Crowding Out of Private Support to the Elderly: Evidence from a Demogrant in Mexico*

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Abstract

To examine whether private support dampens or reinforces the impact of redistributive policies, this paper estimates the effect of an exogenous increase in the income of the elderly, caused by a recent demogrant in Mexico, on the amount of private transfers they receive. My instrumental variables strategy overcomes the endogeneity of income that typically contaminates estimates and, unlike related studies that use natural or policy experiments in reduced-form estimations, it yields evidence of a positive bias. This suggests that an unobservable characteristic is positively correlated both with income and private transfer receipt and that treating income as exogenous could lead to an underestimation of the crowding out effect. In contrast, my preferred estimates are negative, significant and not far from minus one, implying an almost complete crowding out. My findings suggest that private transfers could neutralize the changes in the public transfers for the elderly.

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1 Introduction

Whether families undo or reinforce changes in public transfers by adjusting private transfers is key to determine the impact of redistributive policies for the elderly. 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 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). Most evidence on inter vivos transfers casts doubt on the altruistic model[1] because the estimated income effects are either positive (Cox, 1987; Cox and Rank, 1992; Lucas and Stark, 1985; Cox et al., 1998) or negative, but small in magnitude (Cox and Jakubson, 1995; McGarry and Schoeni, 1995; Altonji et al., 1997). For the U. S., 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]

However, these estimates are potentially contaminated by the endogeneity of income. Estimates could be negatively biased if individuals adjust their income by working or saving

[1] The altruistic model has also been examined in other contexts, like bequest behavior (Wilhelm, 1991; Menchik, 1980) and consumption (Altonji et al, 1992), with not very favorable results.

[2] Analyzing 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.

less, precisely because they receive or expect to receive private transfers[3]. On the contrary, if unobservable characteristics are positively correlated with both income and private transfer receipt, estimates could be biased upwards.

To address this endogeneity, this paper estimates the effect of an exogenous increase in the income of individuals at least 70 years old, caused by a demogrant implemented in 2001 in Mexico City, on the amount of private transfers they receive. The transfer from the program, about 60 U. S. dollars per month, represents approximately 30 percent of the average monthly income for qualifying individuals, it is not taxable 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. To my knowledge, this is the first paper that examines the effect of this particular demogrant on the private transfers received by the elderly.

My approach has some advantages over previous attempts to address the endogeneity of income by using natural or policy experiments (Albarran and Attanasio, 2002; Clarke and Wallsten, 2003; Jensen, 2004). These studies obtain negative and significant income effects, but their reduced-form estimations do not show that the endogeneity of income could explain the weak response of private transfers to income found with data from other countries. My instrumental variables strategy provides evidence on the sign of the endogeneity bias and allows

[3]Holtz-Eakin et al (1993) and Joulfaian and Wilhelm (1994) find that receiving an inheritance has a negative, but small, effect on the labor supply of heirs. Joulfaian and Wilhelm (1994) also show that heirs expecting additional inheritances further reduce their current work hours.

me to interpret my estimates as the causal effect of income on private transfers, rather than as the effect of a particular program or event.

The paper closest to mine is that by Jensen (2004), which looks at the effect of a sharp and unexpected increase in pension benefits in South Africa on the remittances received by households with age-qualifying individuals[4], but not by those individuals directly targeted by the policy. This distinction between households and individuals would not matter if households pooled income, but considerable work has rejected the unitary model of the household and showed that whose income increases within the household matters for outcomes (Thomas, 1990; Schultz, 1990; Browning et al, 1994; Browning and Chiappori, 1998; Lundberg et al, 1997, Attanasio and Lechene, 2002). In this paper, I examine the effect on the private transfers received by the individuals whose income increased, and I also report how the marginal income effects vary with individual income.

My results 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. This evidence suggests that a positive endogeneity bias could lead to a substantial underestimation of the crowding out of private support by public transfers. Some individuals might be better at getting private transfers from their relatives, or simply more willing to accept them, and also have higher income from other sources, including transfers from the government.

According to my estimates, a one peso increase in the income of the elderly decreases

[4]My paper is related to, but fairly different from both Clarke and Wallsten (2003), who look at remittances received by households in Jamaica after hurricane Gilbert, and Albarran and Attanasio (2002), who measure the crowding out of private transfers by Mexico's Progresa program, which targets poor rural households with school-age children, but not the elderly.

the domestic private transfers they receive by 57 cents, remittances by 30 cents and total private transfers received by 86 cents. These results indicate a large crowding out effect of public programs for the elderly. The marginal effect of income decreases in absolute value with income, suggesting that poorer individuals could 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.

