Long Term Impact of a Cash- Transfers Program on Labor Outcomes of the Rural Youth in Mexico

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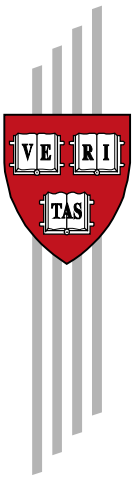

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Long term impact of a Cash-Transfers Program on Labor Outcomes of the Rural Youth

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Abstract

This paper evaluates if, after ten years of implementation, the conditional cash transfer program Progresa/Oportunidades has had an effect on labor market outcomes among young beneficiaries in rural Mexico. We use a specific module for the young aged 14 to 24 in the 2007 wave of the Rural Households Evaluation Survey and apply a multi-treatment methodology for different time exposition to the program to identify effects on employment probability, wages, migration and intergenerational occupational mobility. Our results show very little evidence of program impacts on employment, wages or inter-generational occupational mobility among the cohort of beneficiaries under study. This suggests that, despite well documented effects on human capital accumulation of the beneficiaries, labor market prospects in the localities under the program remain sparse.

Keywords: impact evaluation, intergenerational mobility, poverty, labor market

JEL: C21, D63, J24, J62, R23

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1. Introduction

The social development program Oportunidades (previously known as Progresa) has been in operation in rural Mexico since 1997. It grants cash transfers to households in extreme poverty conditional on families keeping children in school, making children and adults go health clinics, and providing nutritional supplements to pregnant women and children under three. The main objective of the program is to break the intergeneration transmission of poverty in the understanding that better nutrition, health and educational levels would lead to improving labor prospects and hence an improved household welfare. Even though the program does not have among its explicit objectives better employment or wages, it is difficult to think in breaking the intergenerational poverty cycle without considering how the young perform at the labor market after being exposed to the program, compared both to their parents and to non-beneficiary youths.

The objective of this paper is twofold. First, we explore to what extent program benefits affects labor outcomes of the young such as probability of being employed and labor earnings when employed. Second, we also seek to determine if there is an improvement in occupational position compared to their parents. Despite Oportunidades being one of the most evaluated programs in the region, this is the first impact evaluation that studies the effect of the program on labor market outcomes after ten years of implemented.[2]

Very few studies have focused on the long term effects of social programs in Latin America. This is mainly due to dearth of data containing information about the performance of beneficiaries a long time after exposure to the program. The main exception to this may be the study by Maluccio et al, 2006, which makes use of a unique database that

[2] Oportunidades is one of the most studied conditional cash transfer programs in the academic literature. Some important references are Skoufias, Parker et al (2001), Coady and Parker (2004), Gertler (2004), Behrman, Sengupta and Todd (2005), Gertler, Martinez and Rubio-Codina (2006), among others. Behrman, Parker and Todd (2011) studied educational outcomes and labor participation after 5 years of benefits. All of these studies took advantage of the experimental design and availability of panel data that characterizes the program, but were confined to short and medium term effects. After 10 years of operation of the program, the first long-term studies have started to appear. Another study, yet unpublished, on the long term impact of *Oportunidades* on labor market outcomes is by Ibarraran and Villa (2010).

identifies beneficiaries of a Guatemalan social program 25 years after exposure. More recent studies, although with a shorter time span are those by Behrman et al (2011) or by Baez and Camacho (2011) about the impact of conditional cash transfer programs on education, health and nutrition outcomes in Mexico and Colombia, respectively. If we look for studies about the long-term impact of programs on labor market performance, however, we have to rely on studies outside the region about the long-term effect of job-training programs.

Another way of analyzing long term effects is focusing on intergenerational mobility of income or occupations, or even other health/cognition variables. In this case the literature is more abundant inside and outside the region (see, just to mention a few, Behrman et al, 2005; Andrade et al 2003; and Blanden et al, 2004, 2006; Ferreira and Veloso, 2006), and for Mexico in particular (Valero and Tijerina; 2002; Mayer et al. 2008). However, these studies refer to mobility in general, and no direct link between the performance of a program and intergenerational changes in outcome variables is attempted.

Previous evaluations of the Progresa/Oportunidades program have focused on short and medium term impact on some of the outcomes. The most recent study is the one carried out by Behrman et al (2011), where they use data for those aged 9-15 in 1997 to determine the impact of the program in education achievements and labor force participation after 5 years of benefits (what they call long term). They use the first waves of the panel 1997-2003, and exploit the original randomization in localities, finding positive effects in increasing education attainment, and higher rates of working for older youth at that time. They indicate that future research should provide further evidence when the young enter maturity and better measures of long term effects of the program on labor performance can be better measured. They suggest this should be done using forthcoming panel waves of data which will include a more mature population of beneficiaries.

In this paper, we add to the literature precisely in that point. We make use of a unique database from a specific module for 14-24 year-olds in beneficiary localities included in the

2007 wave of the Rural Households Evaluation Survey (ENCEL). This survey was specifically carried out with the aim to measure how the early generations of young recipients of benefits were performing in the labor market. This dataset allows us to study the impact of the program on beneficiaries after, at most, nine years of exposure. These are beneficiaries who were between 6 and 15 year of age in 1998, when Oportunidades (then named Progresa) started and are aged 15 to 24 in 2007. This module includes a questionnaire about labor activities of the young as well as questions about their parent's labor activities when the beneficiary was 15 years old.

We make use of a regression methodology controlling for different treatment duration and with pre-program characteristics at the household and local level. We calculate the impact for short (less than 3 years), medium (3-6 years) and long (more than 6 years) exposure to the program on the probability of employment and on wage levels if employed as well as on the intergenerational occupational mobility of young beneficiaries.

This paper is structured as follows. Next section introduces the relevant literature review about long term impact of social programs and studies on labor intergenerational mobility between parents and sons. After that, we present the data and models to apply, results and finally conclusions are drawn.

2. Literature Review

This study has two important components. On the one hand it tries to measure the long term effect from receiving benefits on labor outcomes; and, on the other hand, it aims to measure if labor outcomes of beneficiaries are significantly better from that of their parents. Few studies have focused on these two. The academic literature on the long term impact of social programs on employment or on intergenerational mobility, however, is not very abundant, and is mostly for developed countries, where access to data has made possible more research on the topic.

On labor market outcomes

Human capital theory (Mincer, 1958; Schultz, 1961; and Becker, 1964) is the main theoretical support of conditional cash transfers as a welfare enhancing program. The main tenet is that higher levels of human capital (be it education, health or experience) are associated with higher probabilities of finding employment and higher wages. Investment in human capital among the poor is then promoted through conditional cash transfers with the objective of preventing poor families being unable to invest because of poverty traps, myopic behavior, or intra-household asymmetric bargaining (see, for instance, Fiszbein and Schady, 2009) An explicit exposition of the fundamentals of the program is by one of its founders, Levy (2007), who suggests that ideally Oportunidades provides with benefits all along up to finishing higher school levels, facilitating the capacities of beneficiaries to be integrated in more productive activities in the labor market. This author states that once provided with more human capital, beneficiaries are expected to get higher earnings and eventually escape poverty. Levy acknowledges, however, that how these beneficiaries insert in better labor activities depends on other economic and social strategies that are external to the program, thus outlining the need for additional policies to help beneficiaries to be more productive.

