

CENTRO DE INVESTIGACIÓN ECONÓMICA

Discussion Paper Series

**Altruism, Exchange and Crowding
Out of Private Support to the Elderly:
Evidence from a Demigrant in Mexico**

Laura Juárez
Instituto Tecnológico Autónomo de México

November 2007
Discussion Paper 07-07

Altruism, Exchange and Crowding Out of Private Support to the Elderly: Evidence from a Demogrant in Mexico

Laura Juarez*

Centro de Investigacion Economica (CIE-ITAM)

Abstract

This paper uses a recent demogrant for the elderly in Mexico City to estimate the effect of an exogenous increase in the income of older individuals on the amount of private transfers they receive. My results show that not controlling for the endogeneity of income replicates the positive or small negative effects of income on the amount of private transfers received obtained by previous work. In contrast, my instrumental variables strategy yields negative and significant income effects, not far from the minus one implied by altruistic models, suggesting that a change in the public resources for elderly could be neutralized by the response of private transfers.

*Camino a Santa Teresa 930, Heroes de Padierna, 10700, Mexico D.F., Mexico. Email: ljuarez@itam.mx

1 Introduction

Population aging is forcing many nations to figure out a sustainable way of providing for an increasing fraction of elderly citizens. Pension system reform is currently the subject of heated debate in many developed countries, including the United States. Developing countries, like Mexico, are facing similar redistributive challenges due to the rapid aging of their populations and the lack of a broad safety net for the elderly. In this context, the impact of any change in the public resources devoted to the elderly depends in part on the response of private transfers. For instance, the effect of a reduction in social security benefits on the economic status of the elderly depends on whether families respond to compensate such a reduction. Similarly, an increase in the government old-age provision in developing countries would not effectively alleviate elderly poverty if it crowds out private transfers, because these transfers are an important fraction of income for seniors, especially for those who are poor and who do not participate in the social security system. In addition, the interaction between public and private support will also affect how the cost of aging is distributed between the different groups in society.

Economic theory predicts that private transfers should unambiguously decrease with the recipient's income if they are motivated by altruism (Becker, 1974; Barro, 1974), but could actually increase with income if private transfers are instead implicit payments for services (Bernheim et al., 1985). The evidence on inter vivos transfers for the U. S. casts doubt on the altruistic model¹ because most of the estimated income effects are either positive (Cox, 1987; Cox and Rank, 1992) or negative, but small in magnitude (Cox and Jakubson, 1995; McGarry and Schoeni, 1995; Altonji et al., 1997). The estimated decrease in private transfers received per dollar increase in income ranges from 3 cents (McGarry and Schoeni, 1995) to 13 cents (Altonji et al., 1997), suggesting that crowding out from government programs is negligible.² For developing countries, early

¹The literature on inter vivos transfers is the most relevant to this paper, but the altruistic model has been examined in other contexts. For instance, the empirical evidence on bequest behavior in the U.S. shows that parents tend to leave equal bequests to their children instead of compensating for their potential differences in income (Wilhelm, 1991; Menchik, 1980). This result contradicts the altruistic hypothesis. Altonji et al (1992) also reject this hypothesis using consumption data from the Panel Study of Income Dynamics.

²Analyzing data from the Health and Retirement Study, McGarry and Schoeni (1995) find that moving from the lowest to the highest income category, which corresponds to an increase of at least \$15,000 in total income, would decrease the expected annual value of private transfers received by \$419. Altonji et al. (1997) estimate that redistributing one dollar of income from parent to child decreases the transfers received by the child by at most 13 cents.

studies also obtain positive effects of income on private transfers received, thus providing further support to the exchange hypothesis (Lucas and Stark, 1985; Cox et al., 1998).

However, estimating the effect of income on the amount of private transfers received suffers from an endogeneity problem that previous studies are unable to address. Individuals might adjust their income by working or saving less precisely because they receive or expect to receive private transfers, leading to a negative bias in the estimated income effect. A positive bias would arise if unobservable characteristics are positively correlated with both income and private transfer receipt. For instance, more assertive individuals could manage to get more resources from their relatives and have higher incomes, because they are more prone to apply to government programs, or they are more successful in the market. In both cases, the endogeneity of income could lead to the wrong conclusions about the actual motive for private transfers and the magnitude of the potential crowding out effect of public transfers.

The purpose of this paper is to estimate the effect of an exogenous increase in the income of older individuals, caused by a demogrant for the elderly that started in 2001 in Mexico City, on the amount of private transfers they receive. The transfer from the program is relatively large and it is conditioned exclusively on age, so it is not correlated with current or past labor and saving decisions, or with unobservable individual characteristics. Using the Mexican Income and Expenditure Survey (ENIGH) for the period 1996-2004, I estimate an instrumental variables Tobit for the total amount of private transfers received in cash by urban individuals at least 60 years old, and separately for the amount received from donors within Mexico and from abroad.

My findings show that treating income as exogenous replicates the positive or small negative income effects obtained by most previous studies. In contrast, my instrumental variables strategy yields large, negative, and significant income effects. According to my estimates, an additional peso in individual income for the elderly decreases the domestic private transfers they receive by 57 cents, remittances by 30 cents and total private transfers received by 86 cents. These results imply a large crowding out effect of public programs for the elderly and are consistent with the predictions of the altruistic model. The marginal effect of income decreases with income, as predicted by the model in Cox (1987), suggesting that poorer individuals face larger reductions in the amount of private support they receive when their income from other sources increases. In fact, at low

income levels, an additional peso in income completely crowds out private transfers. The marginal income effects increase with education. However, for a man and a woman who have only 3 years of schooling a one peso increase in income causes a drop of 68 and 35 cents in the total amount of private transfers received. The marginal income effects are larger for men compared to women and for singles, who constitute a large fraction of the elderly individuals in my sample.

This paper makes two key contributions. It properly deals with the endogeneity of income with respect to private transfers received in an IV framework and, at the same time, it shows how the marginal effects of income on private transfers received vary with the individual characteristics of the recipients. By relaxing the linearity assumption, Cox et al. (2004) obtain negative and significant income effects that decrease with the recipient's income using cross section data from the Philippines, but they are unable to control for the endogeneity of this variable. Jensen (2004) and Albarran and Attanasio (2002), look directly at the effect of specific government programs on the amount private transfers received by households in South Africa and rural Mexico³, and obtain negative and significant income effects, but they do not estimate how these effects vary with income or other household characteristics. In addition, they do not show that the endogeneity of income could be responsible for the positive effects estimated using data from other countries. In this paper, I show that even in a developing country in which government transfer programs are not as large as in developed countries, treating income as exogenous replicates the results obtained for U.S. data and leads to a rejection of the altruistic model and a substantial underestimation of crowding out of private support by public programs.

