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Investing Cash Transfers to Raise Long Term Living Standards

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Abstract: *By reducing liquidity constraints, cash transfers may enable households to make previously unattainable investments in micro-entrepreneurial and farm production activities. We find that conditional cash transfers from OPORTUNIDADES to poor households in rural Mexico result in increased participation in micro-enterprise activities, increased investments in production and draft animals, and increased use of land. These activities, in turn, may have a lasting effect on the household's ability to generate income and increase consumption. For each peso transferred, beneficiary households consume 78 cents directly, and invest or save the rest. The aggregate effect of transfers over time yields a 1.2 cent increase for each peso of cumulative transfers received, or a 5.5% return on investment. Our estimates indicate that beneficiary households obtain a permanent increase in consumption of 22% after five years on the program. These results suggest that through investments, cash transfers to the poor may raise long term living standards which would likely persist even in the absence of the program.*

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1) Introduction

The OPORTUNIDADES Human Development program in Mexico is the oldest and largest conditional cash transfers program to date. Many times modeled on OPORTUNIDADES, conditional cash transfer programs have emerged as important policy tools for poverty alleviation in a number of other less developed countries[2]. Are these countries creating welfare states with populations that become dependent on government assistance, or do cash transfers to the poor help alleviate liquidity constraints which hinder productive potential, thereby boosting a household's ability to produce additional income and consumption?

Programs such as OPORTUNIDADES require beneficiary households to comply with a set of conditions, many times related to children's school attendance and health care, in exchange for benefits. However, once the conditions are met, beneficiary households are free to use the cash transfer as they please. Households might choose to increase consumption in goods, services and leisure. They may also choose to use some of the transfer for savings and investment. If transfers help households overcome liquidity constraints on productive investments that boost income and consumption, it is possible that beneficiary households will obtain a permanent increase in living standards which is sustained even after the program is removed.

Despite the importance of conditional cash transfer programs as poverty alleviation tools in a growing number of less developed countries, there are few studies that address the potential impact of these programs on productive investments made by beneficiaries. To our knowledge, there are no studies that specifically address the impact of conditional

[2] Beginning with Mexico's PROGRESA program in 1992, and its expansion to the national level in 1997, similar types of programs have emerged in Brazil (*Bolsa Escola)*, Honduras (*PRAF)*, Nicaragua (*Red de Proteccion Social)* and Colombia (*Apoyo Familiar)* (Legovini and Regalia, 2001).

cash transfer payments on micro-enterprise and agricultural investments, or that investigate the long run implications of these investments on beneficiary's' consumption. The limited empirical work on this subject may be due in part to the relatively recent emergence of these programs and limited data availability (compared to the longer history of welfare programs in more developed countries), and in part to a focus of most research on the intended areas of impact of these programs (such as child health and education).

In this study we use the rural evaluation data from OPORTUNIDADES to estimate the impact of an (exogenous) increase in unearned income on the probability of engaging in micro-enterprise, of using land for productive purposes, and of owning production and draft animals. We look at two different exogenous effects: that of being randomly assigned into treatment and that coming from the total amount of cash transfer accumulated over time. We are interested in understanding both the potential market failures that prevent poor households from engaging in micro-entrepreneurial activities in the first place, as well as the characteristics of households that choose different types of activities. In the context of the poor rural households studied here, we argue that liquidity constraints keep productive potential "tied up", and that increased income from transfer payments enables poor households to realize this untapped potential. If liquidity constrained households can reduce poverty by investing transfers in productive activities such as micro-enterprise and farm production then long term welfare dependency may be reduced as household consumption is shifted upwards through returns on investments.

The analysis of household consumption shows that beneficiary households consume approximately 78 cents of each peso transferred. With 22 cents left to invest, the cumulative effect of the transfer program yields an increment of 1.2 cents in consumption

per peso transferred, or a 5.5% return on savings/investment. With an average cumulative transfer of $3444 pesos per capita for original treatments and $2653 pesos for original controls, the average beneficiary household from the group of original treatment communities consumes 41 pesos more per month after 5 years on the program, and the average beneficiary household from original control communities consumes 31.8 pesos per month after three and a half years on the program.

In support of the argument that beneficiaries increase consumption through returns on investments, we find that households that receive a cash transfer have higher micro-enterprise participation rates, and are more likely to invest in animals and to use land for productive activities. Furthermore, households that receive larger cash transfers over a longer period of time (which arguably become less liquidity constrained) generally have higher levels of investments. Evidence from specific types of micro-entrepreneurial and household characteristics suggests a heterogeneous entrepreneurial/investment response to transfer payments. The poorest households with few agricultural assets are most likely to increase micro-enterprise activity and to begin using land. Households with some baseline agricultural assets (in particular, landed households) are most likely to increase the number of animals they own.

These results suggests that in the case of poor and liquidity constrained households, such as those studied here in rural Mexico, cash transfers are contributing to productive investments that boost long run consumption. By helping correct credit market imperfections, programs that transfer cash to the poor in less developed countries may enable households to boost income and consumption over the long run. If the transfer is

removed, beneficiary households would not necessarily return to pre-program consumption levels, but may sustain a permanently higher consumption level.

In the following section we summarize existing theory and literature on liquidity constraints and cash transfer programs. Section 3 discusses the Mexican OPORTUNIDADES human development program and data, and describes our estimation strategy. Section 4 establishes the marginal propensity to consume out of current and cumulative transfers. In sections 5 and 6 we present results on the impact of transfers on micro-enterprise and agricultural investments, respectively. Section 7 discusses potential extensions and concludes.

2) The Rural OPORTUNIDADES Program

Mexico's OPORTUNIDADES program began in 1997 in an effort to improve the living standards of impoverished households through improved family health and nutrition, and educational opportunities for children. This large "human development" program began in rural areas and has since spread into semi-urban and urban areas with a total coverage of 4.2 million beneficiary households and an annual budget of 1.7 billion US dollars[3] by 2003 (oportunidades.gob.mx).

Cash transfers from OPORTUNIDADES are given to the mother of the household, and are conditional on children attending school and families attending required health clinic visits and "pláticas", or talks on health related topics. A majority of the cash transfer comes in the form of educational scholarships for children, which are increasing with the grade of the child and vary by gender (with girls receiving slightly larger scholarships than

[3] All values from OPORTUNIDADES website are for 2003 and stated in pesos. All conversions to US dollars made by the author at the 2003 average exchange rate of 10.6 pesos/USD, and rounded to closest integer.

boys in junior high and high school). In addition, beneficiary families receive a food stipend of $15 dollars per month plus yearly school supply stipends. Monthly transfers are capped at $90 dollars for families with children through junior high, and are capped at $150 dollars for families with children in high school (oportunidades.gob.mx)[4]. The OPORTUNIDADES transfers are a large proportion of total family income, estimated at 20% of the value of pre-program consumption expenditures (Skoufias, 2002).

Household eligibility status for OPORTUNIDADES was determined according to household income measurements as well as discriminant analysis techniques for household by region (Skoufias, et al. 1999a). First and using data from the 1995 Mexican census, a community marginality index was defined to determine the poorer areas in rural Mexico. Next in October 1997, OPORTUNIDADES collected baseline socio-economic information (ENCASEH) that was used to classify households in the selected communities as eligible for treatment ("poor") or ineligible ("non-poor").

Due to administrative reasons, OPORTUNIDADES was unable to begin distributing benefits to eligible households in all selected communities at the same time. Making use of the phasing in of the program over time, and with the purpose of conducting a rigorous program evaluation, subsets of eligible communities in rural areas were randomly assigned to treatment and control groups. While eligible ("poor") treatment households began receiving benefits in March-April 1998, eligible ("poor") households in control communities were not incorporated until September-October of 1999.

[4] Transfers amounts are for 2003 and are adjusted to inflation.

3) Data and Estimation Strategy

3.1) Data Sources

Detailed information on a host of topics was collected in a series of *Encuesta de Evaluación* (ENCEL), or Evaluation Surveys. The complete sample consists of a panel of 24,077 households in 506 eligible communities (320 treatments and 186 controls). The six ENCEL surveys can be matched to the pre-intervention 1997 OPORTUNIDADES census (ENCASEH97, or *Encuesta Socioeconómica de Hogares*) for a total of 7 rounds of data between 1997 and 2003[5].

Additionally, administrative data on transfer payments was obtained from OPORTUNIDADES for all households in the ENCEL communities. This data contains records of payments for each type of transfer paid to beneficiary households: food and scholarship transfers (paid every two months), and school supply transfer (paid once a year to junior high school students and twice at the beginning of the semester to primary school students). Thus, the total amount of transfer received in each bimesterly payment for each household can be calculated. Furthermore, we can pinpoint the exact bimester when each household received its first transfer payment, and use this to determine when the household was actually incorporated into the program, if it was indeed incorporated.

3.2) Program Implementation: Timing and Take-up

Two elements determine the phasing in of the program: the randomized design and the household eligibility criteria within eligible communities. As a result of randomization,

[5] ENCEL surveys were conducted in March 1998, October 1998, May 1999, November 1999, May 2000, November 2000 and November 2003. Unfortunately, information in the March 1998 ENCEL survey is barely compatible with information in any of the other surveys. Our analysis is thus limited to the use of 6 out of the 7 rounds of data available (this is, we will exclude the March 1998 ENCEL).

households in control communities did not receive benefits until a year and half (fifth bimester of 1999) after treatment communities (who received a first transfer in the second bimester of 1998). Pre-intervention socio-economic data was used to select an original group of approximately 52% of households in eligible communities as eligible ("poor"). It was later determined that a subset of the "non-poor" households had been unduly excluded from the program, and a re-classification of households took place in a process referred to as "densification," by which an additional 21% of households were incorporated into the program (Skoufias et al. 1999a, 1999b). This group of households, which we label "densified," had slightly higher mean incomes, and included households with older heads and spouses, and fewer eligible children.

Although OPORTUNIDADES determined that all households classified as eligible under both the original classification scheme and the densification process would be incorporated into the program, the take up rate for "densified" households is much lower than for the original group of poor households, especially in treatment communities. This might have been in part due to delays in their incorporation into the program, and in part due to higher rates of non-take up and non-compliance amongst the "densified", many of whom would have received smaller transfers (given no educational scholarships in households with no children). As noted by Hoddinot and Skoufias (2000) a group of "densified" households may simply have been "forgotten", at least temporarily. We find that while some treatment "densified" households joined as early as the third bimester of 1998, only 42% of them joined before the control group was phased in. Moreover, they are clustered by community. That is, there are 77 treatment communities where no "densified" household took up before original control communities were incorporated.

We could rely on randomization to identify the unbiased effect of OPORTUNIDADES on micro-entrepreneurial and farming investments on the treatment status -the intent to treat sample (ITT) estimator[6]. Given that we are that we are primarily interested in estimating the likelihood of investing in productive activities conditional on the reception of cash -treatment on the treated (TOT) estimator, a potential source of bias arises if observed or unobserved characteristics are driving the take-up decision amongst treatment households. In order to minimize the potential for endogeneity coming from heterogeneity in the take up response, we need to find the appropriate group of control households to be compared to those treatment households that took up the program. It is impossible to know which households in control communities would have taken up the program if they had been offered membership in early 1998. However, we do know which households in control communities decided to take up a year an a half later, in late 1999. Assuming that conditions had not changed significantly during this time period, we can identify the group of "actually treated controls" –controls that took up the program when offered, and argue that these same households would have taken up the program if offered in early 1998. The fact that take up rates amongst treatment and controls are almost identical (and around 90%), helps confirm this hypothesis (see graph 1). We thus consider a household as actual treatment if it had received at least one bimonthly transfer payment between the second bimester of 1998 and the beginning of the fifth bimester of 1999. Actual control households are all households in control communities that received transfer payments after the fifth bimester of 1999.

[6] Berhman and Todd (1999) find no systematic different for locality level characteristics between treatment and control groups. They do find more differences than would be expected by chance at the household level, which they attribute to the large sample sizes.

Actual treatment and actual control households are well-balanced in terms of their observable characteristics at baseline (see Table 3). Statistical tests on means cannot (generally) reject the null of equality of means between the two groups on a series of individual, household and community characteristics. Given the evidence on balanced samples and balanced take up rates, we conclude that working with actual beneficiaries does not introduce any selection bias coming from heterogeneous take-up responses[7],[8].

Because "densified" treatment households have different take up patterns (due to the administrative delays), begin the program at a later date and are clustered by community, they are statistically different to the "densified" controls. Moreover, it is hard to find a comparable group of actual "densified" controls using propensity score matching techniques given that the differences in take up responses do not come from observables but from administrative failures. For these reasons, we exclude them from our analysis and work only with the group of households originally classified as poor.

3.3) Program Implementation: Transfer Payments

OPORTUNIDADES provides bimonthly cash transfers to each child below 18 years old enrolled in school between the third grade of primary school and the third grade (last) of junior high. High school scholarships are granted to all 14 to 21 years old enrolled.

[7] As a robustness check, we have run all results on both the ITT and TOT sub-samples, finding almost no significant differences between the two estimates. Only a few ITT results are provided here due to space limitation. The full set of results is available from the authors upon request.