As mentioned in the previous section, there are few studies of long-term impacts of programs on labor market performance. Behrman et al. (2011) study the impact of Oportunidades on labor force participation after five years of exposure to the program, in addition to educational outcomes, and cognitive achievements, using data for beneficiaries form the original randomization in 1997 and until 2003 (what they call in their paper long term), and using a difference-in-difference strategy. They find that due to the program, there is an increase in 0.2 years of education for beneficiaries, as well as no impact on cognitive outcomes, but also a significant impact on reducing employment for boys and no significant impact for girls. Moreover, the authors find that boys, if working, are more likely located on non-agricultural activities.

Ibarraran and Villa (2010) also study the impact of this program on labor force participation for young beneficiaries only. These authors treat the duration of benefits with generalized

propensity score matching, finding than an average 14 year-old young has a higher probability of being employed if has been receiving benefits for at least three years.

Other studies regarding long term impact on labor outcomes, however, come from training programs. Long term impact of training programs in Germany by Lechner, Miquels and Wurst (2004) and by Fitzenberger and Volter (2007) find modest effects upon employment for beneficiaries of this type of programs after 7 to 10 years of exposure. Hotz, Imbens and Klerman (2000, 2006) analyzed the GAIN labor program in California, which provided with different sets of abilities to the unemployed in the short, medium and long term. They make use of experimental methods and find that providing with abilities for the labor market has a short tem effect, while provision of human capital has effect on the long run (7-9 years) on variables such as annual employment, quarters with job and wages.

On intergenerational mobility

Intergenerational transmission can be understood as transmission of individual abilities, characteristics, behavior and outcomes from parents to children (Lochner, 2008). A low correlation between parents' income and that of the children suggests higher mobility, meaning that those born with poor parents have higher probability to achieve better labor market outcomes, thus social mobility is high. The models of intergenerational mobility are based mainly on the analysis by Becker and Tomes (1979, 1986) who pose that two transmission mechanisms are possible: the first is through endowments inheritance, and the second is through the propensity of parents to invest in their children human capital. In addition, family background characteristics during childhood and adolescence such as family structure, number of children, etc. may also affect mobility. Solon (2004) introduced modifications to the previous models to take into account the role of public education in such mobility. In that case, the increase in returns to human capital together with public spending may increase mobility, if spending is focalized on developing the human capital of poor children.

In the long run, a social program such as Oportunidades, with benefits in education and nutrition, could also affect how children perform in the labor market compared to their

parents. This implies the possibility of higher intergenerational mobility in beneficiary households as compared to non-beneficiary households.

However, a series of studies in different countries, mostly in developed countries, on this topic have pointed that most of the mobility observed cannot be explained. Bladen et al (2004) find a limited mobility between generations in the United Kingdom when compared with other developed countries. They also find that more education plays an important role in improving income. Bladen et al (2006) also find that education achievements and better opportunities for poor children increase mobility, suggesting that targeting in non cognitive issues, such as self-esteem and application can induce even better results for mobility.

In other studies, Piraino (2006) shows for Italy that there is lower mobility compared to the US and the UK, produced by heavy labor regulation that hinders entering the labor market or occupational change. In Canada, according to Fortin and Lefevbre (1998), there is higher mobility than in the US and the UK, and is also higher for younger cohorts, but lower for women groups. Bladen (2005) also finds higher mobility between generations in Canada and Germany than in the US and the UK, where returns to education differences tend to persist.

Other studies have focused on less developed countries. For example, Emran and Shilpi (2011) find for Nepal and Vietnam that intergenerational occupational mobility is lower for women, the role of the mother playing a key mechanism. In Latin America, Andrade et al (2003) analyzed intergenerational mobility through income in Brazil and found that it is lower than in developed countries, mainly due to restrictions in access to credit markets. Ferreira and Veloso (2006) find something similar using wage data. Behrman et al (2001) compared mobility through occupations and education in several Latin American countries, finding coefficients of intergenerational mobility of 0.3 for Brazil, and Colombia, 0.5 for Mexico, and 0.65 for the US, meaning that Latin American countries have lower mobility than the US.[3]

[3] These coefficients are calculated from a regression where the dependant variable is income or occupation of the offspring and the main independent is he income or occupation of the parent, and the coefficient is the

In this paper we add to this literature by analyzing intergenerational occupational mobility linked to a conditional cash transfer in a developing country. In doing so, we will look for the differential effect upon some specific groups according to the educational level achieved through a focalized program intended to break the intergenerational cycle of poverty.

3. Data

The main source of data for this study is a special module of the Rural Households Evaluation Survey (ENCEL) carried out in 2007 and applied to a subsample of household members. This module consists of a questionnaire for individuals aged 15 to 24 in localities visited to survey the ENCEL in 2007 and carried out only with the purpose to analyze their labor market performance.

This specific module is a continuation of the randomized design implemented in the program starting in 1997 (see Parker and Teruel, 2005, for more details). In that year, 506 localities were selected to participate, with 320 assigned to treatment receiving immediate benefits in 1998, while 186 of the control localities started later at the end of 1999. All households both eligible and non eligible were interviewed. Evaluation surveys with detailed information on demographics, schooling, health, income and expenditures were administered to all households in both treatment and control groups every six months between 1997 and 2000. In 2003, there was a new follow-up round of the ENCEL that included eligible and non eligible households that could be located in the original selected localities, and also included a new sample in 151 new localities matching the original treatment localities added to the sample to allow for analysis in the long run, and with retrospective information about characteristics of these households in 1997. Finally, in 2007, a further follow up round of all these groups (e.g. original experimental treatment, original experimental control, and new matched comparison group) was carried out. The

intergenerational elasticity, where 1 is perfect mobility and cero no mobility at all. The mentioned coefficients are standardized by 1-coefficient, interpreted as the mobility of the offspring respect to their parents.

2007 wave also included households from localities in other states. This expansion of the sample in 2007 aimed at having information for a wider geographical area, given the expansion of the program in recent years. A problem of the sample in new states is that the information collected is not as complete as with previous waves of ENCEL. For instance, information from these new households does not include their eligibility index for the program nor some other background information.

From the 2007 ENCEL dataset of youth aged 15-24 we keep those that provide a questionnaire fully answered and who are not part of the new geographic areas included in 2007 (because background information is not available among these). Table 1 shows that out of the originally available 30,942 individuals we will only use 16,601 observations in our econometric tests because we exclude those without elegibility index, those ineligible and those with incomplete questionnaires. In addition, we also discard those who are still studying, reducing the sample to 10,166 observations. The remaining observations are distributed into treatments and controls based on whether they are on households with benefits or not, and then divided by their labor market status.[4]

Insert Table 1

When comparing, in Table 2, beneficiaries and non-beneficiaries from the ENCEL 2007 we find that the former have a larger labor force participation than the latter (58.6 and 55.2 percent, respectively), and their unemployment rates slighlty lower (3.3 and 4.0 percent).