Additional checks show that the large reductions in private transfers I obtain are not due to a change in the living arrangements of the elderly caused by the program. The results from Tobit estimations for the amount of private transfers received by the household are consistent with those obtained for individuals and confirm that private transfers decrease substantially with income. The estimated crowding out effect is larger for qualifying individuals than for their households, suggesting that outside donors might reallocate transfers among members of the same household when their relative incomes change, further neutralizing the redistributive effects of policies.

My findings imply that intergenerational redistribution policies could be neutralized by the response in

³Jensen (2003) examines a large increase in pensions in South Africa. Albarran and Attanasio (2002) provide evidence of crowding out of cash private transfers by Mexico's Progresas program, which targets poor rural households with school-age children.

private transfers. For instance, the negative impact of a reduction in social security benefits on the economic status of the elderly could be mitigated by an increase in family support. However, such a reduction would then fall directly on those with elderly relatives. If low income seniors have low income donors, like their children, the burden could fall disproportionately on the poor, especially because my estimates show that private transfers received become less responsive as the recipient's income increases. On the other hand, the extension of the Mexico City demogrant to all elderly Mexicans might not be effective in increasing their incomes, but could end up benefiting their donors instead, some of which live and work abroad.

This paper is organized as follows. Section 2 presents the theoretical framework for analyzing the relationship between income and the amount of private transfers received. Section 3 describes the program I use to generate instruments for the income of the elderly. Section 4 discusses the empirical specification used in this paper. Section 5 describes the data and defines the variables used in the estimation. Section 6 presents and comments on the results, and on some robustness checks. Section 7 concludes the paper.

2 Theoretical Framework

In the theoretical literature, the relationship between the amount of private transfers received and the recipient's income depends on whether transfers are motivated by altruism or exchange. Altruistic transfers occur because the donor cares about the utility of the recipient, whereas transfers motivated by exchange aim at compensating the recipient for providing services to the donor, like informal care or even visits and obedience to parental rules. The main result of the altruistic model is that a one dollar increase in the recipient's income, together with a one dollar decrease in the donor's income, unambiguously causes a one dollar decrease in the transfer paid to the recipient (Becker, 1974). As a result, government redistributive policies, like a forced intergenerational transfer, could be completely neutralized by the change in private transfers if these transfers are motivated by altruism (Barro, 1974). For instance, donors could neutralize a transfer program for the elderly by reducing their support to them in response to the policy. An increase in the recipient's income, keeping the donor's income constant, would also cause a decrease in private transfers, but less than one-for-one dollar.⁴

⁴In most altruistic models, donor and recipient belong to the same family. Thus, a one dollar increase in the recipient's income alone raises total family income and induces the donor to increase the transfer (Cox, 1987). In a different context, Andreoni (1989 and 1990) shows that an increase in recipient's income, together with a decrease in donors income, would also cause a reduction of

In contrast, the amount of private transfers received could increase with income if transfers are implicit payments for services provided by the recipient (Bernheim et al., 1985). The intuition for this result is that an increase in the recipient's income would decrease her supply of services and cause an upward movement along the donor's demand, raising the implicit price of services, p , and decreasing the quantity, s . Then, the effect on the amount of the transfer, $T = ps$, would depend on the elasticity of the donor's demand for services. If demand is inelastic because the services provided by the recipient do not have close substitutes, the amount of the transfer would increase with recipient's income and government redistribution could be reinforced (Cox, 1987).⁵

By incorporating both motives in a single model, Cox (1987) shows that altruism is more likely to dominate the lower the income of the recipient is, whereas the exchange motive would dominate at higher income levels.⁶ This implies that relatively poor individuals would experience larger reductions in the amount of private transfers they receive when their income from other sources increases, compared to high income individuals.⁷ Hence, a government transfer to the elderly would be less effective in raising the incomes of those who have lower incomes, because it would cause a larger crowding out of private transfers for them.

less than one-for-one dollar if individuals get utility from the mere act of giving, or a "warm glow".

⁵Under certain assumptions, the predictions regarding the transfer decision would be the same under both motives. In the case of exchange, a transfer takes place if the donor's reservation price is greater than the recipient's supply price for the first unit of services. An increase in the recipient's income decreases the probability of receiving a transfer and an increase in donor's income increases the probability of making the transfer, if both reservation prices increase with own income. Under altruism, a transfer occurs whenever the marginal utility of consumption of the donor is less than the marginal utility of consumption of the recipient at the endowment point. If both marginal utilities are decreasing in own income, the income derivatives for the transfer decision would be the same as for the exchange motive (see Cox, 1987).

⁶In Cox (1987), both motives are present in the model, but only one of them is effective at the margin. Altruism would dominate when the participation constraint for the recipient is not binding, which is more likely to hold when her income is low. In this case, the recipient is strictly better off by providing services and the transfer equalizes the marginal utilities of consumption. On the contrary, the exchange motive would dominate when the participation constraint for the recipient is binding. In this case, the last dollar transferred does not equalize the marginal utilities of consumption, but compensates the recipient for providing services to the donor.

⁷Cox et al (2004) verify this prediction by estimating a regression spline on data for the Philippines.

3 Description of the Program: Nutrition Transfer for Senior Adults

“Pension Alimentaria para Adultos Mayores” (Nutrition Transfer for Senior Adults) is a generous transfer program for Mexico City residents who are at least 70 years old.⁸ The monthly transfer is about 60 U. S. dollars, which represents approximately 30 percent of the average individual income for qualifying city residents in my data. The transfer can be accumulated every month and it is not means-tested, not taxable and does not depend on previous contributions to the social security system or on any requirement other than age. As a consequence, eligibility for the program is not correlated with past or current labor and saving decisions, or with unobservable factors that affect individual income and private transfer receipt. The program also provides free prescription drugs and free health care to beneficiaries in the hospitals administered by the city government.

The program was first announced in January 2001. Due to a limited budget, only relatively poor neighborhoods⁹ participated in the first stage of the program. Social workers from the city government made door-to-door visits in these neighborhoods, and enrolled age-qualifying adults regardless of their household or individual income levels. Payment of transfers to approximately 150, 000 beneficiaries started in March 2001. During the year, new enrollment applications were accepted and the number of beneficiaries increased to 250, 000, according to the government’s annual report for that year.¹⁰ By the end of 2002, the program covered almost all of the eligible population in poor areas.¹¹ At the end of 2003, the program was extended to all individuals at least 70 years old with a minimum residence of 3 years in Mexico City, regardless of their individual or household income level and the neighborhood they live in.

⁸Beneficiaries are given a debit card that can be used at a number of authorized grocery stores, with no restriction on the kind of goods that can be purchased.