[8] We also constructed three alternative "actual" treatment and control groups. They were matched on the basis of the baseline observables we used to predict program take up probability. The three groups correspond to (i) out-of-sample matching controls, which uses only treatments to determine the weight of observables on the propensity score; (ii) in-sample matched controls, which uses all treatment and all controls households in the determination of the weights; and (iii) in-sample matched controls, which uses treatments and those controls that took up in the prediction of the propensity score. We defined the overlapping support of the predicted take-up distributions for each of these groups at the 95% level and re-run our analysis, finding very similar results –especially for the in-sample matching. These results are available from the authors upon request.

The educational stipend increases with the grade of the child (it raises substantially after graduation from primary school) and is higher for girls than boys during junior high and high school. Beneficiary children also receive money for school supplies once or twice a year. They lose eligibility as beneficiaries if they miss school more than 15% of school days for unjustified reasons and/or if they repeat a grade twice. In addition, beneficiary families receive a bimonthly unconditional food stipend. There is an upper limit in the total monthly transfer amount a household can receive for education and nutrition (without the school supplies stipend). Table 1 contains transfer amounts in baseline prices (October 1997)[9].

Thus, given the program rules, most of the variation in the monthly transfer amount received across eligible households comes from household structure and demographic composition. Households with no kids enrolled in the relevant grades would only receive the unconditional nutritional stipend, whereas households with kids (girls in particular) in junior high or high school are eligible for larger transfer amounts. Graph 2 plots shares of households by number of children enrolled in any grade between third of primary and third of junior high at baseline for the sub-samples of actual treatment and actual control households. Households can fall in any of the following categories (from left to right): no kids enrolled in the relevant grades, 1 kid in primary, 1 kid in junior high, 2 kids in primary, 1 in primary and 1 in junior high, 2 in junior high, 3 in primary, 2 in primary and 1 in junior high, 1 in primary and 2 in junior high, 3 in junior high and 4 or more kids enrolled in any of the possible combinations[10]. This variation in the number of children

[9] Transfer amounts are adjusted for inflation every semester according to the Consumer Price Index published by the Bank of Mexico.

[10] We do not consider households with teenagers enrolled in high school for two reasons: first, because of the low enrollment in high school. While the enrollment rate between third grade of primary and third

enrolled in different grades across households will guarantee variation in the amount of transfer received per payment. Note that there are two additional sources of variation which are not depicted in the graph: the exact grade in which the child is enrolled and her gender (which matters at junior high school). As expected from randomization, household demographics conditional on enrollment are practically equal between treatment and control households.

The total amount of transfer accumulated over time takes advantage of an additional source of variation, namely the length the household has been in the program. Given we restrict the analysis sub-sample to households initially selected as eligible (that is, excluding "densified" households), ,the amount of time a household receives benefits is mainly determined by randomization. Note that there is some additional variation introduced by the time it takes for all treatment and control households to be incorporated (a year approximately, see graph 1).

Graphs 3a and 3b illustrate the variation in transfers and cumulative transfers. They plot the distribution of the monthly transfer received and the total transfer cumulated for the sub-sample of actual treatments and actual controls in the last round of data we observe, November 2003. We will exploit these two sources of variation in the amount of transfer received per household to look at the long term effect of cash transfers on investments and living standards.

Because perception of the transfer is conditional to the fulfillment of the program rules (children's enrolment, in particular), the amount each household receives is endogenous to household behavior. We will deal with this issue by using the potential

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grade of junior high for kids below 18 is 72%, only 33% of the teenagers ages 15 to 21 report being enrolled in high school. Second, high school stipends did not begin to grant themselves until July 2001.

amount the household would have received given its treatment status and demographic structure before the implementation of the program to instrument the actual transfer amount[11].

3.4) Descriptive Statistics: Sample Sizes and Balance

In October 1997 (baseline), our final sample consists of 7,658 original poor (intent to treat) households in the 320 treatment communities and 4,644 original poor (intent to treat) households in the 186 control communities (see Table 2). We work with the unbalanced panel of households that we observe over 7 rounds of data between 1997 and 2003. Given that we are primarily interested in estimating the effect of treatment on the treated, we will focus here on the smaller sub-sample of 6,819 (original poor) actual treatment households and 4,159 (original poor) actual control households.

Table 3 presents summary statistics on baseline characteristics for the sub-sample of original actual treatment and actual control households at baseline (1997 ENCASEH). Households have 6 members on average and are characterized by a young household composition. While there are kids younger than 7 in 76% of the households, only 27% of them report presence of members older than 55 years old. The average ages for the head and his/her spouse are 42 and 36 years. They both have around 4 years of education, on average, and only between around 20% of them have completed primary school or achieved a higher level of education. The head is predominantly a male and reports speaking an indigenous language (proxy for ethnicity) in 42 to 44% of the households. These families live in highly marginal rural communities located about 106 Km away, on

[11] To compute potential transfers, we take household composition and children's enrollment status at baseline and apply the program rules assuming the child progresses one grade per year. We further assume no drop outs and no repetition.

average, from a large urban center. The average monthly male agricultural wage reported in these communities in 1997 is $575 pesos ($54 US dollars).

Concerning asset ownership, at baseline around 93% of the households own their house. 72% (treatment) to 75% (control) of the houses have dirt floor and 59% (treatment) to 61% (control) are provided with electricity. We define as households in extreme poverty, those with dirt floors and no toilet or outhouse facilities in 1997. 35% treatment and 37% control households are classified as extreme-poor, the difference not being statistically significant. We further classify households according to the amount of land used at baseline. Thus, we distinguish between: (i) households with no agricultural assets, (ii) landless farms (households with no land but reporting animal ownership), (iii) small landed farms (households using less than 2 ha of land for agricultural, grazing or forestry purposes, regardless of animal ownership), and (iv) bigger farms (households using 2 hectares (ha) of land, regardless of animal ownership). Approximately, one tenth of the sample has no agricultural assets at all, 30% of households are classified as landless, 26% (treatment) and 21% (control) have small farms and 34% have big farms.

As shown in Table 3, actual treatment and actual control groups are well-balanced in terms of their observable characteristics prior to intervention. The only exception is a larger proportion of households using less than 2 ha for productive activities in treatment areas. Hence, working with actual beneficiaries does not seem to be introducing any selection bias coming from heterogeneous take-up responses from treatment and control households.

As an exogeneity test, we also test for significant differences in the mean of the dependent variables (Table 3B) [12]. None of the differences are statistically significant, so we can safely attribute post-program differences to the effect of the transfer once time effects are accounted for. While around 82% of the poor households in the sub-sample own production animals (goats, cows, poultry, pigs and rabbits) at baseline, only 32% (controls) to 35% (treatments) own draft animals (horses, mules and oxen). 60% of the households in treatment communities use land for productive purposes (57% do in control communities). The average plot size is between 2.68 (treatments) to 2.94 (controls).

3.5) Estimation Strategy

The research design proposed exploits two main sources of variation to identify the effect of transfer payments on micro-enterprise and farming. First, exogenous variation introduced by the random assignment of households to treatment and control communities can be used to identify the effect of transfers on micro-entrepreneurial and agricultural activities of treatment households. Second, variation in the amount of cash transfer received by each household over time can be used to estimate the differential effects of varying amounts of accumulated transfer on investments, since larger cash transfers would arguably have a stronger impact on reducing liquidity constraints.

The phasing in of the program implied that most eligible households in treatment communities began receiving payments in March-April of 1998, whereas most eligible households in control communities began receiving payments in November-December of

[12] Note that we cannot compare pre-intervention micro-enterprise activity levels for treatment and control households given that the baseline 1997 ENCASEH census does not contain information on micro-enterprise engagement. Nonetheless, randomization should be sufficient to guarantee that they were not significantly different.

1999. Thus, treatment households received transfers for just over a year and a half longer than control households. Given the timing of the ENCEL surveys, we first observe treatment households in October 1998, approximately 6 months following the first transfer payment[13]. Since control communities did not begin receiving payments until November-December of 1999, there are three rounds of data (October 98, May 99 and November 99) where a simple comparison of eligible households in treatment and control villages is possible[14]. For these three rounds, we estimate the following reduced form,

$$Y_{ijt} = \alpha_o + \alpha_1 T_j + \alpha_2 \sum_t WAVE_t + \sum_k \beta_k X_{ij,97} + u_j + \varepsilon_{ijt} \qquad \forall t = 1,2,3 \qquad (1)$$

where the subscripts *i*, *j* and *t* denote household, community and time, respectively. Y_{ijt} denotes any of the variables that identify micro-enterprise or farming activity[15], T_j is a binary indicator equal to 1 if the household lives in a treatment community (ITT) or if the household has received benefits (TOT), depending on the specification; $WAVE_t$ are 3 round dummies and $X_{ij,97}$ are household and community controls as measured at baseline[16]. The error term has two components: an idiosyncratic disturbance, ε_{ijt}, and a time invariant community effect, u_j, that we model as a random effect ($\varepsilon_{ijt} \sim N(0,\sigma_\varepsilon), u_j \sim N(0,\sigma_u)$) . $\hat{\alpha}_1$ measures the average treatment effect. In additional specifications, we interact treatment status with a household extreme poverty status

[13] Since transfer payments are bi-monthly, most eligible households in treatment communities would have received three or four payments by the time of the October 1998 ENCEL.

[14] According to the disbursements records, 49% of control households started receiving benefits during the October-November bimester of 1999. It is impossible for us to say which households had received payments at the time the third ENCEL round was collected. In any case, all throughout the analysis, we will continue to consider these households as pure controls given the small amount of money they would have received at that point.

[15] The dependent variables are further described below.

[16] Missing values for 1997 RHS variables have been replaced by their sample mean and indicator variables have been included to account for the replacement.

indicator at baseline and with farm size (as measured in terms of land use and animal ownership in October 1997) to capture heterogeneous investment responses across households with arguably different initial wealth levels.

In order to use the variation in the amount of transfer received, we combine time in the program and transfer amounts received to look at long term (versus short term) effects of program participation. By November 2003, eligible households in treatment localities had been participating in the program for a little less than six years and those in control localities for three years. Exploiting both the fact that eligible households have had access to benefits for different time lengths and that differently composed households receive different transfer amounts, we rank households according to the total transfer amount they have accumulated at each point in time. We split the cumulative transfer distribution in quintiles and categorize with dummy variables the quintile a household falls in each round. We expect higher investment responses the larger the amount the household has accumulated over time; i.e. the higher the quintile of the cumulative transfer distribution.

The estimation equation is:

$$Y_{ijt} = \alpha_o + \sum_{s=1}^{5} \alpha_{1s} Q_{ijt,s} + \alpha_2 \sum_{t} WAVE_t + \sum_{k} \beta_k X_{ij,97} + u_j + \varepsilon_{ijt} \qquad \forall t = 1,2,3,4,5,6 \qquad (2)$$

where $Q_{ijt,s}$ equals 1 if household *i* in community *j* falls in quintile *s*-th quintile of the cumulative transfer distribution at time *t*[17].

To correct for the endogeneity coming from the fact that the actual transfer amount depends on household behavior (conditionality), we have computed transfer quintiles on

[17] We also run variations of eq. 2 where we interact poverty status and farm size in 1997 with the quintiles.

both the actual transfer distribution and the potential transfer distribution[18]. The distribution of potential transfer (both at time *t* or accumulated) follows very closely that of the real transfer received despite overestimating it, as expected (see graphs 4a and 4b). The simple correlation amongst them is 0.89. If we control for time effects and baseline covariates, the potential transfer explains 55.7% of the total transfer and 65.9% of the variation of the cumulative transfer. Table 5 contains the summary statistics for the potential and actual transfer quintiles.

4) Results

4.1) Consumption

Previous research on the program estimates that OPORTUNIDADES increases per capita consumption by approximately 20% in beneficiary households (Skoufias, 2002). We are able to replicate these results, finding that households with OPORTUNIDADES transfers have 17% to 20% higher per capita consumption compared to control households (results available upon request). However, for the purposes of this study, we are interested in determining the proportion of the cash transfer that is consumed directly out of current transfers, with the remainder being saved or invested. We then capture the long run effects of the program on consumption through the total cumulative transfer amount (lagged by 6 months), and argue that increased long run consumption is achieved through productive investments.

[18]The potential transfer amount, computed applying the program rules on household composition and children's enrollment at baseline, is used here as an instrument to correct any bias that may be coming from unobserved characteristics that are simultaneously correlated with school enrollment and household's micro-entrepreneurial or agricultural activity.

Detailed consumption data are available for 4 of the 6 rounds of ENCEL[19]. Consumption is constructed as total household expenditures on food and non-food items, plus home production (imputed with community level prices). The marginal propensity to consume is estimated by regressing monthly household consumption per capita on monthly household OPORTUNIDADES transfers per capita. A second specification includes an additional term for total cumulative actual transfers per capita which captures the return on investments. Moreover, predicted transfers and predicted cumulative transfers are used as instruments for the actual amounts to correct for endogeneity.