Insert Table 2

Table 2 also shows that labor force participation is higher among beneficiaries in long and medium exposure localities (58.4 and 64.6 percent, respectively) whereas those from short exposure localities have participation rates lower than non beneficiaries (50.6 and 55.2 percent, respectively). Unemployment rates are lower for beneficiaries than for non-

[4] Annex 1 shows mean test for variables by benefit status.

beneficiaries, but the difference is largest among short-term exposure beneficiaries and non-beneficiaries (1.7 and 4.0 percent, respectively)..

Beneficiaries and non-beneficiaries have similar distribution in types of jobs. Beneficiaries have a lower share of workers with access to health insurance than non-beneficiaries. Non-beneficiaries, on the other hand, have a bit lower incidence of agricultural employment (see Table 3).

Insert Table 3

In analyzing the characteristics of the employed (see Table 3), medium exposure localities have the highest share of salaried workers (80 percent), and the lowest share of agricultural workers (29 percent), while also have the highest rate of workers with access to health insurance services (9 percent). Whereas localities with long exposure have the lowest share of salaried workers (72 percent), of workers with access to health insurance services (4 percent) and the largest share of agricultural workers (51 percent).

Regarding intergenerational mobility, in this text we only present mobility corresponding to occupations. Other labor characteristics such as having an informal job could also be used here; however, the dynamics of jobs is very high in Mexico (around 30 per cent of workers change from formal to informal or vice versa in any given quarter). In addition, some authors argue whether a formal job is better or not than an informal job after taking into account preferences and other aspects.[5] Instead, we classify occupations into eight categories where category one requires lower abilities, while category eight, the higher, requires more abilities.[6] Next table introduces a summary of results for transition matrices for father and offspring occupations.[7]

[5] See for example Studies by Maloney (2004) and Rodriguez-Oreggia (2007) about transitions between formal and informal Jobs; as well as the argument by Levy (2007) on the context of Oportunidades and jobs.
[6] In Annex 3 there is a description of how the categories were built.
[7] Those in the main diagonal of the occupational transition matrix are catalogued as in the same occupation, those above the diagonal are in higher occupation, while those below are in lower occupation. For brevity of space we only present the general results, but below we present the impact for males and females separately.

Insert Table 4

In comparing the occupation of the offspring with that the of father, we can note that 44.1 percent of the young remain in a similar occupation than the father, while 39.8 percent move to a more qualified occupation, and only 16.2 percent get a lower skilled occupation. Dividing the sample, beneficiaries have a higher share of mobility into higher occupations , and also lower share of transitions into lower occupations, than non beneficiaries. Among beneficiaries, youth with long term benefits show a higher share in higher occupations than parents when compared with medium and short term beneficiaries. Medium term beneficiaries display higher shares in lower occupations than the other beneficiaries.

4. Empirical Strategy

A long-term impact evaluation may take two perspectives. On the one hand, it may compare treatment and control groups a long time after the former received the treatment. On the other hand, it may compare the long term versus the short term impact for the treatment group, thus gauging if the impact either wears off or intensifies. In our case we adopt the first approach, mainly because by 2000 or 2003 (previous waves of the Oportunidades panel data that could be used for gauging its short term impact) most of our sample would be too young to be labor market participants. In addition, we define four comparison groups. The controls are those who are eligible for treatment but, for some reason, have not received the benefit.[8] Among the treated, we distinguish three groups

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The percentage in the case of occupation one or with lower skills, there is lower share for females tan for males. In the case of females, it could be argued we should compare them with their mothers, but we only have very few observations to make these comparisons. Thus, higher mobility could be here due to the difference in occupation between females and their fathers in the rural context. However, comparing daughters with fathers need not be misleading. For example Hellerstein and Sandler (2011) show how, in the USA, occupation of the fathers have affected the occupational choice of the daughters, and not necessarily the one of the sons in recent decades.

[8] The successful expansion of Oportunidades made that by 2003 the ENCEL ran out of control observations. Hence, the 2003 wave included new observations as controls. Our study controls are observations that were included in the 2003 wave of ENCEL and by 2007, despite the continued expansion of the program, have not yet been included in it. As shown in Table 1, out of the 16,601 eligible observations, 2,994 were still not beneficiaries of the program by 2007.

according to exposure to the treatment: less than three years of treatment, between three and six years of treatment and more than six years of treatment. Duration of the treatment is defined by time since the program has been working in a given locality.[9] We distribute the localities by long term exposure (six and more years since entrance), medium term exposure (three to six years of entrance) and short term exposure (less than three years since entrance).

A conditional cash transfer program like *Oportunidades* may affect, and it is usually designed to do so, several human capital characteristics of its beneficiaries. For modeling this various impacts, we assume that personal characteristics and treatment to the program (and its duration) are exogenous variables, while human capital accumulation (i.e., nutrition, health and schooling), migration decision and labor market outcomes are endogenous variables. We can then argue that the impact of *"Oportunidades"* upon employment outcomes of beneficiaries can be represented by a three equation model:

The first equation states that labor outcomes **L** (say employment or wages) are a function of the treatment to a program (**T**), the human capital variables of the individual, in particular schooling, health and nutrition (sitting in vector **S**), migration (**M**) and other personal, household and locality characteristics (all sitting in **X**). Given that human capital is an endogenous variable we need to posit the second equation which states that, say schooling, but it could also mean health or nutrition, depends on personal characteristics and treatment to the program. Finally, migration is also an endogenous variable that is associated to treatment, schooling and other characteristics.

[9] A dataset of administrative records specifying the treatment duration for each beneficiary was still under construction by the time this study was done. Hence, we assume that treatment duration of a beneficiary equals the duration of the program in his/her locality. We adopt this proxy because, usually, all eligible beneficiaries are included when the program enters a locality. However, some individuals reporting being beneficiaries could have been beneficiaries for less time than the locality. Some individuals might have dropped the program, others may enter the program with delay. Only the future availability of complete administrative records will allow for a more precise definition of exposure duration.

If we accept that this system represents the workings of the program, and assuming that treatment is uncorrelated to any of the characteristics sitting in X, then the effect of the treatment on labor outcomes is:

The first term to the right represents the sole direct impact that treatment may have on labor outcomes, the second term the effect of the treatment through its impact on human capital (schooling) and the third term the effect through the impact of the program on migration which is also affected by the impact of the program on schooling.

A thorough answer to the question on the impact of the treatment on labor markets would require a disentangling of these effects through the estimation of a multi-equation system. However, we face a serious limitation to address this task. We do not have labor market information of beneficiaries (and controls) who have migrated, therefore we cannot estimate the program impact upon labor market through migration (the third component).

Instead, we adopt a two-pronged strategy. First we estimate a model of migration to try to elucidate if the program has an impact on the probability of migrating (the term in brackets). Using experimental panel data and controls for initial conditions we estimate a linear model of the probability of individuals in the panel wave of 2003 to be found in the wave of 2007. This first part aims at answering the question of whether Oportunidades beneficiaries are more likely to migrate than non-beneficiaries. Second, we estimate a single equation model on the impact of the program on other labor market outcomes. Using experimental panel data from ENCEL in 2007 and controls for initial conditions we estimate the impact of the program on employment, wages and occupational mobility for individuals who remain in their original localities.

