in jobs that offer non-wage benefits and of having a written contract is five percentage points higher for women offered training. In fact, the gains from training seem largely linked to employment in the formal sector, as wage and salary earnings gains after training are only linked to those in the formal sector but not for informal sector workers. Men also benefit from being offered training, but the effects for men are more limited (8% increase in wages). An interesting finding is that training has stronger effects on earnings and employment, the greater the intensity of on-the-job training. By contrast, the returns to training are not related to hours of classroom training, nor were they related to whether training was provided by a for-profit or non-profit training institution. Attanasio et al. (2008) do a cost-benefit analysis assuming the training impacts on earnings are maintained for forty years, and applying a

discount rate of 2 percent find that total costs of training are 1/8 of lifetime benefits, concluding that "on this basis the training program is a great success".

Panama

The results from the natural experiment analyzed by Ibarrarán and Rosas (2007) show that there is a five percentage point difference in employment rates between the treatments and controls (47% vs. 42%). However this difference is not statistically significant. The results suggest that there is heterogeneity of impacts. The *PROCAJOVEN* program has a significant effect on employment rates and labour earnings for women (44% for treatment and 32% for controls) particularly on those living in Panama City (47% for treatments, 32% for controls).

The program had two training modalities,[25] but the general effects are similar. Although there are no discernable impacts on wages, the employment effects imply that the cost of the courses –excluding the transfers—is recovered in about a year. On this dimension there is also variation, for the recovery time for women in the transition modality is only three months.

b. Evidence from the Non-Experimental Evaluations

Peru

Díaz and Jaramillo (2006) report estimates that suggest that there are positive and statistically significant of job training on paid jobs and formal employment probabilities, and on monthly earnings for all the cohorts analyzed. In terms of heterogeneity, the authors find that female youngsters and 16-20 year old males and females seem to benefit more from the job training. In general, these groups exhibited higher impacts on the probabilities of having paid employment, formal jobs and monthly earnings than their male and 21-25 year olds counterparts. The analysis finds that, overall, the positive effect of *ProJoven* on real monthly earnings was extremely high during the first public call, that the impacts decreased from the

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[25] The first modality, called insertion modality, provides short-term training for the low-income unemployed youths 18-29 years old. Classroom training has two parts, job readiness skill and technical training (120 and 150 hours, respectively), followed by 172 hours of internship in a firm. The second modality, called transition modality, focuses in the transition for the first-time job seekers with complete secondary education, providing job readiness and a longer internship (344 hours).

first to fourth (1996-1998) public calls and finally rebounded and grew from the sixth to eighth (1999-2000) calls presenting a U-shape. Despite international evidence on this sort of training programs, the authors argue that the program has high positive impacts in terms of earnings. Estimates suggest that program impacts on monthly earnings and on censored monthly earnings (considering those not working with earnings equal to zero) are unreasonably large when compared to international evidence. Using a cross-section estimator[26] they find much lower program effects but still are well above 12 percent, and as high as 30 percent. They argue that, at least in part, this is the result of the match between courses design and real labour demand requirements in the labour market, and that beneficiaries must be hired for their internships under Youth Labour Training Agreements, which provide better job conditions and pay.

Argentina

Alzua and Brassiolo (2006) find that the job training program did not have statistically significant in terms of the probability of employment. In some cases, some positive impacts are documented for women, but the authors cannot discern if this is the result of the program or if it can be attributed to the specific conditions in the labour markets for this subgroup. However, significant positive effects of program participation on the quality of employment were found –increasing the adjusted likelihood of formal employment by 5-10 percentage points, which the authors consider remarkable in a context of increasing labour informality in the country (overall formal employment for females was around 15%). Finally, the effect on income is not statistically significant.

Mexico

Delajara et. al (2006) provide evidence of a positive effect of job training on salaried employment. The effect on self-employment is inconclusive. The authors find evidence of small positive wage effects for salaried workers and positive (but of varying size) for self-employed workers according to the selection method. This effect contrasts with always negative wage effects according to the method of propensity score matching. These effects (ATT) are accompanied by an important change in the selection mechanism of the program,

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[26] Which is considered to be more conservative because the wage data for the difference in difference estimator is based on recollection data and thus it is prone to have more noise.

due to the institutional changes adopted in year 2002. Since then, when the school-based modality was phased-out and on-the-job training in large firms required an even larger percentage of hires, the general and the salaried employment effects of the program became larger than in previous years. The self-employment effect, however, remained negative. The employment effect for the self-employed has both positive and negative impacts depending on the method and the year of analysis. The main conclusion is that the program has a robust positive employment effect, particularly since 2002, under both methods and for all types of employment.[27]