Table 4 presents mean consumption and transfer values by treatment and control groups between 1998 and 1999. We observe that in all cases (except for big farms), consumption levels in treatment households is larger than control households. Regression results are presented in Table 7. Instrumental variables estimates on monthly transfers per capita indicate that 1.08 of each peso transferred is consumed. Controlling for cumulative transfers, the marginal propensity to consume is approximately 0.78, and the coefficient on cumulative transfers 0.012. Thus, the average household invests 0.22 pesos of each peso transferred, and receives a return of 5.5% on the investment.

With an average cumulative transfer of 3444 pesos per capita for original treatments and 2653 for original controls, the average beneficiary individual from the group of original treatment communities consumes 41 pesos more per month after 5 years on the program, and the average beneficiary from original control communities consumes 31.8 pesos per month after three and a half years on the program. The effect of cumulative

[19] 5 rounds include expenditures data and 4 rounds additionally include home production. Four alternative consumption measures are constructed and all yield comparable results. The consumption measurement used for results presented in this paper is constructed as food and nonfood expenditures, plus the value of home production imputed with community level prices.

transfers on consumption is therefore roughly 71% and 54% of the OPORTUNIDADES monthly transfer of 57 pesos per capita (November of 2003) for original treatment and control households, respectively.

For the first round of data where consumption data are available, eligible households in control communities have a per-capita expenditure of $183 pesos[20]. Using this amount as the counterfactual for treatment households, a back of the envelope calculation indicates that original treatment households receive a 22% permanent increase in living standards (41/183), as measured by per capita consumption, over a five year period. Breaking the consumption analysis down by household characteristics, we observe that Bigger Farms have the lowest MPC and the highest return on cumulative transfers, as might be expected from households with more assets and fewer constraints on production.

In the following sections we present evidence on increased investment activity in micro-enterprise and farm production of beneficiary households, and argue that this is the most likely mechanism through which beneficiary households are able to utilize cash transfers to boost long run living standards.

4.2) Micro-enterprise

The analysis of micro-enterprise relies on a set of questions present in five of the rounds (October 1998 to November 2000) of the ENCEL surveys[21]. This set of questions asks the household head whether somebody in the household had engaged in a "self-

[20] The 183 peso per capita adult equivalent value is for eligible households in control communities in November 1998, and differs slightly from the $173 value for the period between November 1998 and November 1999 presented in Table 4.

[21] In the last ENCEL round (November 2003), questions on micro-enterprise were formulated in such a way that make the data non-comparable with that from previous rounds. Both the activities in which household members can engage and the time length (a year in 2003, a month in previous rounds) changed. For these reasons, we decided not to include the last round of data in our analysis.

motivated" non-agricultural activity which generates income during the month before the interview. The list of activities include sewing clothes, making food for sale, carpentry and construction, sale of non-food items such as handcrafts, transportation of people or goods in own vehicle, repair of artifacts or machinery, domestic service (wash, iron or cook for a fee), or other activities done on your own. For the purposes of this study, micro-enterprise will be defined as participation in any of these activities[22].

To obtain an informal estimate of the average program impact, we can compare micro-enterprise participation rates between treatment and control households for the three rounds of data where we have a pure treatment/control variation (October 1998, May 1999 and November 1999). The statistical test of equality on means rejects equality in the likelihood of engaging in micro-enterprise activities for almost all the different sub-samples in which we have broken up the data (Table 5). Results are particularly strong for the sub-sample of extreme poor households and when the dependent variables excludes those activities traditionally done by men, namely construction/carpentry (92% male) and machinery repair (77% male).

We run a set of probit regressions to support such findings. The last two columns of Table 9 show the estimated average treatment effect of OPORTUNIDADES on micro-enterprise and female micro-enterprise engagement, respectively. Model A (first row of Table 9, column 7) contains an estimate of $\hat{\alpha}_1$ from equation 1, which has been slightly modified to not include any household or community baseline characteristics. Model C incorporates the additional controls, $X_{ij,97}$. Model B and D replicate the exercise on the

[22] Because of the very small number of eligible households (0.03%) engaging in transportation in own vehicle, this activity is not used in the construction of the micro-enterprise indicator variable.

sub-sample of actual treatments and actual controls (TOT estimate)[23]. For this period, treated households have a 2.5 to 2.8 percentage point higher participation in micro-enterprise activities than (actual) control households. Given a mean participation rate in micro-enterprise of 7.5%, treatment households are approximately 33% more likely to engage in micro-enterprise.

Models E and F in Table 9 respectively interact treatment with an indicator for extreme poverty and baseline farm size dummies. Households in extreme poverty have a 4.8 percentage point higher participation in micro-enterprise, and thus are a 64% more likely to have a micro-enterprise (model E). Model F shows that households with few agricultural assets are those most likely to have a micro-enterprise given a transfer payment. Households with no baseline assets have a large but insignificant increase in micro-enterprise given transfers. The effect is almost significant (at the 10%) for households with small landless and small farms. Large farms, on the other hand, are no more likely to have a micro-enterprise given participation in the transfers program[24].

The last column of Table 9 shows the same set of regressions for female-like micro-enterprise activity participation. We find a positive treatment effect of 2.8 percentage points without controls, and 3.0 percentage points with controls, or a 43% increase in the likelihood of having a micro-enterprise. The interactions of treatment status with baseline poverty and assets yield similar results as above; poor households and those with few baseline assets are those most likely to have a female micro-enterprise given transfers.

[23] As already argued, our parameter of interest is the TOT estimate rather than the ITT estimate since our primary objective is to prove that households invest part of the transfer received in productive activities that lead to increased earning capabilities and improved welfare. Therefore, making treatment contingent on transfer percipience seems appropriate in our case. The ITT estimates presented here aim to show that there are no significant differences between TOT and ITT parameters and should be read as a robustness check.

[24] We find that agricultural households are slightly more likely to have a micro-enterprise, but are less likely to have a micro-enterprise conditional on program participation. Thus, much of the effect of the program on increasing micro-enterprise appears to be through non-agricultural households.

The effect of accumulated transfer on micro-enterprise participation is shown in Table 10, panel VII. Models A and B present the *s*=5 parameter estimates of $\hat{\alpha}_{1s}$ in equation 2, on the distribution of cumulative potential and cumulative actual transfers. Although only statistically significant at the 10% level, in both cases households in higher quintile groups have a larger magnitude effect on micro-enterprise. The effects are large and significant for households in extreme poverty in the second through fifth quintiles, with households in the fifth quintile being twice as likely to have a micro-enterprise (model C). As observed before, only households with few farm assets are more likely to engage in micro-enterprise activities given more transfers over of time (model D).

Graph 5 offers a summary of the results on micro-entrepreneurial engagement. It shows mean micro-enterprise participation for treatments and controls for the sub-samples of all "treated" original poor, ineligible and, extreme poor households from October 1998 through November 1999. While there is a difference of 2 percentage points on average participation between actual treatment and actual control households, the gap is larger (6 percentage points) for households that are more likely to be liquidity constraint. Indeed, treatment extreme poor households largely respond to transfers and show twice the mean micro-enterprise activity of control extreme poor households over the evaluation period. Mean micro-enterprise levels for ineligible households in treatment and control communities are the same and around the levels reached by treated households (9%). This gives threefold evidence: first, higher micro-enterprise participation amongst treatment households is not due to a community level income effect from the OPORTUNIDADES program; second, micro-enterprise participation rates were not likely to be different in treatment and control communities before the intervention; and lastly, micro-enterprise

levels amongst the wealthier and arguable less liquidity constrained are higher than for any of the control groups.

Finally, Graph 5 plots participation rates in two specific types of micro-enterprise: handcrafts and domestic service. An enterprise such as handcrafts manufacture and sale is likely to require capital expenditures, and poor households might be prevented from entering this type of enterprise because of liquidity constraints. On the other hand, domestic service does not require significant capital expenditures (other than transportation costs if the jobs are in distant locations), and would not likely be restricted by liquidity constraints. Thus, if transfer payments allow poor households to engage in previously prohibitive enterprises by alleviating liquidity constraints, we would expect to see large increases in enterprises such as handcraft sales, but not in domestic service. In line with this story, Graph 5 shows large and significant increases in handcraft enterprises among treatment households, but no differences in domestic service.

4.3) Agricultural Investments

Increased household participation in agricultural and farming activities as a consequence of participation in the OPORTUNIDADES program is measured through changes in ownership of draft animals, production animals and use of land.

The analysis relies on a set of questions available for five of the six ENCEL rounds (November 00 is missing) on the number of animals the household owns and the number of hectares the household has been using over the 12 months preceding the interview for agriculture, grazing and/or forestry purposes[25]. We classify as production animals those

[25] For the rounds of October 1998, May 1999 and November 2003, we also have questions related to income coming from agricultural and livestock activities. Nonetheless, the data is too noisy and non-

whose meat and/or products (milk, cheese, eggs, etc…) can be sold. They include goats and sheep, cattle (cows), poultry (chickens, hens and turkeys), pigs and rabbits. Donkeys, mules, horses and oxen are classified as draft animals because they are more likely to be used to farm the family land and/or for transportation purposes. We construct two dichotomous variables to account for production and draft animal ownership, and two continuous variables that equal the index number (in cow equivalent units) of production and draft animals the household has[26]. Similarly, land hectares is a continuous variable equal to the total sum of hectares from all the different plots the household uses; and we construct a dummy for land usage that equals one if the household reports using a positive amount of land[27].

A simple comparison of the mean values for each dependent variable between households in treatment and control villages from October 1998 through November 1999 gives us an informal test of the program impact (see Table 5). We observe significant increases in the likelihood of draft and production animal ownership for all households and in particular for those with more agricultural assets at baseline (big farms). There are almost significant (significant at the 10%) increases in land use for landless households and significant increases in the number of production animals for households with no agricultural assets in 1997. Indeed, one would expect that the acquisition of production animals requires a lower capital investment than the acquisition of draft animals. It also seems plausible that households with no farm assets start their "farm business" by buying

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comparable across rounds to be used to provide any reliably insight on the effect of the transfer on agricultural income and productivity.

[26] Using household data on the amount made from animal sales, we estimate community level prices per head for each type of animal. We convert animals into cow equivalent units by multiplying the number of animals X by the ratio price of X-to-price of cow, so that we can aggregate them to obtain a draft and production animal bundle.

[27] We have trimmed unreasonably high number of animals and hectares used (top 0.25%).

small and cheap animals out of which they can obtain a relatively quick return (eggs from chickens, meat from chickens and turkeys or rabbit…).

We can obtain formal evidence by running equation 1 and its variations for each of the dichotomous and continuous versions of the agricultural outcomes of interest (draft animals, production animals and land). Results for the estimated effect of program participation, $\hat{\alpha}_1$, are presented in Table 9. Treatment households present a 4.4 percentage points increase in the probability of owning draft animals and a 3.7 percentage points increase in the likelihood of owning production animals (TOT estimate). Results are robust to the exclusion of controls (model B) and/or inclusion of all intent to treat households (models A and C). Given mean probabilities of asset ownership and usage, such coefficients imply that treatment households are 14.5% more likely to own draft animals and 5% more likely to own production animals than control households. There is no significant effect in the probability of land usage.

Participation in the program does not have any significant effect on the likelihood of investing in farming assets for extreme poor households (model E, Table 9). However, these (arguably) more liquidity constraint households are the ones most likely to engage in micro-entrepreneurial activities. If initial capital expenditures (fixed costs) to start up small domestic handcraft business are lower than buying a cow (for instance), then these findings are in line with our liquidity constraint argument.

In line with this type of argument, model F shows that only those households owning animals at baseline (in particular, landless households and big farms) significantly increase draft animal ownership by 5.3 to 6.5 percentage points (19 to 23.6% percent increase in probability). On the other hand, treatment households with no agricultural assets

at baseline are 10.2% more likely to increase production animal ownership than control households. These households may, for example, breed small production animals in the back yard in order to sell the animals and their byproducts. Effects on production animal ownership are also significant for small landless and big farms. Increases in land usage are significant (at the 10% level) for landless treatment households. Their order of magnitude is of 4.5 to 6.3 percentage point, which represents a 7.4 to 10.4% increase in probability (see column 5 in Table 9).

To answer the question of how many more animals and how many more hectares households use, we run equation 1 and its variations for the number of cow equivalent draft and production animals and of the number of hectares on the different group of covariates (Table 9). Households with small farms significantly increase the number of cow equivalent draft animals by 0.058 cows, on average, (or equivalently, 0.14 horses and 0.38 mules). Effects are larger in magnitude and significance for households with big farms. Treatment increases, on average, the number of cow equivalent draft animals by 0.086 cows (0.20 horses and 0.57 mules) and by 0.180 cows the number of cow equivalent production animals (1.01 goats, 1.14 pigs and 9.74 chickens and/or turkeys). Overall, there are no significant impacts of treatment on the number of land hectares used for productive purposes[28].