Following the canonical impact evaluation literature, we aim for the average effect on the treated (ATET). Formally:

where $Y_{it}(1)$ represents the value under treatment of the variable of interest (e.g. employment, wages, etc.) for individual i in period t; $Y_{it}(0)$ is the value without treatment and Ti=1 is an indicator of the ith person receiving treatment. Using a regression approach for estimating ATET (see Wooldridge, 2008), a reduced-form (instead of multi-equational) model for labor outcomes would be:

$$E\left[Y_{2007}\middle|T,S,M,X\right]=g\left(\alpha+\sum_{i=1}^{3}\beta_i T_i+S\gamma_s+M\delta_M+X\lambda_X+\sum_{i=1}^{3}T_i S\beta_{si}+\sum_{i=1}^{3}T_i M\beta_{Mi}+\sum_{i=1}^{3}T_i X\beta_{Xi}\right)$$

Where, as before, Y is the labor outcome of the young (e.g., wages) in 2007; T_i is a set of dummy variables with three different treatment durations (short, medium and long), S is a vector of variables describing the individual human capital accumulation, X is a set of variables describing the personal, household and localitiy characteristics. M would indicate migration status.[10]

In order to deal with the issue of endogeneity in both selection and duration to treatment, we have three main arguments. First, we assume that the remaining non-beneficiaries are the experimental controls introduced in the 2003 wave of the panel and are still valid controls (as used also in other evaluations such as Behrman et all, 2011). Second, to address the possible endogeneity of why these individuals were not induced to the program despite being elegible, we use pre-treatment information as controls and interact them with the dummies of length of duration in locality derived from the original randomization and subsequence entrance of the program.[11] Third, we assume that the rolling of the program over the Mexican geography was defined by budgetary expansions and the chosen localities were all similar (see Parker and Teruel, 2005). In any case, we will only make use of data

[10] In Annex 2 there is a description of all the control variables.

[11] Another source of selection bias may be due to migration. Only a subsample of the beneficiaries observed in 2003 are again surveyed in 2007. Migration out of Oportunidades localities is an important phenomenon that we address in section 5.1.

that provide household and locality characteristics before receiving treatment, and always control for these pre-treatment characteristics.

However, as explained above, our available sample provides no information about actual duration of the benefits for each beneficiary. We use instead program duration in each locality as an indicator for household treatment duration.[12] Moreover, we will treat migration in a separate model with a different dataset. Thus, the simplified model is [13]:

$$E\left[Y_{2007}\middle|L,Z,X\right]=h\left(\alpha+\sum_{i=1}^{3}\beta_i L_i+S\gamma_S+X\delta_x+\sum_{i=1}^{3}\beta_{Si}SL_i+\sum_{i=1}^{3}L_i X\beta_{Xi}+\varepsilon\right)$$

where L_i is a binary with 1 if the individual "i" is a beneficiary and lives in a household of a locality where the program arrived less than three years ago, between 3 and 6, or more then 6 years (i=1,2,3). The marginal effect of being treated, assuming a linear function for notational ease, is then:

$$\frac{\partial E\left[Y_{2007}\middle|L,S,X\right]}{\partial L_i}=\beta_i+S\beta_{Si}+X\beta_{Xi}$$

Namely, the effect of being treated, if significant, may vary by duration of the treatment (coefficient β_i) and by human capital characteristics of the treated (coefficient β_{Si}) or by other personal, household and locality characteristics (coefficient β_{Xi})

We apply this specification to four different outcome variables: migration (using a different dataset), employment, wages (if employed) and intergeneration occupational mobility. In the cases of migration and employment a logit model is estimated, whereas in the case of wages a linear regression is estimated. In the case of intergeneration occupational mobility

[12] See footnote 9.
[13] We tried fully interacted specifications, but many of the interactions could not be identified in the regression. Hence we restrict to the specification to interactions between treatment duration (vector L) and personal characteristics (vector Z).

we use an ordered probit model, where the dependent variable is the ordered ranking of observations described in the transition matrix of the foregoing section: upward mobility for those observations above the diagonal; no mobility for those on the diagonal; and downward mobility for those below the diagonal. The explanatory variables included in this latter model are the same than in equation with some additional parents' characteristics.

5. Results

5.1. Effects of treatment on migration

Only 64 percent of the children in the 2003 wave of the ENCEL survey could be identified in the corresponding age cohort of the 2007 wave of the survey. Arguably, most of these missing data are individuals who migrated out of their original Progresa/Oportunidades localities. Unfortunately, the 2007 module of ENCEL did not follow those migrating, thus we cannot estimate how they perform in the labor markets after being exposed to the benefits of the program for some time. The results presented in the sections below will include, as we have mentioned, only those young that remain in the localities where they received benefits. This may introduce selection bias since those that have migrated may not be a random selection of the population and , being in a different locality , it is possible that they may be performing differently than those surveyed by the ENCEL 2007.

In order to know the extent of the attrition and possible bias due to migration, we have taken the ENCEL round 2003 and identify those that have been interviewed in 2007. We use this information to run a model where the dependent variable is 1 if the young has not been observed in the 2007 survey (assuming she migrated between 2003 and 2007). The explanatory variables are taken from the 2003 survey, including individual, household and localities characteristics. What we are calculating here we interpret as the probability that the program Oportunidades has affected the decision to migrate between 2003 and 2007. Table 5 presents the results.

Most of the results presented in Table 5 are not statistically significant, even after considering gender. The only exception is for beneficiaries with primary education in 2003 in localities that were in the program since it started in 1997. Results indicate that beneficiaries with primary education and long term exposure to the program were less likely to migrate. This may be the consequence of individuals continuing their education towards secondary, thanks in part to the program itself, and not deciding to migrate.

Insert Table 5

The program has no extra marginal effect on migration for those young individuals. If something, it has discouraged migration in the case of those with primary education in so-called long-term treatment localities.[14]

5.2. Labor outcomes of the young

Here we compare the labor market performance of those young who are in a household that benefitted from the program to those who being eligible did not receive the benefits (controls). For labor outcomes we have two measures: first if the young is working and, second, if he/she is working, his/her labor income.

The probit estimates for the impact of treatment upon probability of being employed are in Table 6. From all those young in our sample that are not studying (10,166) only 5,884 are working. It can be noted that the effects of different treatment durations are mostly positive, although none is statistically significant. After separating the sample by gender of the beneficiary, the sign of the impacts changes a little but all coefficients remain not statistically significant. If, in addition, we control by education level we usually find that

[14] Behrman et al (2011) use a weighting method to correct for sample attrition between their evaluation of 1998-2003 results for schooling and labor participation. They use observable variables to calculate attrition between both years and calculate ratios for post program observations to have same initial distribution. In our case, the module of young is only applied to a subsample of households in the original ENCEL and the labor questionnaire module is only applied in 2007, all of which makes more difficult to weight those missing from the original sample. Furthermore, weighting may not necessarily improve results, but make them worse as found in the case of education or mobility by Vandercasteele and Debels (2007).

medium and long term treatments have a positive marginal effect but, again, no statistically significant effect is found.