⁹Neighborhoods were chosen to participate in the program if they had very high, high and medium poverty levels according to the marginality index calculated by the National Population Council (Conapo). This index measures access to basic services, and includes characteristics of the population and dwellings in each neighborhood.

¹⁰Informe de Trabajo 2001, Secretaria de Salud del Distrito Federal (2001 Mexico City’s Health Department Report).

¹¹Informe de Trabajo 2003, Secretaria de Salud del Distrito Federal (2003 Mexico City’s Health Department Report).

4 Empirical Specification

The relationship of interest is

$$T_i = \alpha + \beta X_i + \gamma Y_i + \varepsilon_i \quad (1)$$

where T_i represents the amount of private transfers received by an individual from donors in other households, and X_i is a vector of individual characteristics such as years of schooling, gender, age and marital status. The key independent variable is Y_i , the individual's income without any private transfers and the coefficient of interest is γ , which provides evidence on the motive for private transfers and measures the extent to which public transfers crowd out private support. Altruism predicts that γ is negative and close to -1, which would also imply that crowding out is substantial. On the contrary, if the estimate of γ is positive, or negative but small in magnitude, the altruistic motive would be rejected in favor of the exchange motive and crowding out would not be a concern. However, a major problem for estimating γ consistently is the potential endogeneity of pre-transfer income in equation (1). Individuals might adjust their income from other sources precisely because they receive or expect to receive private transfers. On the other hand, unobservable characteristics, like ability or assertiveness, could affect both private transfers receipt and income.

In addition to the potential endogeneity of income, a considerable fraction of individuals do not receive any private transfers. As a consequence, T_i is a random variable that takes the value of zero with positive probability and it is continuous over strictly positive values. To account for this, I estimate an instrumental variables Tobit model (IV Tobit) described by the following equations:

$$T_i = \max(0, \alpha_1 + \beta_1 X_{1i} + \gamma Y_i + u_i) \quad (2)$$

$$Y_i = \alpha_2 + \beta_{21} X_{1i} + \beta_{22} X_{2i} + v_i \quad (3)$$

where (u, v) are zero-mean normally distributed and independent of X_i . In this model, Y_i is endogenous if u and v are correlated, and the unobservable characteristics that influence individual income are correlated with those affecting the amount of private transfers received.

Identification of the model requires finding a set of valid instruments (X_{2i}) for the individual's pre-transfer income (Y_i) that can be reasonably excluded from equation (2). I use the eligibility for the program described in the previous section to generate instruments for Y_i . The implicit assumption is that the program affects private transfers only through the exogenous increase in the pre-transfer income of qualifying individuals. Equations (2) and (3) are estimated jointly by maximum likelihood.

5 Data

To estimate the effect of individual pre-transfer income on the amount of private transfers received, I use the Mexican Household Income and Expenditure Survey (ENIGH) for the period 1996-2004. The survey is a nationally representative cross section collected every two years by the National Institute of Statistics (INEGI) and has detailed information on household expenditures and income. Expenditures are reported at the household level, but income from different sources during the past quarter, including private transfers in cash, is observed for each individual in the household. I use a sample of individuals at least 60 years old in urban households, before and after the policy change. Individuals at least 70 years old who live in Mexico City were affected by the program starting in 2001. Individuals at least 70 years old in other cities, and individuals 60 to 69 years old both in Mexico City and in other cities control for city and age specific effects not due to the program. My final sample consists of 9,321 individuals of which 24% reside in Mexico City.

In this paper, I focus only on private transfers received in cash for two reasons. First, in my data in-kind transfers are reported for the household, but not for each individual. Even if it might be interesting to know what happens to in-kind transfers received by the household when pre-transfer household income increases, in this paper I am more concerned with the effect of a transfer to a specific member of the household on her individual income. Second, by survey design in-kind transfers are valued subjectively, and not at market prices. Respondents are asked whether the household received any good or service as a gift from other households during the past quarter and how much they would have paid for it had they bought it. Private transfers in cash are more accurately measured and I can also observe whether they come from households in Mexico or from abroad. Thus, I estimate transfer equations separately for domestic cash transfers, remittances and for the total amount of cash transfers received by the individual. In the data, no transfers between members of

the same household are reported and no information on the characteristics of donors is provided. Individual income before private transfers includes rent income, pensions, government transfers, financial income and other non-labor income.¹² Both income and transfers are quarterly values in the original data, so I calculated the monthly average for these variables and divided the amounts by the consumer price index to get real values.

My identification strategy exploits the exogenous increase in pre-transfer income experienced by individuals who are at least 70 years old and reside in Mexico City after 2001. In the data, I cannot observe neighborhood to account for the fact that only poor neighborhoods in Mexico City initially participated in program. As a consequence, my instruments for individual pre-transfer income are the interactions of a dummy for being at least 70 years old, with a dummy for being a Mexico City resident and a dummy for each year after the program started (2002 and 2004). These instruments capture individual eligibility, regardless of the actual participation and transfer amounts received from the program. Figure 1 presents the average government transfers¹³ received per month in each round of data by individuals who are 60 to 69 years old and live in Mexico City or in other cities, and individuals who are at least 70 years old in and outside of Mexico City. Between 1996 and 2000, the average government transfers for the four groups are fairly small, probably because until very recently the largest cash transfers programs in Mexico were targeted to rural households.¹⁴ After 2000, Mexico City residents who are at least 70 years old experience a large increase in average government transfers compared to all other groups. The average transfer amount for qualifying individuals in 2002 is 378 pesos per month, which is not far from the actual 636 pesos per month each elderly individual was entitled to in that year. The average amount of government transfers received by the eligible group increased from 2002 to 2004, probably due to the extension of the program to all city residents with at least 70 years of age in 2003. Hence, Figure 1 confirms that the program effectively caused a large increase in the pre-transfer income of the targeted group. Furthermore, this income increase was not experienced by individuals at least 70 years old in other cities

¹²I exclude labor income from pre-transfer income, because it could change in response to the program. However, results do not change significantly when labor income is included.

¹³These government transfers do not include any social security benefits, but only transfers from cash transfer programs.

¹⁴Procampo and Progresa are among the largest federal cash transfer programs in Mexico and they are both targeted towards the rural sector. Progresa, recently renamed as Oportunidades, was extended to poor urban households in 2001, but not to those in Mexico City, because they are the less poor among all households in Mexico. This extension does not contaminate my results because the largest transfers from Oportunidades go to poor families with school-age children, which are a very small fraction of my sample.

or by individuals 60 to 69 years old both in and outside of Mexico City.