As we saw with micro-enterprise activities, panels I to VI of Table 10 show that households receiving higher accumulated transfers per wave are also those with a higher likelihood of investing in agricultural assets. Indeed, the effect is significant for the second

[28] For the October 1998, May 1999 and November 2003 of the ENCEL, we have information on land ownership which allows us to classify land into "owned land", if any households member is reported to be the owner; and "non-owned land" if the plot is reported to be rented, borrowed or in tenancy. Despite not being presented here due to lack of space, results show increases of approx. 0.034 ha ($340m^2$) in the use of borrowed, rented and/or in tenancy land.

through fifth quintiles on the likelihood of owning draft animals, and on the number of cow equivalent production animals owned; and for the top two quintiles (top three quintiles if we work with the distribution of potential transfers) on the probability of owning production animals. Concerning the number of cow-equivalent draft animals, effects while positive and increasing with the quintile, are only significant on the top quintiles. This seems to imply that households might need to accumulate a large sum before they can afford buying a horse or an ox. The effect per quintile on the probability of land use follows the same general pattern, despite being only significant on the fifth quintile of the actual cumulative transfer distribution. Increases in the number of hectares are always large and significant expect for the top quintile. Note the similarity in magnitude and significance between estimates on the actual transfer distribution and the potential transfer distribution (used here as an instrument for the actual transfer). As expected, estimates on the actual transfer distribution are generally higher.

Results on accumulated actual transfer quintiles conditioning on farm assets at baseline (model C in panels I-IV of Table 10) confirm these results[29]. Effects are large and significant for those households in the higher quintiles. As before, only households owning animals at baseline significantly increase draft animal ownership given treatment, whereas production animal ownership experiences larger increases for households that had no agricultural assets in October 1997. Also, we find the same result on increases in land use for landless households and households with no agricultural assets at baseline[30].

[29] We focus on the estimates of the cumulative actual transfer distribution given their similarity with those coming from the potential transfer distribution, as models A and B show.
[30] As shown, program effects on agricultural outcomes are not significant for the extreme poor households. Given, we find no significant effects either when we look at the variation in the amount of transfer accumulated over time (quintiles), we do not show those runs here. They are available upon request.

Overall, results suggest that landless households start up their farm "business" by acquiring some land and production animals. Households already in the farm business invest in big draft animals to use in their land plot. Graph 6 shows this evidence in an attempt to summarize OPORTUNIDADES impact on agricultural investments.

Although not reported here, the effect of the household and community characteristics on the outcome variables is interesting on its own[31]. Indigenous households are more likely to use land but are less likely to own either draft or production animals. Initial agricultural asset ownership and home ownership increase the likelihood of more asset ownership. Poorer households (with no electricity and dirt floor) tend to have fewer animals and use less land. A female head is positively correlated with a higher production animal ownership and micro-enterprise activity. So are spouse's characteristics (who is likely to be a woman) like age and education. On the other hand, head's age and education are positively correlated with land and draft animal ownership. Household size increases agricultural asset ownership although there is a negative effect for households with very young children (arguably, younger households). The more adults in the household is associated with a higher probability of engaging in micro-enterprise activities. Finally, distance to a larger urban center, taken here as a proxy for market accessibility, is positively correlated with land use but negatively affects draft animal ownership.

4.4) Robustness Checks

So far we have seen that results are robust to the estimation sub-sample (intent to treat households vs. actual treatment households) and to the inclusion of covariates.

[31]Full estimation results are available upon request.

Moreover, results on the transfer amounts received are also robust to using actual or potential transfer amounts.

Nonetheless, it could still be the case that higher activity levels in micro-enterprises and farms are due to a community level income effect derived from the presence of OPORTUNIDADES in the community. In order to rule this possibility out, we replicate the analysis on the sub-sample of ineligible (non-poor) households living in both treatment and control communities for the first three waves (October 1998, May 1999 and November 1999) where the merely treatment/control comparison is possible amongst the eligible. Table 11 shows that in general, there are no significant program impacts for the sub-sample of ineligibles, the exceptions being an increase in the number of draft animals for big farms and in the likelihood of micro-enterprise activity for small farms. In addition to this, the mean of the dependent variables for the ineligible (non-poor) are higher than for the eligible (poor), providing further evidence of micro-enterprise and farm activity amongst the wealthier and arguable less liquidity constrained households.

5. **Conclusions**

The analysis conducted here provides evidence that transfer payments to poor households in rural Mexico have increased participation in micro-enterprise and agricultural activities. This result suggests that households in extreme poverty may be liquidity constrained, and that there are unexploited productive activities that some households will engage in given a lessening of these constraints. Furthermore, this result supports the idea that the indirect effects of transfer programs on labor supply and productivity are not necessarily negative. Taking these results in conjunction with the

Parker and Skoufias (2000) study on labor supply provides strong evidence that conditional transfer programs such as OPORTUNIDADES do not create disincentives to work, and that some beneficiaries are either re-allocating or increasing labor supply to take advantage of newly available economic opportunities.

Conditional cash transfer programs such as OPORTUNIDADES have been shown to provide a number of positive benefits to program participants, including increased caloric intake, better health and nutrition, and higher school enrollment for children. Increased human capital may play an important role in breaking the cycle of poverty for younger generations. However, there are also important implications associated with the "indirect" effect of conditional cash transfer programs for the current generation of adults living in extreme poverty. Although we do not argue that cash transfer programs are necessarily the most effective policy for promoting micro-enterprise, increased entrepreneurial activity brought on by cash transfers may result in increased income and the potential for self sufficiency.

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APPENDIX 1 -TABLES

Table 1: OPORTUNIDADES Monthly Transfer Amounts at Baseline (October 1997)

Transfer Component	Level	Grade	Boys	Girls
Education Stipend	Primary School	3rd year	60	60
		4th year	70	70
		5th year	90	90
		6th year	120	120
	Junior High School	1rst year	175	185
		2nd year	185	205
		3rd year	195	225
	High School[1]	1rst year	470	540
		2nd year	505	575
		3rd year	535	610
School Supplies Stipend	Primary, 1rst payment		80	80
	Primary, 2nd payment		40	40
	Junior High School		150	150
	High School[1]		240	240
Nutritional Stipend (per family)			90	
Transfer Cap I (per family)[2]			550	
Transfer Cap II (per family)[3]			700	

Source: OPORTUNIDADES -www.oportunidades.gob.mx. Transfer amounts are adjusted for inflation every semester according to the Consumer Price Index published by the Bank of Mexico.
1High school stipends did not begin to grant themselves until the second semester of 2001 (July 2001).
2Transfer Cap I is the maximum transfer amount awarded for basic education (primary school and junior high) and nutrition.
3Transfer Cap II is the maximum transfer amount given for high school and nutrition.

Table 2: Sample Sizes and Take-Up Rates[1]

	Treatment		Control		All	
	N	%	N	%	N	%
Sample of Eligible (Poor) Households						
Number No Take-Up Households	839	10.96	485	10.44	1324	10.76
Number Take-Up Households (Actually Treated -TOT)	6,819	89.04	4,159	89.56	10,978	89.24
Total Number of Households (Intent to Treat -ITT)	7,658		4,644		12,302	
Number of Communities	320	63.24	186	36.76	506	

[1]A control households is considered to have taken-up the program if it has received, at least, one bimonthly payment by the time all eligible households should have been incorporated, i.e. by November 2000. For treatment households, we condition take-up on the first payment being received before November 1999; this is, before any eligible control households has been phased into the program.
[2]We drop 116 outlier households (78 treatment and 38 control) from the original OPORTUNIDADES sample. These are households with unreasonably high values of total transfer accumulated over time (we drop any household that received a total transfer amount higher than the maximum it could have potentially received) and/or households with extremely young (below 13) or extremely old (over 90) heads and/or head's spouses.

Table 3: Test of Equality of Means between Actual Treatments and Actual Controls Prior to Program Implementation
Sub-Sample of Original Poor at Baseline (October 1997) -Treatment on the Treated (TOT)

	Treatment Group			Control Group			
	N	Mean	SD	N	Mean	SD	t-stat
A. Explanatory Variables							
Head's Characteristics							
Age Household Head	6818	42.01	13.898	4158	42.49	14.381	-1.140
Female Head =1	6819	7.86	0.269	4159	7.89	0.270	-0.042
Indigenous Head =1	6809	41.72	0.493	4151	43.97	0.496	-0.403
Head's Education (Years)	4745	4.03	2.268	2841	3.91	2.206	1.275
Never Attended School (Head of Household) =1	6797	30.38	0.460	4154	32.04	0.467	-0.796
Primary School Not Completed (Head of Household) =1	6797	47.21	0.499	4154	47.64	0.500	-0.257
Primary School Completed (Head of Household) =1	6797	17.18	0.377	4154	15.53	0.362	1.172
More than Primary School (Head of Household) =1	6797	5.22	0.223	4154	4.79	0.214	0.668
Spouse's Characteristics							
Age Spouse of Head	6037	36.43	12.114	3693	36.47	12.120	-0.111
Spouse's Education (Years)	3917	4.12	2.090	2322	4.15	2.160	-0.287
Never Attended School (Head's Spouse) =1	6027	35.26	0.478	3687	37.08	0.483	-0.669
Primary School Not Completed (Head's Spouse) =1	6027	42.49	0.494	3687	41.58	0.493	0.464
Primary School Completed (Head's Spouse) =1	6027	18.57	0.389	3687	16.79	0.374	1.235
More than Primary School (Head's Spouse) =1	6027	3.68	0.188	3687	4.56	0.209	-1.451
Main Entrepreneur's Characteristics							
Age Main Entrepreneur in the HH	760	40.38	13.964	318	40.42	14.405	-0.035
Education Years Main Entrepreneur in the HH	757	2.77	2.764	315	2.64	2.555	0.519
Female Main Entrepreneur in the HH =1	761	53.35	0.499	318	53.77	0.499	-0.061
Main Entrepreneur is the (likely) Beneficiary Mother =1	757	35.54	0.479	315	35.87	0.480	-0.069
Household Characteristics							
Presence of Children 0 to 7 =1	6810	75.89	0.428	4157	77.24	0.419	-1.101
Presence of Children 8 to 7 =1	6810	70.47	0.456	4157	70.99	0.454	-0.435
Presence of Adult Men 18 to 54 =1	6810	84.33	0.364	4157	84.44	0.363	-0.103
Presence of Adult Female 18 to 54 =1	6810	91.17	0.284	4157	91.46	0.280	-0.378
Presence of Adults Older than 55 =1	6810	26.77	0.443	4157	27.54	0.447	-0.662
Household Size	6819	6.00	2.416	4159	6.04	2.405	-0.583
Home Ownership =1	6816	93.87	0.240	4158	92.83	0.258	1.199
Dirt Floor =1	6803	72.59	0.446	4145	75.49	0.430	-1.116
Electricity =1	6815	58.94	0.492	4158	61.21	0.487	-0.529
Extreme Poor (bathroom =0 & dirtfloor =1) =1	6819	34.67	0.476	4159	36.81	0.482	-0.746
No Agricultural Assets =1	6798	9.55	0.294	4145	10.78	0.310	-1.012
Landless Farms =1	6798	30.77	0.462	4145	32.06	0.467	-0.570
Small Landed Farms =1	6798	26.30	0.440	4145	21.38	0.410	**2.383**
Big Farms =1	6798	33.38	0.472	4145	35.78	0.479	-1.042
Community Characteristics							
Village Associations (Community Work)	6819	89.18	0.311	4159	87.21	0.334	0.432
Minimum Distance to Large Urban Centre (Km)	6819	107.53	41.857	4159	105.06	43.780	0.486
Monthly Community Agricultural Male Wage	4006	573.79	170.117	2498	579.80	163.320	-0.249
B. Dependent Variables in 97 (Baseline)-Exogeneity Test							
Draft Animals Ownership	6819	35.15	0.477	4159	32.53	0.469	1.109
Production Animals Ownership	6817	81.90	0.385	4158	82.56	0.379	-0.376
Land Use	6819	59.77	0.490	4159	57.30	0.495	0.856
Number Draft Animals*	2391	0.98	1.999	1350	0.89	1.422	0.874
Number Production Animals*	5576	1.25	2.281	3425	1.23	2.356	0.236
Number Hectares Used*	4057	2.68	2.759	2370	2.94	2.851	-1.564

Notes: T-stat of differences in means computed clustering SE at the community level. Mean of dichotomous variables expressed in percentages.
*Continuous variables conditional on being positive. Number of draft or production animals are expressed in equivalent cow units. Small farms are landed households using less than 2 Ha. of land; big farms use more than 2 Ha.