Insert Table 6

What can be suggested from results in Table 6 is that once we control for other variables, there is no effect from different time exposure to the program on producing additional probability of being employed. Given the well documented impact of the program on increasing the education of beneficiaries (see, for instance, Skoufias and Parker, 2001), our results indicate that the program affects the probability of being employed only to the extent that increases the probability of being with more education. Being exposed to Oportunidades, does not increase nor decrease the probability to get an employment beyond the effect that a given education level already has.

Table 7 shows the estimates for the impact of the program upon wages. In this case, we use a sample of 4,121 individuals with reported income, 3,291 of whom have been beneficiaries and 830 were not. In this case, we find some statistically significant effect but the results vary by gender. There is a positive and significant effect from long term treatment on males with primary and secondary education, of 12.6 and 14.6 per cent respectively, compared to non beneficiaries with same education levels (the effect is non-significant among males with high school). For women and men in localities with medium term exposure, the results are negative and significant for all education levels. Assuming that labor market characteristics in different localities have been adequately controlled by other variables, these results indicate that favorable impacts, at primary (12%) and secondary level (14%), are obtained only for males and after long term exposure to the program. The lack of significance for short terms benefits, as well as the negative results for medium term in all educational levels, indicates in any case that to achieve better results in terms of labor income, it would be better to get the benefits of the program in a long run period.

Insert Table 7

5.3. Intergenerational occupational mobility

Table 8 shows these results for the effect of different lengths of exposure to benefits on moving upward in the occupational scale for all the sample, and dividing for males and females.

Insert Table 8

The direct effect of the program with all the sample is always positive and increasing in duration of exposure. However, those impacts are not statistically significant, which means that we cannot suggest there is any upward/downward mobility effect derived from the benefits of the program compared to those who had not received the benefits. The differential impact by educational levels is also positive and increasing as education and time exposition to benefits also increase. However, there is no statistical significance neither in this group of calculations. In the case of males, general effects are negative although not significant. Separating the effects for education levels, results are negative but also not significant.

Although in general these results for females are not significant either in most cases, it is so for those women that had received benefits for a short term (less than three years). In this case, these women have between 34 and 38 per cent probability of moving to an upward occupation when compared similar women that have not received the benefits. Differential effects by educational level are also no significant.

These results indicate that, with the exception of female beneficiaries under short term treatment (i.e., newer localities in Oportunidades), the program does not appear to have an impact on intergenerational mobility. This may be basically due to a local context of low dynamic for generating quality employments or opportunities.

There are some caveats to this intergenerational analysis (as well as to previous results regarding employment and wages) that make these results to be read with caution. There is a limitation in the sense that we only have a sample for households in rural poor localities

covered by the program and thus generalization is limited. Moreover, as we only have in the sample those young not migrating but remaining in such localities and in their households, findings are only applicable to them. It is feasible that intergenerational mobility operates only after the child migrates to another locality where employment opportunities are more varied than in her parents' locality. Without further data from these migrants these hypothesis cannot be tested in this study.

6. Conclusions

Our results shows that, after ten years of implementation of the Oportunidades social development program in rural areas, the impacts on employment, wages and inter-generational occupational mobility among the cohort of beneficiaries aged 14-24 in rural areas in 2007 seem rather limited. No significant effect is found regarding the probability of being employed, and only a positive effect in wages among males exposed at least six years to the program. These results indicate that, given our model specification, being exposed to Oportunidades does not increase nor decrease the probability to get an employment beyond the effect that a given education level has. In other words, the impact of the program operates only via the increase in the level of education of the beneficiary. No further impacts are identified. In the case of wages, there is some evidence that long-term male beneficiaries earn more than non-beneficiaries at primary and secondary level, but short and medium term beneficiaries show either no difference or even lower wages than non-beneficiaries.

Regarding occupational mobility, after controlling for other variables, positive impacts remain statistically significant for women that have received short-term treatment to the program. These are the only ones that show evidence of higher likelihood to experience upward occupational mobility. No other group shows a significant impact of the program upon intergenerational occupational mobility.

Despite its importance, these limited results should be taken as preliminary and only indicative due to the limitations of the study. First among these limitations is the fact that the sample consists only of those young workers that have not migrated and remain in their households in poor rural localities where the program operates. Since the program is not designed to produce a direct impact on local demand for labor or on productive activities that may generate local growth or jobs, finding no impact on employment or wages may suggest that despite the youth having more education, labor markets opportunities in these marginal localities are still very limited for them. To what extent the young that migrated to other areas are better off due to the program is something to analyze in future research with a survey designed for that purpose and following those beneficiaries who migrated.

Another important limitation is the use of duration of the program in a given locality as a proxy for treatment duration of the beneficiary. Although it can be argued that this is a good proxy, the actual characteristics of implementation of the program in the field may render some differences between the duration of the program in a given locality and the treatment duration of a given individual. Administrative records with these data will allow for a more parsimonious specification of the models and hopefully less prone to bias results.

In any case, our results hint at a new challenge for conditional cash transfer programs like Oportunidades. The accumulation of human capital may not guarantee better earnings if labor market conditions are not favorable. This study indicates that more knowledge is needed regarding the implications of this type of programs on migration and labor market performance of beneficiaries. The final impact of Oportunidades on earnings and standards of living depends not only on human capital accumulation but how this translates into employment and wages depend upon labor market opportunities of the locality where beneficiaries live.

References

Andrade, E., Veloso, F., Madalozzo, R., and Ferreira, S. (2003). Do borrowing constraints decrease intergenerational mobility? Evidence from Brazil. Ibmec Working Paper. Sao Paolo, Brasil.

Baez, J. E. and A. Camacho (2011) "Assessing the long-term effect of conditional cash transfers on Human Capital: Evidence from Colombia" World Bank Policy Research Working Paper, No.5681

Becker, G. (1964). Human capital: A theoretical and empirical analysis with special reference to education. Washington, NBER.

Becker, G. and Tomes, N. (1979). An equilibrium theory of the distribution of income and intergenerational mobility. Journal of Political Economy, 87, 1153-1189.

Becker, G. and Tomes, N. (1986). Human capital and the rise and fall of families. Journal of Labor Economics, 4, S1-S39.

Behrman, J., Gaviria, A. and Székely, M. (2001). Intergenerational mobility in Latin America. IADB Research Department Working Paper 452. IADB, Washington.

Behrman, J. Sengupta, P. and Todd, P (2005). Progressing through Progresa : and impact assessment of a school subsidy experiment in rural Mexico. Economic Development and Cultural Change, 54(1), 237-275.

Behrman, J. Parker, S. and Todd, P (2011). Do conditional cash transfers for schooling generate lasting benefits? A five-year followup of Progesa/Oportunidades. Journal of Human Resources, 46, 93-122.

Blanden, J. (2005). International evidence on intergenerational mobility. Centre for Economic Performance, LSE, London.

Blanden, J., Goodman A., Gregg, P., and Machin, S. (2004) Changes in intergenerational mobility in Britain. M. Corak (ed) Generational Income Mobility in North America and Europe. Cambridge University Press, Cambridge.

Blanden, J., Gregg, P., and Macmillan, L., (2006). Accounting for intergenerational income persistence: Non-cognitive skills, ability and education. Center for the Economics of Education Discussion Paper, London.

Coady, D. P. and Parker, S. (2005). Program participation under means-testing and self-selection targeting methods . FCND Discussion Paper, Washington.