Chile

Aedo and Pizarro (2004) analyze three outcomes of interest: labour income, probability of employment, and probability of employment in the formal sector. The analysis is done by gender and age (those under and over 21). For income, the impact is large in the cross-sectional analysis (comparing beneficiaries and non-participants after the course, about 30%) for young trainees, but not for adults. The difference-in-difference estimator shows point estimates of similar magnitude, but with low levels of statistical significance. The probability of employment shows similar patterns: the difference-in-difference estimator is close to 30 percent, and it also significant mainly for young men and women. As for the probability of finding a job in the formal sector, the overall value is 18 percent and it is statistically significant; however, this is due to the strong effect on young men (40%) and in young women (17%). For adults, the effect is negligible.

c. Summary

Table 3 summarizes the findings from the impact evaluations. There are few general patterns. Overall the employment effects range from null in Argentina and the Dominican Republic to significant in Panama, with positive effects present in most countries. There is heterogeneity within countries, with higher and significant effects for some groups such as women in Colombia and Panama. Projects in Panama and the Dominican Republic show significant regional variation. In most cases there is a larger and significant impact on job

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[27] An interesting extension in the Mexican case analyzed the impact of a program that consisted in monetary transfers without any training, targeted to unemployed with previous experience in the formal sector, with the goal of helping them to find a job in the formal sector by providing some cash for the job-search process. The

quality (measured by getting a formal job, having a contract and/or receiving health insurance as a benefit).

Table 3. Summary of Findings: Labour Market Impacts of Job Training Programs

	Employment Rate	Formality	Wages
Dominican Republic	None, higher (5-6%) but not significant in the East & Santo Domingo	Health-insurance 9% higher for men (43% vs 34%)	17% (marginally significant), larger for males under 19
Colombia	5% for women, none for men	6-7% for women; 5-9% for men	22% for women, 10% for men
Panama	Overall not significant 10-12% for women and in Panama City	Overall not significant, probably higher outside Panama City	Overall negligible, large for women (38%) and in Panama (25%)
Peru	Large, 13% (much higher for women --20% than for men --negligible)	Large: overall 11% , 14% women, 5% men.	12 - 30%
Argentina	0% - 11%, 10-30% for youngest (<21)	0% - 3%, 6% - 9% for youngest in one cohort	No significant pattern
Mexico	Overall, no clear pattern; on-the-job training robust positive effects (12-30%)	Positive effects (10-20%) since 2002	No consistent patterns, at best small and mostly not significant
Chile	18-22% larger for youngest groups	15-23% larger for youngest groups	22-25%, imprecisely estimated

Note: employment figures show differences in percentage points vis-à-vis the comparison group, while the wages refer to percentage differences. Significance refers to statistical confidence, significant denoting 5% and marginally significant denoting 10%.

5. The employability model

As Calderón-Madrid (2006) argues, most of the evaluations of labour training programs in developing countries do not consider the effects of programs on employability. However, most of the programs in our sample specify "increased employability" as an objective of training. One interpretation of this concept is that training would raise the probability of moving from non-employment to employment, and lower the probability of moving from

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results –available from the authors of this survey upon request—suggest that, for those with previous formal sector experience, the monetary transfer helps more in terms of helping them avoid the informal sector.

employment to non-employment. Building on this interpretation, Card et al. (2007) developed a simple dynamic model of monthly employment outcomes in the Dominican Republic evaluation, to determine whether participating in the program had an impact on these probabilities. They also use a similar model to examine the effects of the program on transitions into and out of jobs with employer-provided health insurance. In this section we present the model and show its results for Panama, Argentina and the Dominican Republic, that are the only cases were the data allowed for such analysis.[28]

The basic analysis from the evaluations examined the impact of the program at the time of the follow-up survey. In this section we focus on employment dynamics, specifically monthly employment outcomes for a given period. This requires to limit the sample of treatment group members to those that finished or dropped out of the course on or before the beginning of the period. This creates a "balanced" panel of individuals for whom we observe monthly employment status.

Model

The model consists of two parts: one for the person's employment status in "month 1" – which we interpret as a period just after the end of training – and another for the rate of employment transitions over the next months.[29] In this setting, the program has two types of potential effects: an effect on employment status in month 1, which could be negative if training takes someone out of the labour force, and an effect on the subsequent transition probabilities.