Table 4: Consumption and Transfer Amounts -Test of Equality of Means between Actual Treatments and Actual Controls. Sub-Sample of Original Poor from October 1998 to November 1999 -Treatment on the Treated (TOT)

	Treatment Group			Control Group			
	N	Mean	SD	N	Mean	SD	t-stat
A. Entire Sub-Sample							
Monthly Consumption per Capita (Home Production Included)[1]	13138	197.66	120.119	7852	173.93	112.534	**4.694**
Actual Monthly Transfer per Capita	13138	36.12	22.245	7852	-	-	**61.601**
6-month Lagged Actual Cumulated Transfer per Capita	13138	140.84	126.329	7852	-	-	**47.033**
Potential Monthly Transfer per Capita	13138	48.53	28.067	7852	-	-	**79.896**
6-month Lagged Potential Cumulated Transfer per Capita	13138	216.30	192.469	7852	-	-	**69.171**
B. Extreme Poor Household in 97 =1							
Monthly Consumption per Capita (Home Production Included)[1]	4520	193.31	115.386	2838	170.32	105.995	**3.574**
Actual Monthly Transfer per Capita	4520	33.68	20.824	2838	-	-	**47.044**
6-month Lagged Actual Cumulated Transfer per Capita	4520	133.22	124.431	2838	-	-	**31.757**
Potential Monthly Transfer per Capita	4520	45.51	27.212	2838	-	-	**45.161**
6-month Lagged Potential Cumulated Transfer per Capita	4520	202.01	191.002	2838	-	-	**39.840**
C. No Agricultural Assets Household in 97 =1							
Monthly Consumption per Capita (Home Production Included)[1]	1227	220.56	126.321	804	192.70	116.618	**3.303**
Actual Monthly Transfer per Capita	1227	35.16	22.076	804	-	-	**34.889**
6-month Lagged Actual Cumulated Transfer per Capita	1227	138.76	129.174	804	-	-	**26.699**
Potential Monthly Transfer per Capita	1227	44.60	24.802	804	-	-	**36.148**
6-month Lagged Potential Cumulated Transfer per Capita	1227	200.44	178.355	804	-	-	**33.238**
D. Landless Household in 97 =1							
Monthly Consumption per Capita (Home Production Included)[1]	3996	204.70	116.950	2502	183.25	103.519	**3.536**
Actual Monthly Transfer per Capita	3996	35.72	21.086	2502	-	-	**53.988**
6-month Lagged Actual Cumulated Transfer per Capita	3996	141.70	124.284	2502	-	-	**39.588**
Potential Monthly Transfer per Capita	3996	48.24	26.899	2502	-	-	**58.606**
6-month Lagged Potential Cumulated Transfer per Capita	3996	216.65	193.321	2502	-	-	**51.536**
E. Small Farm in 97 =1							
Monthly Consumption per Capita (Home Production Included)[1]	6989	189.44	118.900	3966	161.92	115.232	**4.819**
Actual Monthly Transfer per Capita	6989	36.37	22.848	3966	-	-	**51.448**
6-month Lagged Actual Cumulated Transfer per Capita	6989	140.61	127.622	3966	-	-	**39.580**
Potential Monthly Transfer per Capita	6989	49.19	29.320	3966	-	-	**75.899**
6-month Lagged Potential Cumulated Transfer per Capita	6989	217.71	193.886	3966	-	-	**63.141**
F. Big Farm in 97 =1							
Monthly Consumption per Capita (Home Production Included)[1]	884	200.31	130.011	556	189.90	116.754	**1.059**
Actual Monthly Transfer per Capita	884	37.27	22.532	556	-	-	**32.589**
6-month Lagged Actual Cumulated Transfer per Capita	884	140.85	120.039	556	-	-	**27.683**
Potential Monthly Transfer per Capita	884	49.84	26.527	556	-	-	**40.090**
6-month Lagged Potential Cumulated Transfer per Capita	884	223.61	192.104	556	-	-	**28.782**

Notes: T-stat of differences in means computed clustering SE at the community level. All variables are expressed in per capita adult equivalent units.

[1]Data on home production is only available for two rounds of data, namely October 1998 and May 1999. Small farms are landed households using less than 3 Ha. of land; big farms use more than 3 Ha.

Table 5: Average Treatment Effect -Test of Equality of Means between Actual Treatments and Actual Controls.
Sub-Sample of Original Poor from October 1998 to November 1999 -Treatment on the Treated (TOT)

	Treatment Group			Control Group			
	N	Mean	SD	N	Mean	SD	t-stat
A. Entire Sub-Sample							
Household has a Micro-Enterprise =1	19409	8.48	0.279	11805	5.85	0.235	**1.855**
Household has a Female Micro-Enterprise =1	19409	8.11	0.273	11805	5.13	0.221	**2.217**
Household has a Male Micro-Enterprise =1	19409	0.43	0.066	11805	0.75	0.086	-0.638
Draft Animals Ownership =1	19406	29.19	0.455	11805	24.88	0.432	**2.014**
Production Animals Ownership =1	19406	74.81	0.434	11805	70.99	0.454	**2.115**
Land Use =1	19409	61.62	0.486	11805	59.06	0.492	0.998
Number of Draft Animals*	5641	0.66	1.070	2928	0.62	0.994	0.658
Number of Production Animals*	14490	1.02	1.951	8357	0.90	1.829	1.437
Number of Hectares Used	11886	2.10	2.182	6928	2.10	2.171	-0.009
B. Extreme Poor Household in 97 =1							
Household has a Micro-Enterprise =1	6666	11.88	0.324	4269	5.55	0.229	**2.730**
Household has a Female Micro-Enterprise =1	6666	11.48	0.319	4269	5.18	0.222	**2.717**
Household has a Male Micro-Enterprise =1	6666	0.47	0.068	4269	0.37	0.061	0.459
Draft Animals Ownership =1	6665	28.57	0.452	4269	21.20	0.409	**2.829**
Production Animals Ownership =1	6665	71.84	0.450	4269	67.23	0.469	**1.942**
Land Use =1	6666	57.47	0.494	4269	55.87	0.497	0.458
Number of Draft Animals*	1895	0.66	1.117	901	0.50	0.743	**2.704**
Number of Production Animals*	4781	0.89	1.582	2865	0.75	1.477	**1.724**
Number of Hectares Used	3805	1.92	1.944	2372	1.85	1.891	0.471
C. No Agricultural Assets Household in 97 =1							
Household has a Micro-Enterprise =1	1816	7.21	0.259	1212	4.37	0.205	1.203
Household has a Female Micro-Enterprise =1	1816	6.77	0.251	1212	3.63	0.187	1.395
Household has a Male Micro-Enterprise =1	1816	0.66	0.081	1212	0.83	0.090	-0.234
Draft Animals Ownership =1	1814	7.55	0.264	1212	9.16	0.289	-0.937
Production Animals Ownership =1	1814	50.88	0.500	1212	42.16	0.494	**2.862**
Land Use =1	1816	27.75	0.448	1212	22.03	0.415	**1.719**
Number of Draft Animals*	137	0.41	0.580	110	0.34	0.266	1.008
Number of Production Animals*	921	0.41	0.901	510	0.37	0.803	0.453
Number of Hectares Used	503	1.25	1.403	264	1.36	1.369	-0.854
D. Landless Household in 97 =1							
Household has a Micro-Enterprise =1	5908	8.26	0.275	3768	5.52	0.228	**1.761**
Household has a Female Micro-Enterprise =1	5908	7.97	0.271	3768	4.99	0.218	**1.949**
Household has a Male Micro-Enterprise =1	5908	0.37	0.061	3768	0.53	0.073	-0.477
Draft Animals Ownership =1	5908	24.68	0.431	3768	19.03	0.393	**2.438**
Production Animals Ownership =1	5908	75.00	0.433	3768	72.03	0.449	1.496
Land Use =1	5908	41.22	0.492	3768	36.73	0.482	**1.683**
Number of Draft Animals*	1451	0.49	0.888	714	0.44	0.606	1.166
Number of Production Animals*	4426	0.77	1.454	2706	0.64	1.316	**1.767**
Number of Hectares Used	2425	1.61	1.860	1379	1.55	1.580	0.653
E. Small Farm in 97 =1							
Household has a Micro-Enterprise =1	5125	9.74	0.296	2538	6.26	0.242	**1.629**
Household has a Female Micro-Enterprise =1	5125	9.19	0.289	2538	5.44	0.227	**1.792**
Household has a Male Micro-Enterprise =1	5125	0.59	0.076	2538	0.87	0.093	-0.584
Draft Animals Ownership =1	5124	24.51	0.430	2538	22.73	0.419	0.616
Production Animals Ownership =1	5124	73.89	0.439	2538	71.63	0.451	0.834
Land Use =1	5125	72.04	0.449	2538	71.99	0.449	0.022
Number of Draft Animals*	1249	0.62	1.188	576	0.50	0.682	**1.767**
Number of Production Animals*	3785	0.83	1.544	1813	0.67	1.402	**1.912**
Number of Hectares Used	3673	1.58	1.706	1823	1.52	1.537	0.643
F. Big Farm in 97 =1							
Household has a Micro-Enterprise =1	6498	7.97	0.271	4250	6.38	0.244	1.259
Household has a Female Micro-Enterprise =1	6498	7.69	0.267	4250	5.55	0.229	**1.895**
Household has a Male Micro-Enterprise =1	6498	0.31	0.055	4250	0.85	0.092	-0.858
Draft Animals Ownership =1	6498	43.01	0.495	4250	35.65	0.479	**2.329**
Production Animals Ownership =1	6498	81.93	0.385	4250	77.76	0.416	**2.161**
Land Use =1	6498	81.27	0.390	4250	81.44	0.389	-0.094
Number of Draft Animals**	2785	0.77	1.088	1511	0.75	1.129	0.192
Number of Production Animals**	5304	1.45	2.489	3298	1.31	2.312	1.059
Number of Hectares Used	5241	2.77	2.459	3435	2.68	2.503	0.546

Notes: T-stat of differences in means computed clustering SE at the community level. Mean of dichotomous variables expressed in percentages.
*Continuous variables conditional on being positive. Number of draft or production animals are expressed in equivalent cow units. Small farms are landed households using less than 2 Ha. of land; big farms use more than 2 Ha.

Table 6: Quintiles of Actual and Potential Cumulative Transfers -Summary Statistics
Sub-Sample of Original Poor Households

	N	Mean	SD	Min	Max
Actual Transfer					
First Quintile	10418	590.842	273.750	93.076	1069.822
Second Quintile	10399	1485.079	272.906	1069.914	1990.175
Third Quintile	10408	2677.460	464.376	1990.195	3635.305
Fourth Quintile	10408	5159.457	960.204	3635.448	7084.727
Fifth Quintile	10408	14208.960	6729.869	7085.409	40661.190
Potential Transfer					
First Quintile	10411	914.745	341.255	180	1400
Second Quintile	11246	2201.276	422.147	1420	2880
Third Quintile	9640	3963.727	692.072	2900	5280
Fourth Quintile	10339	7263.898	1345.171	5290	10120
Fifth Quintile	10405	17993.660	6603.583	10130	40990

Note: We drop 108 observations (18 households) that receive a total transfer amount higher than 40,990 pesos (maximum amount they could have potentially received according to the program rules and their baseline characteristics).

Table 7: Marginal Propensity to Consume -Effect of Current and Lagged Cumulative Transfers on Consumption
Sub-sample of Original Poor Households in October 1998 through November 2003[1]-Actual Treatments.

Estimation Sub-sample	Consumption (2SLS)	Consumption (2SLS)	Consumption (LS)	Consumption (LS)	Number of Observations	Mean Dep. Var.
I. All Households						
Actual Transfer - monthly per capita adult equivalent	1.082**	0.779**	0.692**	0.395**	41123	193.386
	(0.038)	(0.046)	(0.024)	(0.029)		
Actual Cumulative Transfer -6 months lag per capita adult equivalent		0.012**		0.015**		
		(0.001)		(0.001)		
II. Extreme Poor Households						
Actual Transfer - monthly per capita adult equivalent	0.717**	0.522**	0.670**	0.466**	14363	186.85
	(0.078)	(0.086)	(0.047)	(0.056)		
Actual Cumulative Transfer -6 months lag per capita adult equivalent		0.011**		0.012**		
		(0.002)		(0.002)		
III. Non-Agricultural Households						
Actual Transfer - monthly per capita adult equivalent	1.094**	0.891**	0.838**	0.559**	3895	211.957
	(0.175)	(0.190)	(0.116)	(0.136)		
Actual Cumulative Transfer -6 months lag per capita adult equivalent		0.016**		0.019**		
		(0.006)		(0.005)		
IV. Landless Households						
Actual Transfer - monthly per capita adult equivalent	0.829**	0.488**	0.685**	0.365**	12730	200.946
	(0.059)	(0.073)	(0.038)	(0.048)		
Actual Cumulative Transfer -6 months lag per capita adult equivalent		0.014**		0.016**		
		(0.002)		(0.001)		
V. Smaller Farms						
Actual Transfer - monthly per capita adult equivalent	1.299**	1.090**	0.703**	0.447**	18413	186.736
	(0.056)	(0.070)	(0.034)	(0.042)		
Actual Cumulative Transfer -6 months lag per capita adult equivalent		0.008**		0.012**		
		(0.001)		(0.001)		
VI. Bigger Farms						
Actual Transfer - monthly per capita adult equivalent	1.145**	0.410**	0.583**	0.094	5955	185.619
	(0.098)	(0.123)	(0.060)	(0.073)		
Actual Cumulative Transfer -6 months lag per capita adult equivalent		0.027**		0.025**		
		(0.003)		(0.002)		

head's and spouse's age and education, head's ethnicity (language), household size adult equivalent, dummies controlling for household demographics, baseline assets (home ownership, dirt floor and electricity) and community characteristics (community organizations, distance to urban center and wages). Small farms are landed households using less than 3 Ha. of land; big farms use more than 3 Ha. Consumption is expenditures expressed in per capita adult equivalent units and includes home production.