In all estimations, I control for other individual characteristics such as years of schooling, dummies for female, for married, for being 65 to 69 years old, and for being at least 70 years old, and year and state dummies.¹⁵ Table 1 presents the descriptive statistics of these and other relevant variables for the whole sample, for individuals 60 to 69 years old and for individuals at least 70 years old. The oldest group has 1.3 less years of schooling compared to the group of individuals 60 to 69 years old, and it has a higher fraction of women and a smaller fraction of married individuals. About 25 percent of individuals in the sample, and in the two age groups, reside in Mexico City. Only 25 percent of individuals in the whole sample live alone,¹⁶ and this fraction is larger for the oldest group. In addition, conditioned on living in a shared household, older individuals are less likely to be the head of household, which suggests that as individuals age they move in with other relatives rather than have other relatives move in with them. Individuals who are 60 to 69 years old have higher total income than those who are at least 70 years old, probably because they have more labor income. The oldest group receives more government transfers on average, and they also receive higher amounts of domestic and total cash transfers from other households.

Regarding poverty rates among the urban elderly in Mexico, Parker and Wong (2001) estimate that about 30 percent of individuals with more than 70 years of age are poor, compared to 25.7 percent of individuals with 60 to 70 years of age. According to their results, individuals with more than 70 years of age are also more likely to be poor than individuals in all other age groups in Mexico.¹⁷

Table 2 shows the fraction of individuals who report receiving private transfers, and the proportion of their individual income that these transfers represent, for the whole sample and for the two age groups

¹⁵I cannot identify cities in the data before 2000. For those earlier years, I can only observe state and whether the household belongs to a locality of 100,000 people or more. So, I define an individual as urban if she belongs to a household in a locality of 100,000 people or more, and control for state fixed effects in the estimation. A dummy for Mexico City, which for government and administrative purposes is a state called Distrito Federal is included in the state dummies. To correct for the possibility of serial correlation, the standard errors are clustered at the state level as suggested by Bertrand, Duflo and Mullainathan (2004).

¹⁶An individual is considered to be living alone if she lives by herself or if she lives only with her spouse and no one else in the household.

¹⁷Parker and Wong (2001) use the 1996 ENIGH data to calculate adult-equivalent consumption measures and the poverty index by Foster, Greer and Thorbecke (FGT). Their poverty line is the 30th percentile of adult-equivalent consumption, which corresponds to about 35 to 40 U.S. dollars per month in per capita consumption.

mentioned before. As individuals get older, they are more likely to receive private support in cash. About 19 percent of individuals with 70 or more years of age receive private transfers, whereas 14 percent of individuals with 60 to 69 years of age do. In addition, both domestic cash transfers and total cash transfers represent a higher fraction of income for the oldest group. Total cash transfers are 17 percent of individual income for those at least 70 years old, and only 7 percent for those 60-69 years old. Only 2 percent of urban individuals in my sample receive any remittances from abroad, and these remittances represent a very small fraction of total income, which is not surprising given that most of the Mexican migrants to the U. S. come from rural households.

6 Results

Table 3 reports the coefficient on pre-transfer income obtained from the Tobit estimations with and without instrumental variables for the amount of domestic private transfers, remittances and total private transfers received per month. For comparison, the estimation in the first column treats income as exogenous and yields similar results to those obtained by previous work. The coefficient on individual pre-transfer income for the Tobit without instrumental variables is either negative, but small and not significant, or positive. This result would cast doubt on the altruistic motive for private transfers, and imply that crowding out of private support by public programs is small. In contrast, the results for the IV Tobit in the second column show that properly controlling for the endogeneity of individual pre-transfer income yields large, negative, and significant income coefficients. These findings show that the endogeneity of income in the transfer equation could lead to an over rejection of the altruistic model and to an underestimation of the crowding-out of private aid between families. The bottom of Table 3 shows that the first-step coefficients for my instruments are positive and significant. After controlling for all other relevant individual characteristics, being a Mexico City resident with at least 70 years of age in the two rounds after the policy change significantly increased the individual's income without private transfers, as would be expected. The pairwise interactions of the age dummies with the year dummies or with the Mexico City dummies are mostly not significant (not shown). Therefore, I can credibly conclude that the instruments reflect the effect of the policy on pre-transfer income and not specific trends for individuals in different age groups or cities.

To see whether the negative income effects are close to minus one, as would be predicted by the altruistic model, and to get an estimate of the magnitude of the crowding out of private transfers, I calculate the marginal effects of income at the mean of the independent variables for domestic cash transfers, remittances and for total cash transfers, using the results of the IV Tobit, and the following decomposition proposed by McDonald and Moffit (1980) :

$$\frac{\partial E(T | X, Y)}{\partial Y} = \frac{\partial \Pr(T > 0 | X, Y)}{\partial Y} E(T | X, Y, T > 0) + \Pr(T > 0) \frac{\partial E(T | X, Y, T > 0)}{\partial Y}$$

This decomposition shows how much of the total change in the expected value of transfers received comes from a change in the probability of receiving positive transfers and how much of it can be attributed to a change in the amount of transfers received for those actually receiving transfers. Table 4 presents each of the terms of the expression above and their standard errors. The last column shows that an additional peso of income reduces domestic cash transfers received by 58 cents; the third column shows that 43 cents are due to the decrease in the probability of receiving positive transfers; and the fifth column, that the additional 15 cents are due to the reduction in the amount of private transfers received for those actually receiving transfers. Total cash transfers fall by 86 cents with an additional peso of income, and the largest part of this effect is due to a decrease of 60 cents in the probability of receiving any transfer. Remittances fall by 31 cents with an extra peso of income, but the effect is not estimated precisely probably because only a very low fraction of individuals in my sample report receiving any remittances. Nevertheless, the marginal income effects for both domestic and total cash transfers received are significant and large compared to previous findings for both developed and developing countries¹⁸. They suggest a large potential crowding out effect of public programs and are consistent with the predictions of altruism.

Table 5 and 6 show how the marginal income effects vary with income, education, marital status and year for a reference woman, and a reference man, who is single and is at least 70 years old, has a monthly pre-transfer income of a 1, 000 pesos (about 100 U. S dollars), 6 years of schooling (elementary complete), and resides in Mexico City in 2002, after the policy change. Table 5 shows that for a woman with such characteristics,

¹⁸For instance, Jensen (2003) finds that transfers from migrant children are reduced by 25 to 30 percent in response a large increase in pensions in South Africa. As mentioned in the introduction, the estimated effects for the U.S. are even smaller.

an additional peso of individual income completely crowds out domestic cash transfers at low income levels. For instance, when monthly pre-transfer income is 700 pesos (70 U. S. dollars), an additional peso of income reduces domestic cash transfers by 1.02 pesos, remittances by 15 cents, and the total cash transfers received by 1.74 pesos. As income increases, the marginal effect of income decreases in absolute value, as would be predicted by the model in Cox(1987). At an income of 1200 pesos (120 U. S. dollars), the marginal effect is -34 cents, which is still large. Only 15 percent of women in my sample have a pre-transfer income of 1200 or more, which suggests that for the majority of them the reduction in private transfers caused by the program, or any similar government transfer, could be substantial. The marginal effect of income on private transfers decreases with education, so that a more educated woman faces larger reductions in private transfers when her pre-transfer income increases. In my sample, 80 percent of women have 6 years of schooling or less, and I observe some bunching at 3rd grade and elementary complete. However, even a woman with 3 years of schooling would experience a drop of 35 cents in total private transfers with an additional peso in income. Regarding marital status, the income effect on total private transfers for a single woman is -72 cents per additional peso in income, which is 2.8 times the income effect for a married woman. In my sample, about 60% of women are single, which confirms that the crowding out effect of the program could be large for elderly women. Finally, the marginal income effect in 2004 is -1.09 pesos per additional peso of income, which is larger in absolute value than the effect for 2002, before the program was extended to all elderly residents in Mexico City.