To proceed, let y_{it} represent the employment status of person i in month t, let X_i represent a set of observed baseline covariates for individual i, and let T_i be a dummy indicating i's program status ($T_i = 0$ for a control group member and $T_i = 1$ for a program group member). Also, let k be the number of months for which the analysis is done. The statistical problem is to develop a model for

$$P(y_{i1}, y_{i2}, \ldots y_{ik} \mid T_i, X_i) = P(y_{i1} \mid T_i, X_i) \times P(y_{i2}, \ldots y_{ik} \mid y_{i1}, T_i, X_i).$$

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[28] Note that the analysis for Argentina was not part of the analysis commissioned by OVE, it was done in-house by OVE.

[29] Some of the issues in specifying treatment effects in a dynamic setting are described in Ham and Lalonde (1996) and Card and Hyslop (2005).

In the absence of the program we assume that in months 2 thru k, the probability that person i is employed in month t depends on unobserved heterogeneity represented by a random coefficient αi[30], on a linear trend (capturing any linear trend in employment[31]) on the X's, and on employment status in the previous month:

$$P(y_{it}=1 \mid y_{it-1}, T_i=0, X_i, \alpha_i) = P(\beta_0 + \beta_1 t + X_i\beta_x + \lambda y_{it-1} + \alpha_i + e_{it} \geq 0);$$

where e_{it} is a logistic random variable that is i.i.d. over time and across people. This implies that

$$P(y_{it}=1 \mid y_{it-1}, T_i=0, X_i, \alpha_i) = \text{logit} (\beta_0 + \beta_1 t + X_i \beta_x + \lambda y_{it-1} + \alpha_i);$$

where $\text{logit}(z) = \exp(z)/(1 + \exp(z))$ is the logistic distribution function.

For people in the treatment group we assume that exposure to treatment potentially increases "employability". This is captured by two treatment effects: a potential increase in the probability of being employed in period t if the person was not working in period t-1 (i.e., an increase in the rate of moving from non-work to work), and a potential increase in the probability of being employed in period t if the person was working in period t-1 (i.e., an increase in the rate of job retention). Formally, we assume that

$$P(y_{it}=1 \mid y_{it-1}, T_i=1, X_i, \alpha_i) = \text{logit} (\beta_0 + \beta_1 t + Xi \beta_x + \lambda y_{it-1} + \varphi_0(1-y_{it-1})$$
$$+ \varphi_1 y_{it-1} + \alpha_i) .$$

The parameter φ_0 represents the effect of the program on the probability of moving from non-work to work, while φ_1 is the effect on the probability of job retention.

The model assumes that the distribution of the random effects can be approximated by a point mass distribution with a small number of mass points (3). Thus, α_i is a random variable that takes three values $\{\alpha_1, \alpha_2, \alpha_3\}$ with probabilities $\{\pi_1, \pi_2, \pi_3\}$. The model jointly

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[30] Under random assignment, the distribution of the random effect is the same in the treatment and control groups. This holds for the analysis in the Dominican Republic –for which the model was developed—as well as in Panama. The analysis was also done for illustrative purposes for Argentina, where this assumption does not hold.

[31] This linear trend was observed in the Dominican Republic, for which the model was originally applied to.

estimates the location of the mass points and their probabilities.[32] Finally, it is assumed that the probability that the individual is employed in month 1 is given by

$$P(y_{i1}=1 \mid T_i, X_i, \alpha_i) = \text{logit} (\gamma(\alpha_i) + \mu X_i \beta_x + \delta T_i) ;$$

where $\gamma(\alpha_i) = \gamma_j$ (for j=1,2,3) represent unrestricted constants for each point of support of the random effect, μ is a scalar parameter that "rescales" the effects of the X's in the initial conditions probability model, and δ represents the treatment effect on the probability of employment in month 1.

For two cases – the Dominican Republic and Panama – we fit the dynamic model to both monthly employment outcomes in the period after the completion of training, and to monthly indicators for whether the individual was employed and receiving employer-provided health insurance. The latter is a simple but useful measure of job quality. For Argentina, we did not have access to data on health insurance status. However, data for participants in the second and third rounds of the Argentinean evaluation are available over a substantially longer post-training period (23-29 months after the date of entry into training) providing a unique opportunity to assess the longer run effects of the program on employability.