[1]Because of the inclusion of home production, we only have data on consumption for the following rounds: October 1998, May 1999, November 2000 and November

Table 8: Marginal Propensity to Consume -Effect of Current and Lagged Cumulative Transfers on Consumption.
First Stage Results. Sub-sample of Original Poor Households in October 1998 through November 2003[1] -Actual Treatments.

Estimation Sub-sample	Actual Transfer (2SLS)	Actual Cumulative Transfer	Number of Observations
I. All Households			
Actual Transfer - monthly per capita adult equivalent	0.473**	-2.967	41123
	(0.004)	(0.103)	
Actual Cumulative Transfer -6 months lag per capita adult equivalent	0.004**	0.696**	
	(0.000)	(0.003)	
II. Extreme Poor Households			
Actual Transfer - monthly per capita adult equivalent	0.478**	-2.707**	14363
	(0.006)	(0.175)	
Actual Cumulative Transfer -6 months lag per capita adult equivalent	0.001**	0.589	
	(0.000)	(0.005)	
III. Non-Agricultural Households			
Actual Transfer - monthly per capita adult equivalent	0.589**	-2.603**	3895
	(0.012)	(0.284)	
Actual Cumulative Transfer -6 months lag per capita adult equivalent	0.002	0.684**	
	(0.000)	(0.009)	
IV. Landless Households			
Actual Transfer - monthly per capita adult equivalent	0.4854**	-2.812**	12730
	(0.007)	(0.186)	
Actual Cumulative Transfer -6 months lag per capita adult equivalent	0.004**	0.682**	
	(0.001)	(0.005)	
V. Smaller Farms			
Actual Transfer - monthly per capita adult equivalent	0.462**	-2.663	18413
	(0.006)	(0.161)	
Actual Cumulative Transfer -6 months lag per capita adult equivalent	0.004**	0.692**	
	(0.001)	(0.042)	
VI. Bigger Farms			
Actual Transfer - monthly per capita adult equivalent	0.430**	-4.021**	5955
	(0.103)	(0.255)	
Actual Cumulative Transfer -6 months lag per capita adult equivalent	0.005**	0.732	
		(0.007)	

Notes: +significant at 10%, *significant at 5%, **significant at 1%. All regressions include random effects at the community level. Controls include wave dummies, head's and spouse's age and education, head's ethnicity (language), household size adult equivalent, dummies controlling for household demographics, baseline assets (home ownership, dirt floor and electricity) and community characteristics (community organizations, distance to urban center and wages). Small farms are landed households using less than 3 Ha. of land; big farms use more than 3 Ha. Consumption is expenditures expressed in per capita adult equivalent units and includes home production.

[1]Because of the inclusion of home production, we only have data on consumption for the following rounds: Oct.1998, May 1999, Nov. 2000 and Nov. 2003

Table 9: Effect of OPORTUNIDADES on Agricultural and Micro-Entepreneurial Investments -Treatment and Control Variation.
Sub-sample of Original Poor Households in October 1998, May 1999 and November 1999 -Intent to Treat and Actual Treatments.

	Draft Animal Ownership (PROBIT)	Number of Equivalent Draft Animals (LS)	Production Animal Ownership (PROBIT)	Number of Equivalent Production Animals (LS)	Land Use (PROBIT)	Number of Hectares Used (LS)	Micro-Enterprise (PROBIT)	Female Micro-Enterprise (PROBIT)
Model A: ITT -no controls								
Treatment Status	0.043*	0.030	0.038*	0.086	0.029	0.031	0.026+	0.030*
	(0.021)	(0.025)	(0.018)	(0.075)	(0.025)	(0.089)	(0.014)	(0.013)
Model B: TOT -no controls								
Treatment Status	0.043*	0.029	0.039*	0.090	0.026	0.036	0.025+	0.028*
	(0.021)	(0.025)	(0.018)	(0.072)	(0.026)	(0.091)	(0.014)	(0.013)
Model C: ITT -controls								
Treatment Status	0.046**	0.030	0.037*	0.084	0.028	0.026	0.029*	0.031**
	(0.018)	(0.022)	(0.016)	(0.067)	(0.025)	(0.084)	(0.012)	(0.012)
Model D: TOT -controls								
Treatment Status	0.044*	0.031	0.037*	0.092	0.028	0.038	0.028*	0.030**
	(0.017)	(0.023)	(0.017)	(0.065)	(0.025)	(0.086)	(0.012)	(0.011)
Model E: TOT on Extreme Poverty - controls								
Treatment Status * Extreme Poor	0.034	0.000	0.002	-0.058	-0.024	0.002	0.048**	0.039**
	(0.024)	(0.016)	(0.019)	(0.044)	(0.029)	(0.050)	(0.017)	(0.015)
Model F: TOT by Farm Size - controls								
Treatment Status * No Agricultural Assets	-0.008	0.003	0.075**	0.015	0.063+	0.031	0.039	0.044
	(0.034)	(0.030)	(0.022)	(0.083)	(0.038)	(0.092)	(0.027)	(0.027)
Treatment Status * Landless	0.065*	0.019	0.029+	0.010	0.045+	0.058	0.031+	0.034*
	(0.026)	(0.024)	(0.018)	(0.066)	(0.025)	(0.073)	(0.016)	(0.016)
Treatment Status * Small Farm	0.025	0.058*	0.020	0.099	0.004	0.024	0.044+	0.049+
	(0.025)	(0.025)	(0.023)	(0.070)	(0.028)	(0.077)	(0.025)	(0.026)
Treatment Status * Bigger Farm	0.053*	0.086**	0.038*	0.180**	0.008	0.086	0.023	0.028+
	(0.022)	(0.023)	(0.019)	(0.065)	(0.025)	(0.072)	(0.015)	(0.014)
Observations ITT Sub-Sample (Model A)	33313	33313	33313	33313	33316	33193	33316	33316
Mean Dependent Variable ITT Sub-Sample	0.275	0.176	0.729	0.722	0.605	1.265	0.076	0.071
Observations TOT Sub-Sample (Models B to F)	31211	31211	31211	31211	31214	31097	31214	31214
Mean Dependent Variable TOT Sub-Sample	0.276	0.176	0.734	0.715	0.606	1.273	0.075	0.070

Notes: +significant at 10%, *significant at 5%, **significant at 1%. For the probit models, marginal effects (dprobit) and robust standard errors reported, clustered at the community level. LS regressions include random effects. All regressions include wave dummies. Controls in models C to F include head's and spouse's age and education, head's ethnicity (language), household size, dummies controlling for household demographics, baseline assets (home ownership, dirt floor and electricity) and community characteristics (community organizations, distance to urban center and wages). Model E and model F control, respectively, for extreme poverty status and farm size in October 1997 (baseline). Small farms are landed households using less than 2 Ha. of land; big farms use more than 2 Ha.

Table 10: Effect of OPORTUNIDADES on Agricultural and Micro-Entrepeneurial Investments by Quintiles of Cumulative Transfer (Potential and Actual)
Sub-sample of Original Poor Households from October 1998 through November 2003 -Actual Treatments and Actual Controls

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Number of Observations	Mean Dep. Var.
I. DRAFT ANIMALS OWNERSHIP (PROBIT)							
Model A TOT -Controls, Potential Transfer							
Treatment Status * Quintile	0.023	0.035+	0.041+	0.057*	0.067*	51423	0.286
	(0.015)	(0.019)	(0.022)	(0.028)	(0.034)		
Model B: TOT -Controls, Actual Transfer							
Treatment Status * Quintile	0.014	0.044*	0.045*	0.055*	0.076*	51423	0.286
	(0.015)	(0.020)	(0.023)	(0.027)	(0.034)		
Model C: TOT by Farm Size - Controls, Actual Transfer							
Treatment Status * Quintile * No Agricultural Assets	-0.002	-0.006	-0.002	0.045	0.109*	51423	0.286
	(0.028)	(0.036)	(0.050)	(0.044)	(0.050)		
Treatment Status * Quintile * Landless	0.035+	0.064*	0.072*	0.071*	0.098*		
	(0.019)	(0.026)	(0.029)	(0.031)	(0.040)		
Treatment Status * Quintile * Small Farm	-0.000	0.031	0.032	0.033	0.082*		
	(0.020)	(0.027)	(0.030)	(0.033)	(0.040)		
Treatment Status * Quintile * Bigger Farm	0.017	0.050*	0.042+	0.063*	0.057+		
	(0.018)	(0.022)	(0.025)	(0.029)	(0.034)		
II. NUMBER OF EQUIVALENT DRAFT ANIMALS (LS)							
Model A: TOT -Controls, Potential Transfer							
Treatment Status * Quintile	0.008	0.002	0.003	0.003	0.036	51423	0.217
	(0.015)	(0.017)	(0.019)	(0.022)	(0.028)		
Model B: TOT -Controls, Actual Transfer							
Treatment Status * Quintile	0.006	0.006	0.024	0.014	0.050+	51423	0.217
	(0.015)	(0.017)	(0.020)	(0.022)	(0.027)		
Model C: TOT by Farm Size - Controls, Actual Transfer							
Treatment Status * Quintile * No Agricultural Assets	0.024	-0.025	-0.040	-0.076	-0.090+	51423	0.217
	(0.037)	(0.041)	(0.047)	(0.048)	(0.050)		
Treatment Status * Quintile * Landless	-0.005	-0.002	0.003	-0.041	0.024		
	(0.023)	(0.026)	(0.028)	(0.029)	(0.033)		
Treatment Status * Quintile * Small Farm	0.012	0.006	0.054+	0.024	0.058		
	(0.026)	(0.029)	(0.031)	(0.032)	(0.035)		
Treatment Status * Quintile * Bigger Farm	0.007	0.029	0.048+	0.077**	0.082**		
	(0.022)	(0.025)	(0.026)	(0.027)	(0.031)		
III. PRODUCTION ANIMALS OWNERSHIP (PROBIT)							
Model A: TOT -Controls, Potential Transfer							
Treatment Status * Quintile	-0.015	0.015	0.030+	0.057**	0.064**	51429	0.741
	(0.013)	(0.016)	(0.017)	(0.021)	(0.024)		
Model B: TOT -Controls, Actual Transfer							
Treatment Status * Quintile	-0.016	0.019	0.027	0.054**	0.078**	51429	0.741
	(0.013)	(0.016)	(0.019)	(0.021)	(0.023)		
Model C: TOT by Farm Size - Controls, Actual Transfer							
Treatment Status * Quintile * No Agricultural Assets	0.032+	0.083**	0.060*	0.126**	0.148**	51429	0.741
	(0.019)	(0.021)	(0.027)	(0.021)	(0.019)		
Treatment Status * Quintile * Landless	-0.000	0.011	0.021	0.042*	0.063*		
	(0.017)	(0.020)	(0.022)	(0.021)	(0.025)		
Treatment Status * Quintile * Small Farm	-0.023	-0.001	0.041+	0.042	0.090**		
	(0.018)	(0.023)	(0.024)	(0.027)	(0.023)		
Treatment Status * Quintile * Bigger Farm	-0.040*	0.019	0.005	0.045*	0.053*		
	(0.018)	(0.018)	(0.021)	(0.022)	(0.025)		
IV. NUMBER OF EQUIVALENT PRODUCTION ANIMALS (LS)							
Model A: TOT -Controls, Potential Transfer							
Treatment Status * Quintile	0.018	0.065+	0.074*	0.148**	0.168**	51429	0.739
	(0.028)	(0.033)	(0.036)	(0.043)	(0.053)		
Model B: TOT -Controls, Actual Transfer							
Treatment Status * Quintile	0.030	0.035	0.104**	0.183**	0.197**	51429	0.739
	(0.028)	(0.033)	(0.038)	(0.042)	(0.052)		
Model C: TOT by Farm Size - Controls, Actual Transfer							
Treatment Status * Quintile * No Agricultural Assets	0.015	0.025	0.044	0.132	0.114	51429	0.739
	(0.069)	(0.077)	(0.088)	(0.089)	(0.093)		
Treatment Status * Quintile * Landless	0.013	0.002	0.057	0.087	0.138*		
	(0.043)	(0.048)	(0.053)	(0.055)	(0.062)		
Treatment Status * Quintile * Small Farm	0.018	0.037	0.124*	0.160**	0.211**		
	(0.049)	(0.054)	(0.058)	(0.060)	(0.066)		
Treatment Status * Quintile * Bigger Farm	0.038	0.066	0.139**	0.284**	0.237**		
	(0.042)	(0.046)	(0.050)	(0.052)	(0.059)		