Table 6 shows that the marginal income effects are all larger in absolute value for the reference man than for a woman with the same characteristics. Thus, elderly men could experience an even larger crowding out effect with an increase in the public transfers paid to them. For the reference man, most of the marginal income effects on the total amount of private transfers received are greater than one in absolute value, but they have large standard errors and are not significant, probably because the effects for remittances are not estimated precisely. Nevertheless, the income effects on domestic private transfers, which represent the bulk of private transfers in my data, are all significant and fairly large. The absolute value of these effects increases with income and decreases with education. For instance, a man with 1,000 pesos of income would experience a drop of 1.02 pesos in domestic private transfers for an additional peso in income. At an income of 2,100 pesos, the effect is a decrease of 4 cents, which is very small, but only 14 percent of men in my sample have an

income greater than or equal to 2, 100 pesos. A man with only 3 years of schooling would experience a decrease of 68 cents in domestic cash transfers per additional peso in income, and a man with primary complete would suffer a one-for-one crowding out of domestic private transfers. A married man would experience a decrease of 52 cents per additional peso of income, which is less than the decrease of 1.02 pesos experienced by a single man. As for the reference woman, the estimated effect is larger for 2004, after the extension of the program.

In summary, after controlling for the endogeneity of income, the marginal effects of income on the amount of private transfers received are not far from the minus one implied by altruism. This suggests that the endogeneity of income could explain the weak response of private transfers to income found using data from other countries. My findings also question the effectiveness of the program in raising the incomes of the elderly residents of Mexico City, and imply that other old-age provision policies, like increasing the public transfers paid to the elderly or reducing social security benefits, could be neutralized by the response in private transfers.

6.1 Note on living arrangements and private transfers received by the household

What if the living arrangements of the elderly change in response to the program? As mentioned before, my data measures transfers that take place between different households, but not transfers occurring within the same household. If the program encourages relatives in other households to move in with the elderly, then the large decrease in private transfers I obtain could be due not to crowding out, but to the fact that I cannot observe whether these new residents continue to transfer resources to the elderly while living in the same household. The same problem would arise if the elderly move in with other relatives because of the program, but in this case I would also be missing the fact that the elderly might be receiving an implicit housing transfer.

To check whether the program affected the living arrangements of potential beneficiaries, I estimate a probit of the probability of living alone for all the individuals in my sample, using the same individual characteristics included in the Tobit estimations plus the interactions of a dummy for being at least 70 years old with a dummy for residing Mexico City and a dummy for 2002 and 2004. According to my probit results in Table 7, being at least 70 years old in Mexico City has a negative effect on the probability of living alone in 2002 and a positive effect in 2004, but none of these effects is significant. I repeated these probit estimations for men and women separately, and for singles because they might be more prone to change their living arrangements

after a policy change than married couples, and got similar results. None of the coefficients are significant, except for the coefficient of being at least 70 years old in Mexico City in 2004 for women, which is positive and significant. Thus, I conclude that the large negative income effects on private transfers I obtain in this paper are not due to a change in the living arrangements of the elderly caused by the program.

For eligible individuals, the program induces an exogenous increase in both their individual and household income. Thus, as an additional check, I estimate Tobits for the amount of private transfers in cash received by the household, using household non-labor income without private transfers as the key endogenous variable and a sample of urban households with at least one person age 60 or older. The instruments in this case are a dummy for one individual age 70 or older present in the household in Mexico City in 2002, a dummy for two individuals age 70 or older present in the household in Mexico City in the same year, and similar dummy variables for 2004¹⁹. All household estimations include other controls such as household size, number of children younger than 6 years old, number of children 6 to 12 years old, year and state dummies; characteristics of the head of household such as age, years of schooling, and dummies for whether the head is married or female; dummies for the presence of one and two individuals age 70 or older in the household, and the pair-wise interactions of these dummies with a dummy for Mexico City and with dummies for 2002 and 2004.

The results for households are consistent with those obtained for individuals²⁰. Not controlling for the endogeneity of household pre-transfer income yields positive and not significant income coefficients, whereas the IV Tobit income coefficients are negative, large and significant. The marginal effects calculated at the mean of independent variables show that for households an additional peso in pre-transfer income decreases domestic cash transfers received by 11 cents, remittances by 21 cents and total cash transfers received by 33 cents. These findings confirm that private transfers decrease substantially with income and that the endogeneity of income in the transfer equation leads to an underestimation of the potential crowding out. Additionally, the decrease in private transfers caused by the program is smaller for eligible households than for eligible individuals. A possible explanation for this is that outside donors actually redistribute transfers among members of the same

¹⁹These instruments capture both the eligibility and the total transfer amount the household could receive from the program, because each age-qualifying individual in the household is entitled to receive the transfer. Households in Mexico City or in other cities with at least one person who is 60 to 69 years old, but without members who are at least 70 years old, and households in other cities with members who are at least 70 years old control for any other effects not due to the program.

²⁰These results are not shown, but can be requested from the author.

household, decreasing transfers to those members whose income increases, and increasing the transfers to those members whose income stays constant or decreases. This would further support the idea that families and individuals respond to government programs searching to neutralize their redistributive goals. Exploring this intra-household aspect in detail is beyond the scope of this paper, but it remains as an important area for future research, especially because a large fraction of elderly individuals in Mexico and in other countries live in extended households.

7 Conclusion

This paper estimates the effect of an exogenous increase in the income of older individuals, caused by a transfer program for the elderly that started in 2001 in Mexico City, on the amount of private transfers they receive. My results show that treating income as exogenous replicates the positive or small negative income effects obtained with data from other countries, and leads to a rejection of the altruistic model and a substantial underestimation of the crowding out of private support by public programs. In contrast, my instrumental variables estimates are negative, significant and not far from the minus one predicted by altruistic models, implying an almost one-for-one crowding out effect. The marginal income effects are larger in absolute value for individuals who are single and have low incomes; and for the relatively more educated, but they are substantial even for those seniors with only 3 years of schooling. The large negative income effects I obtain in this paper are not due to a change in the living arrangements of the elderly caused by program. In addition, the results from a household level estimation are consistent with those obtained for individuals, but are smaller in magnitude, suggesting that outside donors might reallocate transfers among members of the same household when their relative incomes change, further dampening the redistributive effects of policies.