Emran, M.S., and Shilpi, F. (2011). Intergenerational occupational mobility in rural economy: Evidence from Nelap and Vietnam. Journal of Human Resources, 46(2), 427-457.

Ferreira, S. and Veloso, F (2006). Intergenerational mobility of wages in Brazil. Brazilian Review of Econometrics, 26(2), 181-211.

Fitzenberger, B. and Volter, R (2007) "Long-Run effects of training programs for the unemployed in East-Germany" Center for European Economic Research, Discussion paper 07-009

Fiszbein, A. and Schady, N. (2009). Conditional cash transfers: Reducing present and future poverty. Washington, World Bank.

Fortin, N. and Lefevbre, S. (1998). Intergenerational income mobility in Canada. In Corak, M (ed) Labour markets, social institutions, and the futures of Canada children. Statistics Canada, Ottawa.

Gertler, P. (2004). Do conditional cash transfers improve child health? Evidence from Progresa's randomized experiment. American Economic Review, 94(2), 336-341.

Gertler, P., Martínez, S., and Rubio, M (2006). Investing cash-transfers to raise long term living standards. World Bank Policy Research Working Paper Series 3994, Washington

Gonzalez de la Rocha, M. (2008). Evaluación cualitativa de impacto de largo plazo del programa Oportunidades en zonas rurales. In Sedesol (ed): A diez años de intervención: Evaluación externa del programa Oportuniaddes, Tomo I. Sedesol, Mexico.

Hellerstein, J. and Sandler, M. (2011). Dands and daughters: The changing impact of fathers on women`s occupational choices. Journal of Human Resources, 46(2), 333-372.

Hotz, V. J., Imbens, G. W., and Klerman, J. A. (2000). The long-term gains from GAIN: a re-analysis of the impacts of the California GAIN program. NBER Working Paper 8007, Cambridge.

Hotz, V. J., Imbens, G. W., and Klerman, J. A. (2006). Evaluating the differential effects of alternative welfare-to-work training components: A re-analysis of the California GAIN program. Journal of Labor Economics, 24(3), 521-566.

Ibarraran, P. and Villa, J. M. (2010) "Labor Insertion assessment of conditional cash transfer programs: a dose-response estimate for Mexico's Oportunidades." Paper presented at the XIV Meetings of the LACEA/ IADB/ WB/ UNDP Research Network on Inequality and Poverty (NIP), April 9, 2010 Tulane University, New Orleans, Center for Inter-American Policy and Research (CIPR) and Department of Economics

Lechner, M., Miquel, R, and Wunsch, C (2004) Long.run effects of public sector sponsored training in West Germany, IZA Discussion Paper 1443, Bonn.

Levy, S. (2007). Productividad, crecimiento y pobreza en México: ¿Qué sigue después de Progresa-Oportunidades? BID. Washington.

Lochner, L. (2008). Intergenerational transmission. New Palgrave Dictionary of Economics, 2nd Edition. Maluccio, J.A., M. Hoddinot, J. Behrman, R Martorell,

Mayer-Foulkes, D., López, M., and Serván, E. (2008). Habilidades cognitivas: transmisión intergeneracional por niveles socioeconómicos. Estudios Económicos, 23, 1, 129-156.

Maloney, W. F. (2004). Informality revisited. World Development, 32(7), 1159-1178.

Maluccio, JA., Hoddinot, M., Behrmna, J., Martorell, R., Quisumbing, AR., and Stein, AD. (2006). The Impact of Nutrition during Early Childhood on Education among Guatemala Adults. Penn Institute for Economic Research, working paper 06-026.

Mincer, J. (1958). Investment in human capital and personal income distribution. Journal of Political Economy, 66(4), 281-302.

Parker, S. and Teruel, G. (2005). Randomization and social program evaluation: The case of Progresa. Annals of American Academy, 599, 199-219.

Piraino, P. (2006). Comparable estimates of intergenerational income mobility in Italy. Working Paper 471 Department of Economics, Universitá di Siena, Italia.

Rodríguez-Oreggia, E. (2007). The informal sector in Mexico: Characteristics and dynamics. Social Perspectives, 9(1), 89-156.

Schultz, T.W. (1961). Investment in human capital. American Economic Review, 51(1), 1-17.

Solon, G. (2004). A model of intergenerational mobility variation over time and place. In M. Corak (ed) Generational Income Mobility in North America and Europe. Cambridge University Press.

Skoufias, E and Parker, S. (2001). Conditional cash transfers and their impact on child work and schooling: Evidence from the Progresa program. IFPRI, working paper.

Valero, J. and Tijerina, J. (2002). Effects on education on the intergenerational transmission of labor income. In Mexico. Eastern Economic Journal, 28(3), 381-392.

Vandercasteele, L. and Debels, A. (2007). Attrition in panel data: the effectiveness of weighting. European Sociological Review, 23(1), 81-97.

Wooldridge, J. M. (2008). Introductory econometrics: A modern approach. Mason, South-Western Cengage Learning.

Table 1: Selection of treatment and control groups from original sample

	Total				Non-beneficiaries	Beneficiaries
Total sample in ENCEL	30942				7852	23090
no locality information	22					
with locality information		30714				
incomplete questionnaire		3352				
complete questionnaire			27362			
not elegibility index (new states)			8514			
non elegible			2247			
elegible				16601	2994	13607
still studying				6435	867	5568
not studying				10166	2127	8039
inactive				4282	952	3330
active				5884	1175	4709
unemployed				204	47	157
employed				5680	1128	4552
earnings not reported				1559	298	1261
earnings reported				4121	830	3291

Table 2: Labor force participation by benefit and program duration from ENCEL sample

	By benefit		By time exposure		
	Beneficiaries	Non-beneficiaries	Long exposure	Medium exposure	Short exposure
Total observations	**8039**	**2127**	**6719**	**840**	**480**
Out of labor force	3330 (41.4%)	952 (44.8%)	2794 (42%)	299 (36%)	237 (49%)
Labor Force	4709 (58.6%)	1175 (55.2%)	3925 (58%)	541 (64%)	243 (51%)
Employed	4552 (96.7%)	1128 (96%)	3789 (97%)	524 (97%)	239 (98%)
Unemployed	157 (3.3%)	47 (4%)	136 (3%)	17 (3%)	4 (2%)

Source: Authors' calculations using ENCEL 2007.
Note: long exposure corresponds to individuals living in localities where Oportunidades has been operating for six years or more; medium exposure for 3 to six years and short exposure for up to three years.

Table 3: Distribution of workers characteristics by benefits and program exposure

	By benefit		By time exposure		
	Beneficiaries	Non-beneficiaries	Long exposure	Medium exposure	Short exposure
Total employed	**4552**	**1128**	**3789**	**524**	**239**
By type of job					
Salaried	3324 (73%)	823 (73%)	2728 (72%)	419 (80%)	177 (74%)
employers	92 (2%)	20 (1.8%)	76 (2%)	11 (2%)	5 (2%)
self-employed	493 (11%)	103 (9.1%)	417 (11%)	52 (10%)	24 (10%)
other	643 (14%)	182 (16.1%)	568 (15%)	42 (8%)	33 (14%)
By access to health services					
with access	200 (4.4%)	64 (5.7%)	139 (4%)	45 (9%)	16 (7%)
no access	4352 (95.6%)	1064 (94.3%)	3650 (96%)	479 (91%)	223 (93%)
By economic activity					
agriculture	2191 (48.1%)	515 (45.7%)	1918 (51%)	151 (29%)	122 (51%)
Other	2361 (51.9%)	613 (54.3%)	1871 (49%)	373 (71%)	117 (49%)

Source: Authors' calculations using ENCEL 2007.
Note: long exposure corresponds to individuals living in localities where Oportunidades has been operating for six years or more; medium exposure for 3 to six years and short exposure for up to three years.