Table 10 -continued

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Number of Observations	Mean Dep. Var.
V. LAND USE (PROBIT)							
Model A: TOT -Controls, Potential Transfer							
Treatment Status * Quintile	0.007	0.023	0.024	0.033	0.041	51486	0.619
	(0.020)	(0.025)	(0.027)	(0.031)	(0.035)		
Model B: TOT -Controls, Actual Transfer							
Treatment Status * Quintile	0.009	0.014	0.028	0.039	0.061+	51486	0.619
	(0.020)	(0.025)	(0.028)	(0.030)	(0.033)		
Model C: TOT by Farm Size - Controls, Actual Transfer							
Treatment Status * Quintile * No Agricultural Assets	0.047	0.059	0.092*	0.049	0.112**	51486	0.619
	(0.029)	(0.036)	(0.038)	(0.039)	(0.039)		
Treatment Status * Quintile * Landless	0.029	0.042	0.058*	0.070*	0.093**		
	(0.021)	(0.025)	(0.029)	(0.028)	(0.030)		
Treatment Status * Quintile * Small Farm	-0.002	-0.015	0.003	0.009	0.037		
	(0.025)	(0.028)	(0.030)	(0.031)	(0.034)		
Treatment Status * Quintile * Bigger Farm	-0.009	-0.013	-0.018	0.015	0.011		
	(0.025)	(0.026)	(0.028)	(0.029)	(0.033)		
VI. NUMBER OF HECTARES (LS)							
Model A: TOT -Controls, Potential Transfer							
Treatment Status * Quintile	0.121*	0.154*	0.136*	0.201*	0.029	51199	1.481
	(0.053)	(0.062)	(0.067)	(0.079)	(0.099)		
Model B: TOT -Controls, Actual Transfer							
Treatment Status * Quintile	0.136**	0.127*	0.146*	0.249**	0.117	51199	1.481
	(0.052)	(0.062)	(0.070)	(0.078)	(0.097)		
Model C: TOT by Farm Size - Controls, Actual Transfer							
Treatment Status * Quintile * No Agricultural Assets	0.116	0.152	0.173	-0.079	0.352*	51199	1.481
	(0.131)	(0.146)	(0.167)	(0.169)	(0.176)		
Treatment Status * Quintile * Landless	0.157+	0.159+	0.174+	0.282**	-0.043		
	(0.081)	(0.090)	(0.099)	(0.103)	(0.116)		
Treatment Status * Quintile * Small Farm	0.091	0.087	0.058	0.192+	-0.058		
	(0.094)	(0.101)	(0.109)	(0.112)	(0.124)		
Treatment Status * Quintile * Bigger Farm	0.123	0.058	0.111	0.234*	0.172		
	(0.080)	(0.087)	(0.092)	(0.096)	(0.109)		
VII. MICRO-ENTERPRISE OWNERSHIP (PROBIT)							
Model A: TOT -Controls, Potential Transfer							
Treatment Status * Quintile	0.017	0.024+	0.018	0.023	0.033+	51610	0.062
	(0.012)	(0.014)	(0.014)	(0.014)	(0.019)		
Model B: TOT -Controls, Actual Transfer							
Treatment Status * Quintile	0.018	0.018	0.022	0.027+	0.028	51610	0.062
	(0.012)	(0.013)	(0.015)	(0.016)	(0.018)		
Model C: TOT on Extreme Poverty - Controls, Actual Transfer							
Treatment Status * Quintile * Extreme Poor	0.019	0.051**	0.033*	0.037*	0.049*	51610	0.062
	(0.012)	(0.019)	(0.016)	(0.016)	(0.021)		
Model D: TOT by Farm Size - Controls, Actual Transfer							
Treatment Status * Quintile * No Agricultural Assets	0.022	0.030	0.023	0.021	0.025	51610	0.062
	(0.018)	(0.023)	(0.021)	(0.021)	(0.026)		
Treatment Status * Quintile * Landless	0.020+	0.021	0.023	0.042*	0.030		
	(0.012)	(0.015)	(0.016)	(0.020)	(0.019)		
Treatment Status * Quintile * Small Farm	0.014	0.019	0.025	0.030	0.036		
	(0.016)	(0.018)	(0.021)	(0.022)	(0.025)		
Treatment Status * Quintile * Bigger Farm	0.018	0.011	0.019	0.015	0.021		
	(0.014)	(0.013)	(0.015)	(0.017)	(0.019)		

Notes: +significant at 10%, *significant at 5%, **significant at 1%. For the probit models, marginal effects (dprobit) and robust standard errors reported, clustered at the community level. LS regressions include random effects. All regressions include wave dummies and controls for head's and spouse's age and education, head's ethnicity (language), household size, dummies controlling for household demographics, baseline assets (home ownership, dirt floor and electricity) and community characteristics (community organizations, distance to urban center and wages). For agricultural investments (panels I to VI), data are for the five waves for which we have data on the dependent variables: October 1998, May 1999, November 1999, May 2000 and November 2003. Micro-entreprise runs (panel VII) use the first five rounds of data (October 1998 through November 2000) where the dependent variable is comparable. In this case transfer quintiles have been recomputed to characterize the distribution of cumulative transfers until November 2000. Small farms are landed households using less than 2 Ha. of land; big farms use more than 2 Ha.

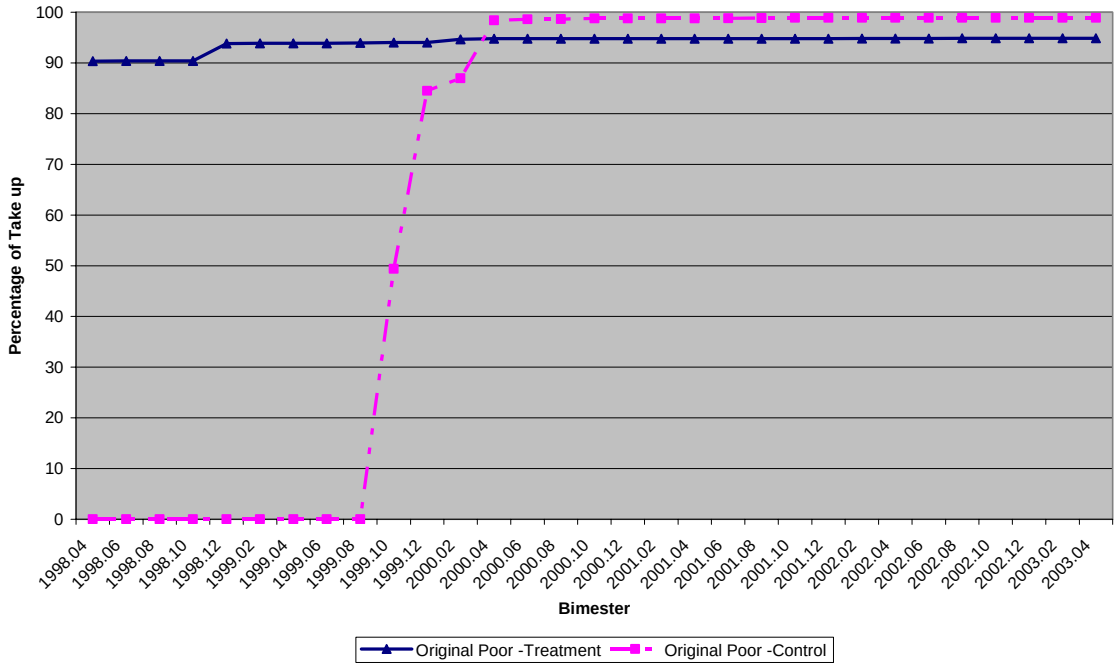
Table 11: Robustness Check I -Effect of OPORTUNIDADES on Agricultural and Micro-Entepreneurial Investments -Treatment and Control Variation. Sub-sample of Ineligibles (Non-Poor) Households in October 1998, May 1999 and November 1999 -Intent to Treat.

	Draft Animal Ownership (PROBIT)	Number of Equivalent Draft Animals (LS)	Production Animal Ownership (PROBIT)	Number of Equivalent Production Animals (LS)	Land Use (PROBIT)	Number of Hectares Used (LS)	Micro-Enterprise (PROBIT)	Female Micro-Enterprise (PROBIT)
Model A: ITT -no controls								
Treatment Status	0.018	0.003	0.008	-0.075	0.010	-0.073	0.011	0.015
	(0.027)	(0.038)	(0.017)	(0.148)	(0.022)	(0.124)	(0.011)	(0.010)
Model B: ITT -controls								
Treatment Status	0.026	0.014	0.010	-0.039	0.016	-0.025	0.009	0.013
	(0.025)	(0.035)	(0.015)	(0.132)	(0.022)	(0.114)	(0.009)	(0.009)
Model C: ITT by Farm Size - controls								
Treatment Status * No Agricultural Assets	-0.024	-0.030	0.032	-0.124	0.035	0.124	0.026	0.025
	(0.068)	(0.069)	(0.033)	(0.214)	(0.050)	(0.187)	(0.031)	(0.031)
Treatment Status * Landless	0.052	0.001	0.014	-0.120	0.043	-0.080	-0.004	-0.002
	(0.038)	(0.044)	(0.020)	(0.141)	(0.030)	(0.120)	(0.013)	(0.013)
Treatment Status * Small Farm	0.018	0.054	-0.023	-0.216	0.021	-0.138	0.053+	0.072*
	(0.039)	(0.050)	(0.033)	(0.157)	(0.030)	(0.135)	(0.031)	(0.034)
Treatment Status * Bigger Farm	0.014	0.070+	0.009	-0.042	-0.010	-0.111	0.001	0.005
	(0.029)	(0.036)	(0.020)	(0.115)	(0.021)	(0.096)	(0.010)	(0.010)
Observations ITT Sub-Sample	14858	14858	14859	14859	14860	14678	14860	14860
Mean Dependent Variable ITT Sub-Sample	0.365	0.322	0.757	1.492	0.653	1.986	0.087	0.083

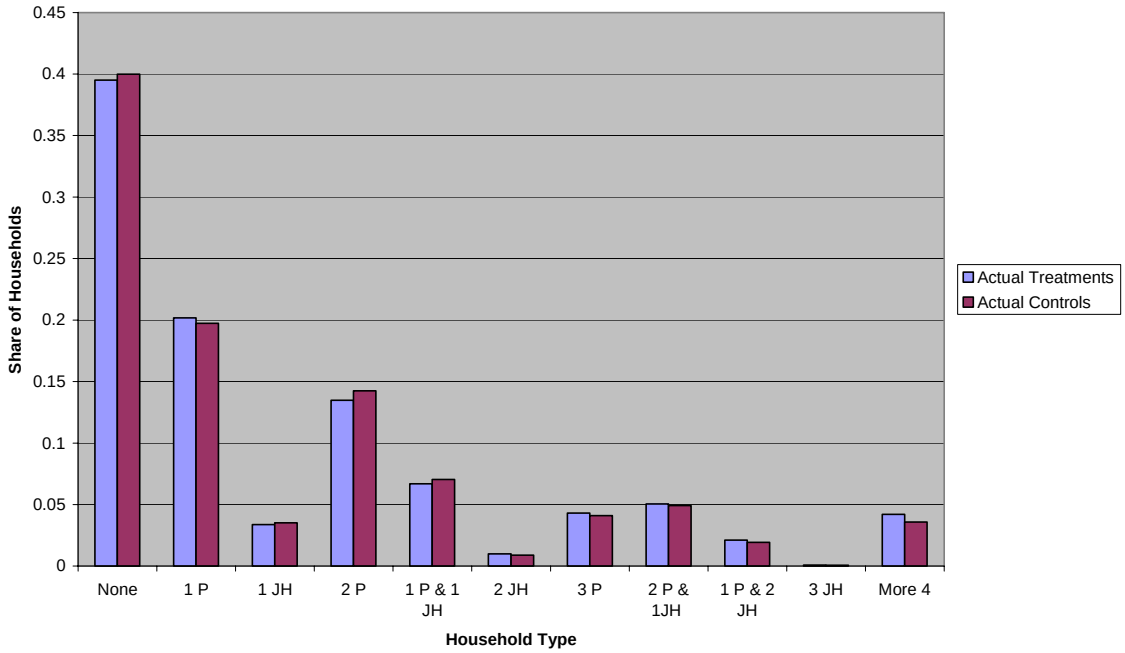
Notes: +significant at 10%, *significant at 5%, **significant at 1%. For the probit models, marginal effects (dprobit) and robust standard errors reported, clustered at the community level. LS regressions include random effects. All regressions include wave dummies. All regressions include wave dummies. Controls in models B and C include head's and spouse's age and education, head's ethnicity (language), household size, dummies controlling for household demographics, baseline assets (home ownership, dirt floor and electricity) and community characteristics (community organizations, distance to urban center and wages). Model C additionally controls farm size in October 1997 (baseline). Small farms are landed households using less than 2 Ha. of land; big farms use more than 2 Ha.