My findings imply that intergenerational redistribution policies could be neutralized by the response in private transfers. For instance, the negative impact of a reduction in social security benefits on the economic status of the elderly could be mitigated by an increase in family support. However, such a reduction would then fall directly on those with elderly relatives. If low income seniors have low income donors, like their children, the burden could fall disproportionately on the poor, especially because my estimates show that private transfers received become less responsive as the recipient's income increases.

The Mexico City mayor became so popular after implementing the program used in this paper that he almost won the presidential election in 2006. The extension of the program to the national level was a major campaign promise, and remains as a subject of debate in Mexico, which reflects both the need to provide for an increasing fraction of elderly citizens in a sustainable way and the growing constituency in favor of increasing the public resources devoted to them. My results suggest that the extension of the program can have a substantial crowding-out effect on the private support received by elderly individuals nationwide, especially for those with low incomes. As a consequence, the program would not be completely effective in increasing the incomes of the elderly, but could end up benefiting their donors instead. For instance, my estimates for urban individuals imply that an additional peso of income reduces the remittances they receive from abroad by 30 cents. However, remittances could decrease even more if the rural elderly are incorporated into the program, because they receive a larger fraction of their private transfers from the United States. Moreover, a survey carried out by the Mexican Central Bank reveals that the main recipients of remittances are the migrants' parents, who are more likely to be elderly. Thus, the burden of supporting the poor elderly in rural areas, which is currently borne in part by individuals working abroad, could be partially shifted towards the residents of Mexico as a result of the extension of the program.

References

- [1] Albarran, Pedro and Attanasio, Orazio. "Do Public Transfers Crowd Out Private Transfers? Evidence from a Randomized Experiment in Mexico." UNU/ WIDER Discussion Paper no. 2002/6, 2002.
- [2] Altonji, Joseph G.; Hayashi, Fumio and Kotlikoff, Laurence. "Is the Extended Family Altruistically Linked? Direct Tests Using Micro Data." *American Economic Review*, 1992, 82 (5), pp. 1177-1198.
- [3] Altonji, Joseph G.; Hayashi, Fumio and Kotlikoff, Laurence. "Parental Altruism and Inter Vivos Transfers: Theory and Evidence." *Journal of Political Economy*, 1997, 105 (6), pp. 1121-1166.
- [4] Andreoni, James. "Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence." *Journal of Political Economy*, 1989, 97 (6), pp. 1447-1458.

- [5] Andreoni, James. "Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving." *Economic Journal*, 1990, 100 (401) pp. 464-477.
- [6] Barro, Robert. "Are Government Bonds Net Wealth?." *Journal of Political Economy*, 1974, 82 (6), pp. 1095-1117.
- [7] Becker, Gary. "A Theory of Social Interactions." *Journal of Political Economy*, 1974, 82(6), pp. 1063-1093.
- [8] Bernheim, B. Douglas; Shleifer, Andrei and Summers, Lawrence H. "The Strategic Bequest Motive." *Journal of Political Economy*, 1985, 93(6), pages 1045-76.
- [9] Bertrand, Marianne; Duflo, Esther and Mullainathan, Sendhil. "How Much Should We Trust Differences-in-Differences Estimates?" *Quarterly Journal of Economics*, 2004, 119(1), pp. 249-275.
- [10] Cox, Donald. "Motives for Private Income Transfers." *Journal of Political Economy*, 1987, 95(3), pp. 508-546.
- [11] Cox, Donald and Rank, Mark R. "Inter-vivos Transfers and Intergenerational Exchange. " *Review of Economics and Statistics*, 1992, 74(2), pages 305-14.
- [12] Cox, Donald and Jakubson, George. "The Connection between Public Transfers and Private Interfamily Transfers." *Journal of Public Economics*, 1995, 57(1), pp. 129-167.
- [13] Cox, Donald; Zekeriya, Eser and Jimenez, Emmanuel. "Motives for Private Transfers over the Life Cycle: An Analytical Framework and Evidence for Peru." *Journal of Development Economics*, 1998, 55(1), pp. 57-80.
- [14] Cox, Donald; Hansen, Bruce and Jimenez, Emmanuel. "How Responsive are Private Transfers to Income? Evidence from a Laissez-faire Economy." *Journal of Public Economics*, 2004, 88(9-10), pp. 2193-2219.
- [15] Jensen, Robert T. "Do Private Transfers 'Displace' the Benefits of Public Transfers? Evidence from South Africa." *Journal of Public Economics*, 2004, 88(1-2), 89-112.
- [16] Lucas, Robert E.B. and Stark, Oded. "Motivations to Remit: Evidence from Botswana." *Journal of Political Economy*, 1985, 93(5), pp. 901-918.

- [17] McDonald, John F. and Moffit, Robert A. "The Uses of Tobit Analysis." *Review of Economics and Statistics*, 1980, 62(2), pp 318-321.
- [18] McGarry, Kathleen and Schoeni, Robert F. "Transfer Behavior in the Health and Retirement Study: Measurement and the Redistribution of Resources within the Family." *Journal of Human Resources*, 1995,30, pp. S184-S226.
- [19] Menchik, Paul L. "Primogeniture, Equal Sharing, and the U. S. Distribution of Wealth." *Quarterly Journal of Economics*, 1980,94(2), pp 299-316.
- [20] Parker, Susan and Wong, Rebecca. "Welfare of Male and Female Elderly in Mexico: A comparison." in *The Economics of Gender in Mexico: Family, Work, State and Market*, ed. by Elizabeth G. Katz and Maria C. Correia, World Bank, May 2001, pp. 249-288.
- [21] Smith, Richard T. and Blundell, Richard W. "An Exogeneity Test for a Simultaneous Equation Tobit Model with an Application to Labor Supply", *Econometrica*, 1986, 54(3), pp. 679-686.
- [22] Wilhelm, Mark O. "Bequest Behavior and the Effect of Heirs' Earnings: Testing the Altruistic Model of Bequests." *American Economic Review*, 1996, 86(4), pages 874-92.