My findings imply that intergenerational redistribution policies could be neutralized by the response in private transfers. Additional empirical checks show that the large reductions in private transfers I obtain are not due to the limitations of the Tobit specification or to a change in the living arrangements of the elderly caused by the program. In addition, the results from household level estimations are consistent with those for individuals, but the estimated crowding out for households is smaller, suggesting that outside donors might reallocate transfers among members of the same household when their relative incomes change, further neutralizing the effects of public redistribution. Nevertheless, it must be recognized that the program could have a beneficial impact on the well-being of the elderly or their donors through outcomes not examined in this paper.

2 Theoretical Framework

The theoretical literature examines mainly two motives for private transfers: altruism and exchange. Altruistic transfers occur because the donor cares about the utility of the recipient, whereas transfers motivated by exchange compensate 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, conditional on positive transfers being made, 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 (Barro, 1974). 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.[5]

In contrast, under exchange the amount of private transfers received could increase with income (Bernheim et al., 1985). The intuition 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. 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).[6]

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.[7] So,

[5] If donor and recipient belong to the same family, a one dollar increase in the recipient's income alone raises total family income and induces the donor to increase the transfer (Cox, 1987). If individuals get utility from the mere act of giving, or a "warm glow", an increase in recipient's income, together with a decrease in donor's income, would also cause a reduction of less than one-for-one dollar (Andreoni,1989 and 1990).

[6] Under certain assumptions, the predictions regarding the transfer decision would be the same under both motives (see Cox, 1987).

[7] In 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

relatively poor individuals could experience larger reductions in the private support they receive when their income from other sources increases.[8]

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.[9] The monthly transfer is about 60 U. S. dollars, which represents approximately 30 percent of the average income for qualifying individuals 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. Thus, elegibility 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

to hold when her income is low.

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

[9] Beneficiaries 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.

relatively poor neighborhoods[10] 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. 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.

4 Data and Empirical Specification

I use a sample of 9,321 individuals at least 60 years old in urban households from the Mexican Household Income and Expenditure Survey (ENIGH) for the period 1996-2004, before and after the policy change. The survey is a nationally representative cross section collected every two years by the National Institute of Statistics (INEGI) and has detailed information on income from different sources, including private transfers in cash, for each individual in the household during the previous quarter. No transfers between members of the same household are reported and no information on the characteristics of donors is provided.

The relationship of interest is

[10] Neighborhoods 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.

[11] 2003 Mexico City's Health Department Report.

$$T_i = \alpha + \beta X_i + \gamma Y_i + \varepsilon_i \tag{1}$$

where T_i represents the amount of private transfers in cash received by individual i from donors in other households, and X_i is a vector of individual characteristics. The key independent variable is Y_i, the individual's income without any private transfers and the coefficient of interest is γ, which measures whether donors reduce or increase their private support when the recipient's income from other sources increases. If γ is negative, then public transfers crowd out private support. On the contrary, if γ is positive, then private transfers could reinforce the distributional effects of public transfers[12]. However, estimating γ suffers from 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 preferences or assertiveness, could positively affect both private transfers receipt and income.

In my data, a considerable fraction of individuals do not receive any private transfers. To account for this, I estimate an instrumental variables Tobit model (IV Tobit) described by the following equations:

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

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

where $(u_i,\ v_i)$ are zero-mean normally distributed and independent of X_i. In this model, Y_i is endogenous if the unobservable characteristics that influence individual income (v_i) are

[12] Altruism predicts that, conditional on a transfer being made, the difference between the marginal effects of the recipient's and donor's income is equal to minus one. In the data, I have no information for donors, so I cannot formally test the altruistic hypothesis.

correlated with those affecting the amount of private transfers received (u_i). Equations (2) and (3) are estimated jointly by maximum likelihood.

My approach has some advantages compared to previous studies that also exploit natural or policy experiments to control for the endogeneity of pre-transfer income, but estimate reduced-form transfer equations at the household level only (Albarran and Attanasio, 2002; Clarke and Wallsten, 2003; Jensen, 20043). First, using an IV framework provides evidence of the direction of the bias and allows me to interpret estimates as the causal effect of income on private transfers, rather than just the effect of a particular program or event. A second difference with Jensen (2004), the paper closest to mine, is that I estimate the crowding out effect for those individuals directly affected by the program and not only for their households. This distinction between households and individuals could matter if whose income increases within the household matters for outcomes, as a number of studies show (Thomas, 1990; Schultz, 1990; Browning et al, 1994; Browning and Chiappori, 1998; Lundberg et al, 1997, Attanasio and Lechene, 2002).