Results

For the Dominican Republic (annex table 1), Card et al. fit a number of versions of this model to the sequences of monthly employment outcomes of the treatment and control groups, including models without any covariates, and other specifications with controls for various combinations of gender, age, education and region. Estimates from a representative specification are presented in the first column. This model includes three observed characteristics: a dummy for males, a dummy for ages 20-24, and a dummy for ages 25 and older (with the omitted category being ages 17-19). Main parameter estimates are very similar from specifications with no covariates, or with a longer list of covariates. Column 2 shows estimates from a parallel specification fit to the sequence of indicators for having a

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[32]The use of a point-mass distribution to approximate the distribution of unobserved heterogeneity was popularized in econometrics by Heckman and Singer (1984). Our model is similar to ones used in Card and Sullivan (1988) and Card and Hyslop (2005).

job with employer-provided health insurance. Given the absence of a large or systematic gap in the employment rates of the treatment and control groups it is not surprising that the estimated treatment effects for employment are small and imprecise (rows 4-6). The point estimates suggest that any treatment effect is concentrated on the job retention rate, though the t-statistic is only about 1. The estimated treatment effects for the probability of having a job with health insurance are larger, though still relatively imprecise. Training appears to have raised the probability of holding a job with health insurance during "month 1", as well as the rates of moving into a job with insurance, and holding onto such a job.

For Panama (annex table 2) the results suggest that the largest impact comes from a positive impact in the job finding rates (row 3). This is specially true for women. In Argentina (annex table 3), the results are all insignificant.

Overall, the results from these models lead to three main conclusions. First, when training has a significant positive effect on the overall employment rate (as in the case for women in Panama) the main channel is through an increase in the probability of moving from non-employment to employment. Second, when training has a marginally negative effect (as in the case for men in Panama, or for employment within the first year after training in Argentina) a key contributory factor is the effect of training on employment status in the immediate post-training period. Third, the dynamic effects of training on the probability of employment with employer-provided health insurance are generally similar in sign and magnitude to the effects on the overall probability of employment.

The finding that job training often leaves trainees in a relatively disadvantaged position in the immediate post-training period is consistent with the fact that most training internships come to an end. Although firms may offer interns a permanent job, they have an incentive to use interns as an inexpensive source of low-skilled labour, filling jobs with a series of interns and replacing them as their internships come to an end. This incentive is particularly strong when interns are costless to the firm, and when the classroom training provided to interns is of minimal value to the firm. Thus, we suspect that attempts to forge a closer link between the content of the programs and the demands of employers (as in Peru and Mexico)

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will lead to higher employment rate of trainees once training comes to an end, and a more successful program overall.

6. Conclusions

The purpose of the thematic evaluation was to determine whether the demand driven job training scheme promoted and financed by the IDB throughout Latin America has met its core objective, to increase the employability of trainees. This was done using rigorous evaluation techniques applicable, complemented with the use of identical techniques in those countries were we had access to primary data.

We find that the effect of job training on employment varies by age, gender and region. Higher employment rates areobtained, in general, among women and younger people. Conditional on employment, we find positive impacts in terms of the quality of jobs that trainees get. This is an important result in a region that is characterized by the low quality of jobs. In terms of earnings –where the data are less reliable– the analysis also suggests a small positive impact.

These results need to be put into perspective. These programs do not tackle the root causes of unemployment (nor do they, in general, claim to), and to achieve success these programs rely heavily on a positive macroeconomic context –particularly in terms of job creation. Besides, the relatively small investments done with these programs cannot be expected to have large returns: one should expect "to get what you pay for" and that is what these programs generate. In general they are cost-effective and do help to increase employability of participants. Thus, these programs have to be part of a more comprehensive labour market strategy and thus complemented by other types of programs.

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Annex Table 1: Employability Model in Dominican Republic (from Card et al. (2006)

	Employment	Employed with Health Insurance
Model Parameters		
1. Constant (β_0)	-1.99	-2.43
	(3.43)	(4.36)
2. Trend (β_1)	0.06	-0.03
	(0.02)	(0.03)
3. State-dependence (λ)	4.67	7.00
	(0.15)	(0.31)
4. Treatment Effect if Not Employed in Previous Period (φ_0)	0.03	0.24
	(0.10)	(0.20)
5. Treatment Effect if Employed in Previous Period (φ_1)	0.13	0.18
	(0.14)	(0.27)
6. Treatment Effect in Probability of Employment in August 2004 (δ)	0.07	0.18
	(0.15)	(0.27)
7. Male Dummy in Employment Model	0.73	0.71
	(0.11)	(0.27)
8. Dummy for Age 20-24 in Employment Model	0.37	0.41
	(0.11)	(0.20)
9. Dummy for Age 25+ in Employment Model	0.60	0.57
	(0.13)	(0.25)
10. Loading Factor For Covariates in Model for Employment in August 2004 ( )	1.33	1.89
	(0.26)	(0.66)
11. Log Likelihood	- 3630.7	- 1536.3
12. Total Number of Parameters	17	17
Observations	1,214	

Note: Models include point-mass random effects, with three points of support. See text. Standard errors in parenthesis.