Table 1
Descriptive Statistics for Individuals at least 60 years old

	All	60-69	70+
Years of schooling	5.68 (0.05)	6.24 (0.06)	4.95 (0.07)
Female	0.57	0.56	0.59
Married	0.52	0.61	0.42
Mexico City resident	0.24	0.24	0.25
Age 65-69 years old	0.23	0.42	0.00
Age 70+ years old	0.44	0.00	1.00
Age 70+ years old in Mexico City	0.11	0.00	0.01
Household size	3.84 (0.02)	3.93 (0.03)	3.73 (0.03)
Living alone*	0.25	0.24	0.27
Living in shared household as head**	0.41	0.44	0.38
Living in shared household not as head	0.33	0.32	0.36
Individual non-labor income before private transfers	622.2 (11.43)	554.73 (14.95)	709.20 (17.61)
Individual total income	2031.5 (70.38)	2362.9 (79.89)	1603.80 (123.61)
Government transfers received	34.31 (1.60)	5.26 (0.77)	71.80 (3.43)
Mean private transfers received			
Domestic cash transfers	171.76 (7.61)	139.62 (8.14)	213.23 (13.88)
Remittances	25.48 (3.11)	28.03 (4.44)	22.18 (4.24)
Total cash transfers	197.24 (8.22)	167.65 (9.26)	235.42 (14.52)
Number of observations	9321	5251	4070

Source: Author's calculations using a nationally representative sample of urban individuals at least 60 years old from the National Income and Expenditure Survey for Mexico (ENIGH), for the years 1996, 1998, 2000, 2002 and 2004. The second column shows the descriptive statistics for the whole sample, the third for the subsample of individuals who are 60 to 69 years old, and the fourth, for individuals who are at least 70 years old. Income and transfers are in real pesos per month. Nominal values were deflated using the Mexican Consumer Price Index (INPC). Standard errors are in parentheses.

*An individual is considered to be living alone if she lives by herself or if she lives only with her spouse.

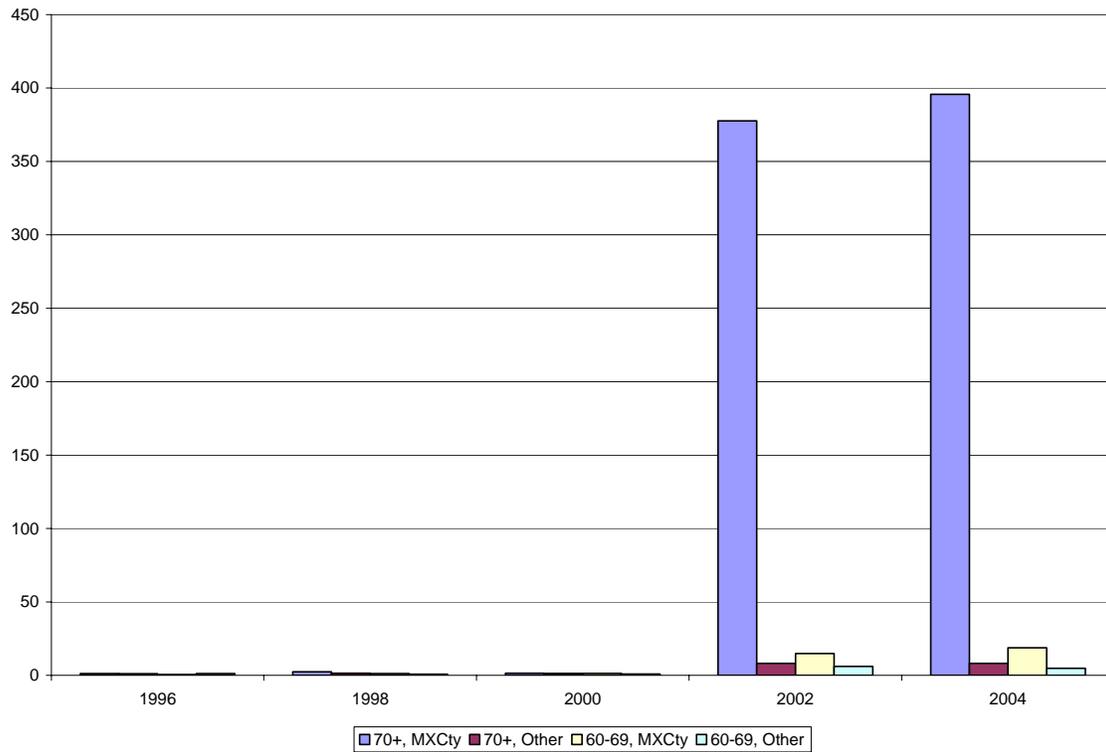
** An individual is considered to be living in a shared household as head if there are other members in the household besides herself and her spouse and she is declared the head of household in the survey.

Table 2
 Proportion of Individuals at least 60 years old Receiving Private Transfers in Cash and
 Private Transfers in Cash as a Fraction of Their Income

	All	60-69	70+
Proportion of individuals receiving private transfers			
Domestic cash transfers	0.15	0.13	0.17
Remittances	0.02	0.02	0.02
Any cash transfer	0.16	0.14	0.19
Private transfers received as a fraction of total individual income			
Domestic cash transfers	0.08	0.06	0.13
Remittances	0.01	0.01	0.01
Total cash transfers	0.10	0.07	0.15
Number of observations	9321	5251	4070

Source: Author's calculations using a nationally representative sample of urban individuals at least 60 years old from the National Income and Expenditure Survey for Mexico (ENIGH), for the years 1996, 1998, 2000, 2002 and 2004. The second column shows the descriptive statistics for the whole sample, the third for the subsample of individuals who are 60 to 69 years old, and the fourth, for individuals who are at least 70 years old.

Figure 1: Average Government Transfers Received by Individuals at Least 60 Years Old



Source: Author's calculations using a nationally representative sample of urban individuals at least 60 years old from the National Income and Expenditure Survey for Mexico (ENIGH), for the years 1996, 1998, 2000, 2002 and 2004. Individuals are divided into four groups: those who are 60 to 69 years old and reside in Mexico City (60-69, MXCty), those who are 60 to 69 years old and reside in other cities (60-69, Other), and those who are at least 70 years old in and outside of Mexico City (70+, MXCty and 70+, Other, respectively). Individuals affected by the Nutrition Program for Senior Adults are those at least 70 years old in Mexico City (70+, MXCty) in 2002 and 2004. Average government transfers are in real pesos per month. Nominal values were deflated using the Mexican Consumer Price Index (INPC).

Table 3
Private Cash Transfers Received:
Coefficients on Individual Pre-Transfer Income

	Tobit	IV Tobit
Domestic cash transfers	-0.061 (0.041)	-3.930 (0.220)
Remittances	0.054 (0.140)	-6.785 (0.347)
Total cash transfers received	-0.051 (0.041)	-5.70 (2.490)
First-step coefficients on IV		
Age 70+ in Mexico City in 2002	-	216.42 (7.402)
Age 70+ in Mexico City in 2004	-	219.97 (4.557)
Number of observations	9321	9321

Estimation: Maximum Likelihood. Sample: Urban individuals age 60 or older. All estimations include state and year dummies. Standard errors, clustered at the state level for the IV Tobit, are in parentheses. The key endogenous variable is individual income before private transfers. The instruments are the interactions of a dummy for being age 70 or older, a dummy for Mexico City and a dummy for each year after the program started (2002 and 2004). Individual income and transfers are in real pesos per month. Nominal values were deflated using the Mexican Consumer Price Index (INPC).