Table 4. Summary of transition matrices for beneficiaries and non beneficiaries in occupational mobility

		Total	In same occupation	In higher occupation	In lower occupation
Number of observations		3584	1580	1425	579
			44.1%	39.8%	16.2%
Beneficiaries	Total	2872	1263	1170	439
			44.0%	40.7%	15.3%
	Short term	151	67	59	25
			44.37%	39.07%	16.56%
	Medium term	362	137	137	88
			37.8%	37.8%	24.3%
	Long term	2359	1059	974	326
			44.9%	41.3%	13.8%
Non beneficiaries		712	317	255	140
			44.5%	35.8%	19.7%

Table 5: Impact of the program on migration of young beneficiaries

	All			Male			Female		
	MC	Z		MAC	Z		MC	Z	
General Effect									
Short Term: Less Than 3 Years	-0.142	-1.019		-0.171	-1.093		-0.296	-1.21	
Medium Term: 3-6 Years	0.136	1.066		-	-		0.133	0.766	
Long Term: More Than 6 Years	0.099	0.965		0.034	0.227		0.094	0.683	
Differential Effects by Education Level									
Primary									
Short Term	-0.059	-0.472		-0.092	-0.611		-0.066	-0.432	
Medium Term	-0.007	-0.201		-	-		-0.051	-1.111	
Long Term	-0.048	-1.446		-0.073	-1.773	*	-0.075	-1.844	**
Secondary									
Short Term	-0.079	-0.526		-0.059	-0.309		-0.149	-0.749	
Medium Term	0.04	0.901		-	-		-0.033	-0.579	
Long Term	0.017	0.433		-0.013	-0.245		-0.017	-0.337	
High School									
Short Term	-0.116	-0.3		-0.216	-0.493		-0.182	-0.241	
Medium Term	0.14	1.084		-	-		0.152	0.869	
Long Term	0.126	1.208		0.031	0.201		0.144	1.03	
Single Effects from Education Levels									
Primary	0.008	0.33		-0.061	-1.7	*	0.064	1.94	**
Secondary	0.007	0.28		-0.051	-1.3		0.051	1.5	
High School	0.012	0.38		-0.054	-1.12		0.0639	1.5	
N	38000			18687			19313		
Prob>F	0			0			0		
R^2	0.113			0.124			0.109		

Note: All regressions include characteristics of the individual and households in 2003, locality and pre-program 1997, and their interactions. Calculations are using a Probit model. Effects evaluated in the average of the sample using delta method standard errors. MC= marginal change. *=significance at the 10%, **=significance at 5%, *=significance at 1%

Table 6: Impact from the benefits of program on probability of working

	All		Male		Female	
	MC	Z	MAC	Z	MC	Z
General Effect						
Short Term: Less than 3 years	-0.129	-1.183	0.042	0.339	-0.261	-1.215
Medium Term 3-6 years	0.074	0.236	-0.027	-0.076	0.227	0.439
Long Term: More than 6 years	0.104	0.524	0.068	0.305	0.077	0.295
Differential Effects by Education Level						
Primary						
Short Term	-0.148	-0.816	-0.015	-0.055	-0.165	-0.913
Medium Term	0.047	0.343	0.004	0.015	0.107	0.809
Long Term	0.001	0.01	0.025	0.263	-0.038	-0.439
Secondary						
Short Term	-0.119	-0.518	-0.07	-0.232	-0.062	-0.324
Medium Term	0.075	0.63	-0.004	-0.022	0.165	1.146
Long Term	0.062	0.688	0.064	0.581	0.021	0.222
High School						
Short Term	-0.094	-0.334	0.02	0.054	-0.102	-0.295
Medium Term	0.073	0.348	0.065	0.188	0.131	0.509
Long Term	0.121	0.908	0.094	0.537	0.095	0.54
Single Effect from Education Levels						
Primary	0.202	0.057***	0.165	0.046***	0.146	0.78**
Secondary	0.176	0.056***	0.138	0.051***	0.132	0.178*
High School	0.146	0.063**	0.069	0.054	0.156	0.104
N	10166		5066		5100	
Prob>F	0		0		0	
R^2	0.207		0.06		0.075	

Note: All regressions include characteristics of the individual, household, pre-program 1997, and their interactions. Calculations refer to Probit estimates. Effects evaluated in the average of the sample using delta method standard errors. MC= marginal change. *=significance at the 10%, **=significance at 5%, *=significance at 1%

Table 7: Impact from the benefits of the program on monthly labor earnings

	All			Male			Female		
	MC	t		MAC	t		MC	t	
General Effect									
Short Term: Less than 3 years	-0.284	-1.256		-0.164	-0.913		-0.527	-1.296	
Medium Term 3-6 years	-0.325	-1.294		-0.104	-0.488		-0.71	-1.517	
Long Term: More than 6 years	-0.283	-1.782	**	-0.056	-0.339		-0.479	-1.567	
Differential Effects by Education Level									
Primary									
Short Term	-0.001	-0.007		-0.081	-0.618		0.089	0.374	
Medium Term	-0.172	-2.6	***	-0.166	-1.703	*	-0.221	-2.163	**
Long Term	0.112	1.75	*	0.126	1982	**	-	-	
Secondary									
Short Term	-0.125	-0.818		-0.055	-0.392		-0.288	-1.347	
Medium Term	-0.096	-0.981		-0.001	-0.008		-0.272	-2.18	**
Long Term	0.091	1.362		0.142	1.872	**	0.028	0.311	
High School									
Short Term	-0.3	-1.454		-0.447	-2.312	***	0.082	0.313	
Medium Term	-0.605	-2.304	***	-0.506	-1.836	**	-0.76	-2.469	***
Long Term	-0.047	-0.421		0.003	0.022		-0.11	-0.634	
Single Effect from Education Levels									
Primary	-0.102	-0.73		0.094	0.64		-0.392	-1.59	
Secondary	-0.062	-0.43		0.126	0.85		-0.342	-1.35	
High School	0.058	0.38		0.213	1.09		-0.173	-0.73	
N	4123			2805			1318		
Prob>F	0			0			0		
R^2	0.101			0.085			0.129		

Notes: All regressions include characteristics of the individual, household, pre-program 1997, and their interactions.Calculations are using a log linear model. MC= marginal change. *=significance at the 10%, **=significance at 5%, *=significance at 1%

Table 8: Impact from the benefits of the program on moving to a more qualified occupation.