APPENDIX 2 -GRAPHS

Graph 1: OPORTUNIDADES Program Take-up Rates. Percent of Actual Take up Households over Time

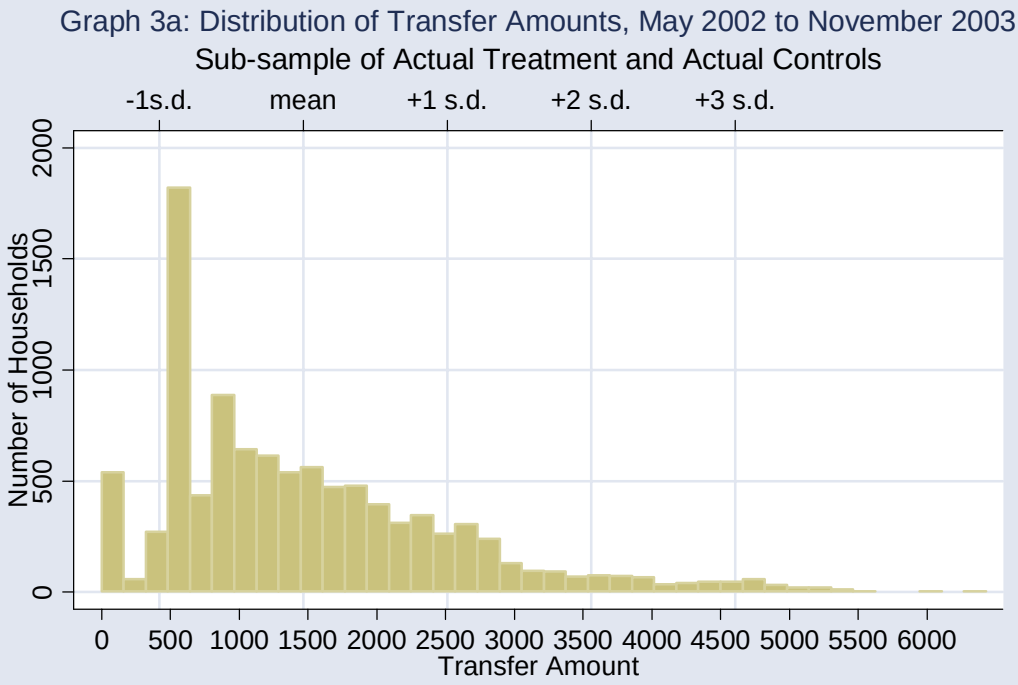


Graph 2: Share of Households by Number of Children Enrolled from 3rd Grade of Primary to 3rd Grade of Junior High School at Baseline (October 1997).



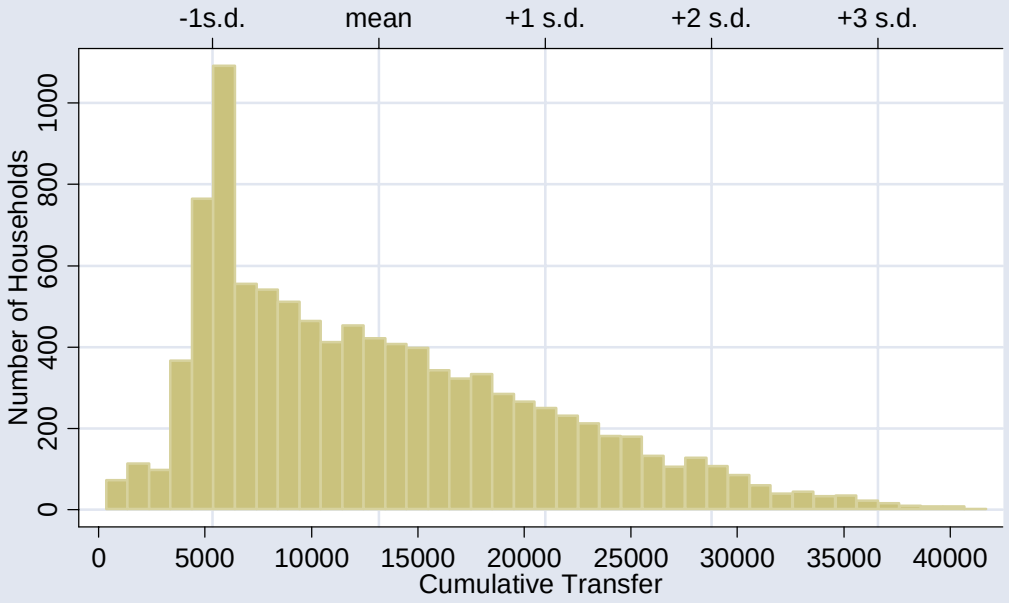
Note: P =Primary School; JH =Junior High School

Graph 3a: Distribution of Transfer Amounts, May 2002 to November 2003

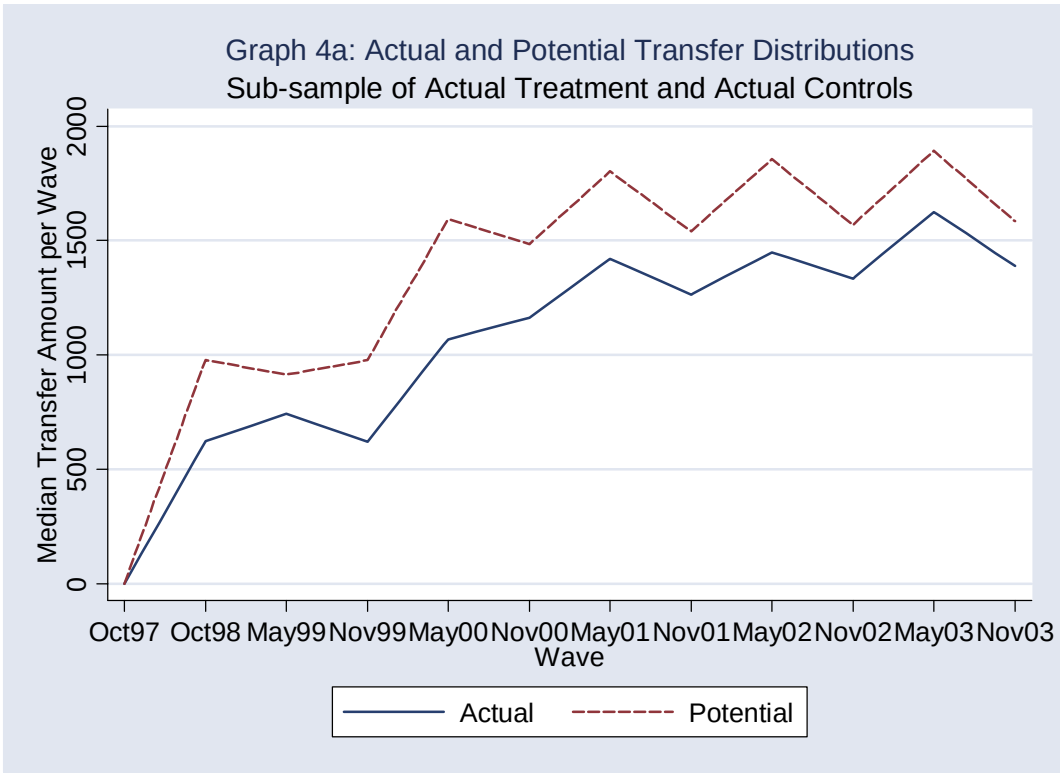


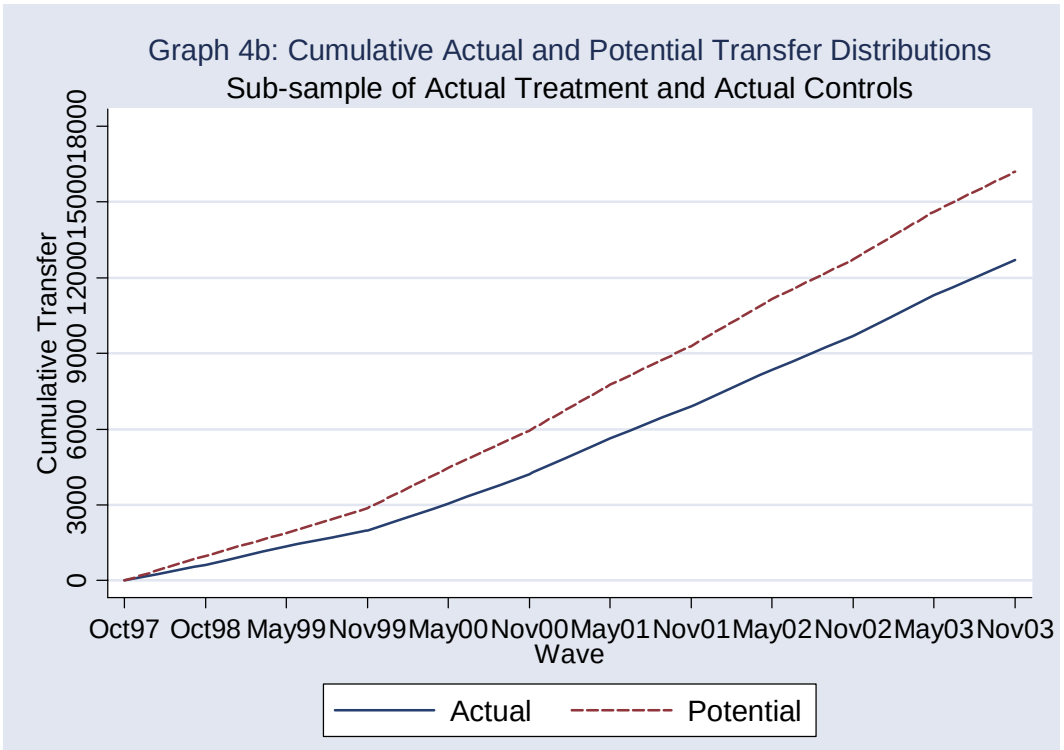
Mean =1467.75; Sd =1046.16

Graph 3b: Distribution of Cumulative Transfer in November 2003

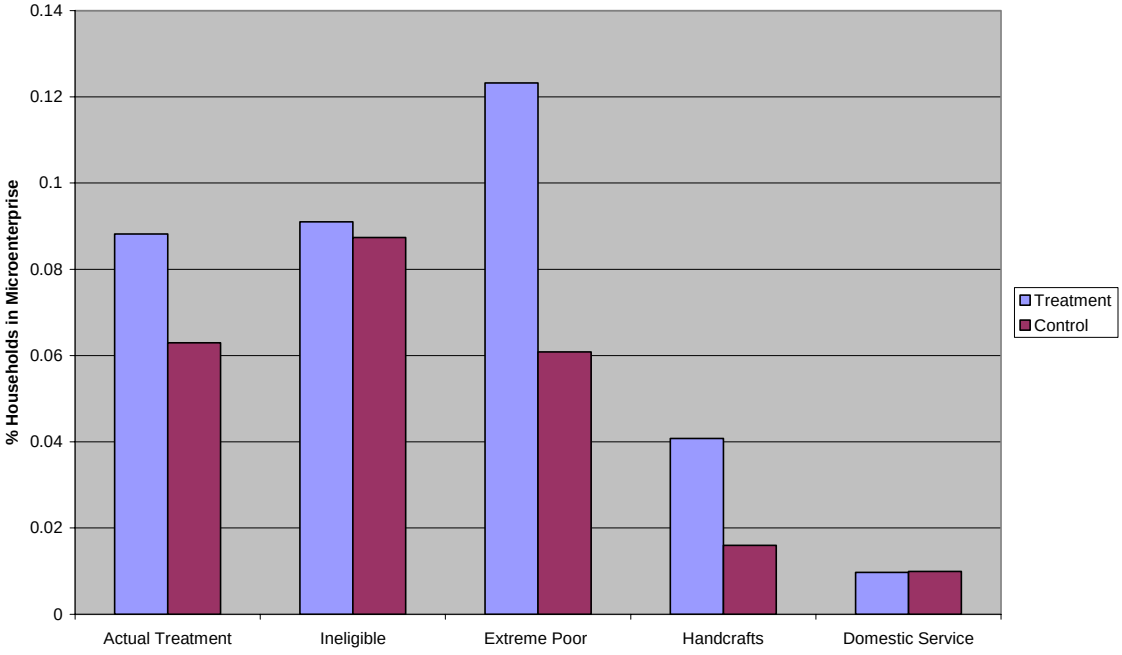


Mean=13,169.93; Sd =7,807.09


Graph 4a: Actual and Potential Transfer Distributions
Sub-sample of Actual Treatment and Actual Controls
Median Transfer Amount per Wave
0
500
1000
1500
2000
Oct97
Oct98
May99
Nov99
May00
Nov00
May01
Nov01
May02
Nov02
May03
Nov03
Wave
Actual
Potential


Graph 4b: Cumulative Actual and Potential Transfer Distributions
Sub-sample of Actual Treatment and Actual Controls
Cumulative Transfer
0
3000
6000
9000
12000
15000
18000
Oct97
Oct98
May99
Nov99
May00
Nov00
May01
Nov01
May02
Nov02
May03
Nov03
Wave
Actual
Potential

Graph 5: Average Effects of OPORTUNIDADES on Micro-enterprise Activity Levels for the period October 1998 through November 1999. Summary of Results.



Graph 6: Average Effect of OPORTUNIDADES on Agricultural Investments for the period October 1998 through November 1999. Summary of Results