Annex Table 2: Employability Models (Panama)

Model Parameters	Pooled Models		Models for Men		Models for Women	
	Employment	Employer Insurance	Employment	Employer Insurance	Employment	Employer Insurance
1. Trend	0.04 (0.02)	0.00 (0.02)	0.05 (0.02)	0.01 (0.03)	0.03 (0.02)	-0.01 (0.03)
2. State-dependence (λ)	4.29 (0.22)	6.12 (0.31)	3.98 (0.32)	6.24 (0.39)	4.50 (0.32)	5.82 (0.49)
3. Treatment Effect if Not Employed in Previous Period (φ_0)	0.44 (0.17)	0.41 (0.23)	0.20 (0.26)	0.35 (0.32)	0.52 (0.23)	0.51 (0.31)
4. Treatment Effect if Employed in Previous Period (φ_1)	0.29 (0.21)	-0.33 (0.32)	-0.11 (0.30)	-0.56 (0.43)	0.44 (0.29)	0.14 (0.45)
5. Treatment Effect in Probability of Employment in Month 9 (δ)	0.31 (0.29)	-0.10 (0.35)	-0.26 (0.44)	-0.26 (0.43)	0.55 (0.38)	0.38 (0.55)
6. Dummy for Panama City Region	0.61 (0.14)	0.88 (0.22)	0.69 (0.19)	0.82 (0.43)	0.51 (0.18)	0.49 (0.24)
7. Age (in Years)	0.08 (0.02)	0.04 (0.02)	0.06 (0.03)	0.03 (0.03)	0.08 (0.03)	0.05 (0.03)
8. Dummy for Post Secondary Schooling	-0.20 (0.12)	0.24 (0.13)	-0.63 (0.18)	0.03 (0.12)	0.06 (0.14)	0.43 (0.23)
9. Dummy for Female	-0.41 (0.13)	-0.38 (0.15)	--	--	--	--
10. Loading Factor For Covariates in Model for Employment in Month 9 (μ)	1.98 (0.41)	3.00 (1.06)	2.37 (0.67)	3.62 (2.00)	2.26 (0.72)	3.57 (1.98)
Observations	766		299		467	

Note: Models include point-mass random effects, with three points of support (see text). Standard errors in parentheses.

Annex Table 3: Employability Models (Argentina)

Model Parameters	Models for Months 5-11			Models for Months 23-29		
	All	Men	Women	All	Men	Women
1. Trend	0.07	0.08	0.05	0.00	0.01	-0.03
	(0.01)	(0.02	(0.02)	(0.02)	(0.02)	(0.03)
2. State-dependence (λ)	3.04	2.58	3.48	2.76	2.24	3.42
	(0.06)	(0.08)	(0.11)	(0.10)	(0.12)	(0.20)
3. Treatment Effect if Not Employed in Previous Period (φ_0)	0.02	-0.01	0.04	0.03	-0.12	0.10
	(0.05)	(0.07)	(0.09)	(0.09)	(0.12)	(0.17)
4. Treatment Effect if Employed in Previous Period (φ_1)	-0.10	-0.11	-0.10	0.07	-0.07	0.13
	(0.06)	(0.08)	(0.10)	(0.10)	(0.13)	(0.19)
5. Treatment Effect in Probability of Employment in Month 9 (δ)	-0.14	-0.19	-0.07	0.18	-0.24	0.42
	(0.10)	(0.12)	(0.13)	(0.18)	(0.22)	(0.24)
6. Age (in Years)	0.02	0.04	0.01	0.02	0.03	0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
7. Dummy for Some Secondary Education	-0.09	-0.23	0.03	0.06	-0.08	0.28
	(0.06)	(0.07)	(0.08)	(0.09)	(0.06)	(0.16)
8. Dummy for Completed Secondary Education	-0.04	0.29	0.14	0.10	-0.04	0.41
	(0.06)	(0.08)	(0.10)	(0.10)	(0.08)	(0.19)
9. Dummy for Tucumán Province	-0.12	-0.14	-0.12	-0.34	-0.09	-0.89
	(0.08	(0.10)	(0.12)	(0.14)	(0.08)	(0.28)
10. Dummy for Round 5 Intake Group	0.74	0.69	0.61	--	--	--
	(0.05)	(0.06)	(0.07)			
11. Dummy for Female	-1.09	--	--	-1.28	--	--
	(0.06)			(0.11)		
12. Loading Factor For Covariates in Model for Employment in Month 9 (μ)	1.40	1.47	1.08	1.89	4.48	1.51
	(0.11)	(0.17)	(0.22)	(0.35)	(1.48)	(0.51)
Observations	6,138	3,376	2,762	2,220	1,257	962

Note: Models include point-mass random effects, with three points of support (see text). Standard errors in parentheses.