	All		Male		Female	
	C.M.	Z	C.M.	Z	C.M.	Z
General Effect						
Short Term: Less than 3 Years	0.08	0.571	0.011	0.09	0.343	2.006 **
Medium: Term 3-6 Years	0.13	0.176	0.029	0.044	-0.052	-0.046
Long Term: More than 6 Years	0.256	0.399	0.108	0.191	0.151	0.091
Differential Effects by Education Level						
Primary						
Short Term	-0.006	-0.008	-0.078	-0.123	-0.077	-0.056
Medium Term	0.018	0.029	-0.044	-0.085	-0.15	-0.234
Long Term	0.116	0.277	-0.043	-0.098	0.039	0.063
Secondary						
Short Term	0.1	0.136	-0.094	-0.15	-	-
Medium Term	0.116	0.186	-0.015	-0.028	-	-
Long Term	0.148	0.321	-0.029	-0.058	-	-
High School						
Short Term	-	-	-	-	-	-
Medium Term	-	-	-	-	-	-
Long Term	-	-	-	-	-	-
Single Effect from Education Levels						
Primary	0.121	0.096	0.155	0.104	-0.012	0.145
Secondary	0.143	0.103	0.163	0.108	0.036	0.137
High School	0.473	0.102***	0.183	0.122	0.331	0.089***
N	3584		2439		1145	
Prob > F	0		0		0	
R^2	0.058		0.033		0.082	

Notes: MC = Marginal Change. * = Significance at 10%, ** = Significance at 5%, *** = Significance at 1%. Standard errors calculated with delta method. Calculations are using an ordered probit model.
Results are presented only for females, since results for all sample and for males are no significant.

Annex 1

Table A.1 Mean Test for Sample ENCEL 2007

Variables	Beneficiaries Oportunidades			Non beneficiaries Oportunidades			Ha: diff != 0 Pr(|T| > |t|)
	Obs.	Media	Desv. Est.	Obs.	Media	Desv. Est.	
Years of schooling	13526	7.8578	2.5234	3094	7.2527	2.7742	0.0000
No instruction	13526	0.0221	0.1470	3094	0.0391	0.1939	0.0000
Primary	13526	0.2850	0.4514	3094	0.3930	0.4885	0.0000
Secondary	13526	0.5222	0.4995	3094	0.4396	0.4964	0.0000
High school	13526	0.1627	0.3691	3094	0.1189	0.3238	0.0000
Professional	13526	0.0080	0.0890	3094	0.0094	0.0964	0.4410
With school	13999	0.9662	0.1807	3413	0.9065	0.2911	0.0000
No school	13999	0.0338	0.1807	3413	0.0935	0.2911	0.0000
Illiterate	13999	0.0499	0.2177	3413	0.0797	0.2709	0.0000
Non illiterate	13999	0.9501	0.2177	3413	0.9203	0.2709	0.0000
Occupied	13999	0.3960	0.4891	3413	0.3876	0.4873	0.3684
Unemployed	13999	0.0157	0.1244	3413	0.0179	0.1325	0.3698
Working Force	13999	0.4117	0.4922	3413	0.4055	0.4911	0.5067
Inactive	13999	0.5883	0.4922	3413	0.5945	0.4911	0.5067
Scholarships transfers from social programs including Oportunidades	4615	477.89	314.45	343	464.16	289.02	0.4330
Monetary labor income in main job	3541	2528.34	2027.87	898	2695.19	3040.40	0.0492
Non monetary income from main job	154	1527.65	5329.40	39	1444.97	3472.53	0.9268
Monetary and non monetary labor income from main job	3639	2524.90	2288.61	919	2694.92	3110.15	0.0630
Monetary and non monetary labor income from secondary job	430	3374.07	3878.63	113	3914.74	5808.16	0.2401
Total labor income from main and secondary job	3772	2820.51	2763.37	946	3085.62	3860.96	0.0157
Total income (labor and transfers)	8027	1600.15	2246.74	1259	2444.96	3537.21	0.0000
Average hours per month, main job	5523	143.08	81.09	1319	151.46	82.51	0.0008
Average hours per month, secondary job	564	142.56	92.29	147	148.26	97.63	0.5103
Average hours worked per month, main and secondary jobs	5524	157.61	97.89	1319	167.98	100.90	0.0006
Average per hour monetary labor income, main job	3471	23.70	52.47	885	23.90	47.61	0.9185
Average per hour non monetary labor income, main job	150	14.44	32.09	37	12.32	21.24	0.7030
Average per hour monetary and non monetary labor income, main job	3567	23.67	52.32	905	23.88	47.26	0.9147
Average per hour monetary and non monetary labor income, secondary job	401	27.83	43.27	108	34.92	70.25	0.1931

Average per hour total income, main and secondary job	3705	23.23	51.59	934	24.03	47.97	0.6668

Note: we are only considering in this sample young in eligible for the program households, ENCEL 2007

Annex 2 Variables

Table A.2: Variables in the models

Group (vector)	Variables	Description
L	Locality by entrance of the program	o Less than 3 years o From 3 to 6 years o More than 6 years
Z	Individual characteristics	o Primary o Secondary o High school o College o Male o Indigenous
X	Household characteristics	o Members under 8 years old o Other member occupied o Other member occupied formal o Demographic dependence rate
	Pre-program household characteristics 1997	o Overcrowding index o Ground floor o Head with social security o Head without school o Bathroom without water o No gas stove
M	Locality characteristics	o Running water o Electricity o Sewage o Private telephone o Financial services o Kinder o Primary o Health clinic IMSS o Average wage males o Average hours males

Annex 3: Classifications for Occupations

(This classification is taken from González de la Rocha (2008), with the author's permission)

This classification is based on occupations that are regularly held and constructed from following about two hundred young workers that migrated from their localities in order to have a qualitative analysis of hat they are doing nowadays.

Categories are based on qualifications, which is what Oportunidades program is aiming through its components. However, the category for each job is granted according to deprivation – access to social security or not -, for example: the one helping in a house for sells receives a lower category than a waitress.

This classification is intentionally fine for lower levels of skills, and also for medium levels, with the main intention to focus on the young leaving from poor rural agriculture households.

Categories:

1. The first is the traditional rural occupation, and less qualified, is that of agricultural laborer, harvester, and those related to agriculture, fertilizing, spraying, etc.

2. The second category is for builder helpers, non wage helpers at home, domestic employees, part time workers in little stores.

3. The third category is for those workers in local markets, kitchen helpers, gardeners, seamstress, tortillerias helpers, nannies, no qualifies workers, farmer's helpers.

4. The fourth category is composed by peasants in own lands and employees in informal stores but with a wage. It also includes those selling prepared food, little stores owners, cosmetic sellers, slaughters, and lumberjack.

5. The fifth level is for officials (builders, mechanics, and jewelers); more qualified workers, and employed in services and commerce but formal with benefits.

6. The sixth level is for master builders, plumbers, other jobs in charge of commerce and supervising.

7. The seventh category is for those commerce owners and technical occupations.

8. The eight level is for professionals.

It has to be noted that this categorization is based on a qualitative small sample analysis. The database from ENCEL 2007 contains all the Mexican Classification of Occupations with a broad disaggregation for occupations. Based on the precious categories we categorized each occupation in the database in the correspondent of the eight categories.