Table 4
Marginal Effects of Individual Pre-Transfer Income on Private Cash Transfers Received

	Change in Pr (T>0)			Change in T for individuals with T>0			
	$\partial \text{Pr}(T>0)/\partial Y$	$E(T T>0)$	$\partial \text{Pr}(T>0)/\partial Y \times E(T T>0)$	$\text{Pr}(T>0)$	$\partial E(T T>0)/\partial Y$	$\text{Pr}(T>0) \times \partial E(T T>0)/\partial Y$	$\partial E(T)/\partial Y$
Domestic cash transfers	-0.0004 (5×10^{-6})	1157.6 (61.85)	-0.431 (0.056)	0.148 (0.027)	-0.992 (0.014)	-0.147 (0.022)	-0.578 (0.078)
Remittances	-0.0002 (3×10^{-5})	1475.1 181.09	-0.285 0.269	0.017 (0.012)	-1.253 (0.088)	-0.022 (0.012)	-0.307 (0.287)
Total cash transfers	-0.0005 (0.0001)	1217.5 (103.46)	-0.605 (0.004)	0.162 (0.039)	-1.592 (0.069)	-0.258 (0.025)	-0.863 (0.021)

Marginal effects calculated at the mean of independent variables using the results of the IV Tobit estimations on a sample of 9,321 individuals age 60 and older. The table reports the decomposition for Tobit models proposed by McDonald and Moffitt (1980): $\partial E(T)/\partial Y = \partial \text{Prob}(T>0)/\partial Y \times E(T|T>0) + \text{Prob}(T>0) \times \partial E(T|T>0)/\partial Y$. The marginal effect of income on the expected amount of private transfers received is the sum of the marginal effect of income on the probability of receiving private transfers multiplied by the expected amount of transfers conditioned on them being positive, and the marginal effect of income on the expected amount of private transfers for those individuals receiving positive transfers multiplied by the probability of receiving positive transfers.

Table 5
Marginal Effects of Individual Pre-Transfer Income
on Private Cash Transfers Received by Women

	Domestic Cash Transfers	Remittances	Total Cash Transfers
Monthly Individual Pre-Transfer Income			
700	-1.019 (0.014)	-0.155 (0.139)	-1.747 (1.158)
1000	-0.537 (0.039)	-0.046 (0.052)	-0.723 (0.235)
1200	-0.329 (0.040)	0.018 (0.024)	-0.335 (0.065)
2100	-0.012 (0.001)	-0.0001 (0.0002)	-0.001 (0.005)
Education			
3 rd grade elementary	-0.322 (0.047)	-0.024 (0.032)	-0.353 (0.062)
Primary complete	-0.537 (0.039)	-0.046 (0.052)	-0.723 (0.235)
Secondary complete	-0.834 (0.013)	-0.084 (0.079)	-1.302 (0.715)
Marital Status			
Single	-0.537 (0.039)	-0.046 (0.052)	-0.723 (0.235)
Married	-0.231 (0.010)	-0.021 (0.032)	-0.255 (0.089)
Year			
2002	-0.537 (0.039)	-0.046 (0.052)	-0.723 (0.235)
2004	-0.758 (0.016)	-0.048 (0.050)	-1.093 (0.445)

Marginal effects calculated using the results of the IV Tobit estimations for a reference woman with 6 years of schooling (primary complete) and a pre-transfer income of 1000 pesos (approximately 100 U.S. dollars), who is single, at least 70 years old, and resides in Mexico City in 2002. The table reports $\partial E(T)/\partial Y$ and how this marginal effect varies with individual pre-transfer income, years of education and marital status. It also reports whether the marginal income effect is different in the two rounds after the program started, 2002 and 2004.

Table 6
Marginal Effects of Individual Pre-Transfer Income
on Private Cash Transfers Received by Men

	Domestic Cash Transfers	Remittances	Total Cash Transfers
Monthly Individual Pre-Transfer Income			
700	-1.664 (0.036)	-0.533 (0.376)	-3.384 (2.850)
1000	-1.022 (0.082)	-0.201 (0.186)	-1.968 (1.588)
1200	-0.679 (0.088)	-0.094 (0.102)	-1.172 (0.783)
2100	-0.043 (0.020)	-0.046 (0.052)	-0.018 (0.030)
Education			
3 rd grade elementary	-0.682 (0.100)	-0.118 (0.132)	-1.215 (0.846)
Primary complete	-1.022 (0.082)	-0.201 (0.186)	-1.968 (1.588)
Secondary complete	-1.433 (0.039)	-0.328 (0.246)	-2.848 (2.395)
Marital Status			
Single	-1.022 (0.082)	-0.201 (0.186)	-1.968 (1.588)
Married	-0.523 (0.202)	-0.107 (0.132)	-0.969 (0.702)
Year			
2002	-1.022 (0.082)	-0.201 (0.186)	-1.968 (1.589)
2004	-1.330 (0.003)	-0.208 (0.186)	-2.558 (2.021)

Marginal effects calculated using the results of the IV Tobit estimations for a reference man with 6 years of schooling (primary complete) and a pre-transfer income of 1000 pesos (approximately 100 U.S. dollars), single, at least 70 years old, who resides in Mexico City in 2002. The table reports $\hat{\partial}E(T)/\hat{\partial}Y$ and how this marginal effect varies with individual pre-transfer income, years of education and marital status. It also reports whether the marginal income effect was different in the two rounds after the program started, 2002 and 2004.

Table 7
Probability of Living Alone: Probit Coefficients

	All	Women	Men	Single Women	Single Men
Age 70+ in Mexico City in 2002	-0.005 (0.077)	0.030 (0.080)	0.013 (0.120)	-0.062 (0.139)	-0.213 (0.187)
Age 70+ in Mexico City in 2004	0.064 (0.062)	0.121 (0.056)	-0.058 (0.105)	0.057 (0.122)	-0.262 (0.219)
Number of observations	9305	5315	3990	3223	1192

Estimation: Maximum Likelihood. Sample: Urban individuals age 60 or older. All estimations include state and year dummies. Standard errors, clustered at the state level are in parentheses. All estimations control for the individual's years of education, dummies for being 65 to 69 years old and for being at least 70 years old, and the pair wise interactions of the age dummies with a Mexico City dummy and with the dummies for the years after the program started (2002 and 2004)