For identification, I use the eligibility for the program described in the previous section to generate valid instruments (X_{2i}) for the individual's pre-transfer income (Y_i). Individuals at least 70 years old who live in Mexico City were affected by the program starting in 2001, whereas individuals at least 70 years old in other cities, and individuals 60 to 69 years old both in Mexico City and in other cities were not, and so they control for city and age specific effects not due to the program. The implicit assumptions are that the program affects private transfers only through the exogenous increase in the pre-transfer income of qualifying individuals, so the instruments are reasonably excluded from equation (2), and that, in the absence of the intervention, the private transfers received by elegible and non-eligible individuals would have

followed similar patters.

Figure 1 presents the average government transfers[13] received per month in each round of data by individuals age 60 to 69 and for individuals age 70 or older 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 less than the 636 pesos per month each elderly individual was entitled to in that year, because I cannot separate individuals in participating and non-participating neighborhoods in Mexico City. The average government transfers received by the eligible group increased from 2002 to 2004, probably due to the extension of the program to all age-qualifying city residents in 2003. Hence, the program effectively caused a large increase in the pre-transfer income of the targeted group, not experienced by any of the control groups.

In my data, I cannot observe neighborhood to account for the fact that only poor neighborhoods in Mexico City initially participated in program, so my instruments are the triple 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 (Age70+$\times$MexicoCity$\times$2002).

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

[14] Procampo and Progresa are among the largest federal cash transfer programs in Mexico and they both target the rural sector. The extension of Progresa to poor urban households in 2001 does not contaminate my results because the largest transfers go to poor families with school-age children, which are a very small fraction of my sample.

These instruments capture individual eligibility, regardless of the actual participation and transfer amounts received from the program.

In all estimations, the vector X_i includes years of schooling and dummies for female, married, age 65 to 69, age 70 and older, and for year and state[15]. Because my instruments are triple interactions, I also include age-city (Age 70+$\times$MexicoCity), age-year (Age70+$\times$2002) and city-year (MexicoCity$\times$2002) double interactions.

I focus primarily on private transfers received in cash (T_i), because they are reported at the individual level, whereas in-kind transfers are reported only for the household. In addition, by survey design in-kind transfers are valued subjectively, and not at market prices[16], whereas private transfers in cash are more accurately measured. I separately estimate transfer equations for domestic cash transfers, remittances from abroad and for the total amount of cash transfers received by elderly individuals.

However, completely ignoring in-kind transfers could be misleading. If donors reduce both private transfers in cash and in-kind when the income of the elderly increases, looking only at cash transfers would underestimate crowding out. Conversely, crowding out would be overestimated if cash transfers decrease, but in-kind transfers increase, when the income of the elderly increases. Section 6 shows that private in-kind transfers received by the household do not signficantly respond to income, so ignoring them would not affect my results.

[15] I cannot identify cities in the data before 2000. 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 serial correlation, the standard errors are clustered at the state level as suggested by Bertrand, Duflo and Mullainathan (2004).

[16] Respondents are asked whether the household received any good or service as a gift from other households during the past quarter and how much would they have paid for it.

Individual income before private transfers (Y_i) includes rent income, pensions, government transfers, financial income and other non-labor income[17]. 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.

Table 1 presents the descriptive statistics 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,[18] 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 older than 70 are poor, compared to 25. 7 percent of individuals age 60 to 70. According to their results, individuals older than 70 are also more likely to be poor than individuals in all other age groups in Mexico.[19]

[17] I 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.

[18] An 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.

[19] Their poverty line is the 30th percentile of adult-equivalent consumption, which corresponds to about 35

Table 2 shows that as individuals get older, they are more likely to receive private support in cash, and this support represents a higher fraction of income. 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. 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, probably because most of the Mexican migrants to the U. S. come from rural households.

5 Results

Table 3 reports the coefficients on pre-transfer income obtained from Tobit estimations with and without instrumental variables for domestic private transfers, remittances and total private transfers received per month. The first column treats income as exogenous and yields income coefficients that are either negative or positive, but small and not significant, as in some of previous work. In contrast, the IV Tobit in the second column yields large, negative, and significant income coefficients. These results would suggest a positive endogeneity bias that leads to an underestimation of the crowding-out of private aid between families. Some individuals might be better at getting private transfers, or simply more willing to accept them, and also have higher income from other sources, including transfers from the government[20].

The bottom of Table 3 shows that the first-stage coefficients for my instruments are

to 40 U.S. dollars per month in per capita consumption.

[20] Clarke and Wallsten (2003) report that many survey respondents explicitly asked their relatives abroad for monetary help after hurricane Gilbert hit Jamaica.

positive and significant, as would be expected[21]. The pairwise age-year, age-city and city-year interactions, not shown, are mostly not significant, so the instruments reflect the effect of the policy on pre-transfer income and not specific trends for individuals in different age groups or cities.

Using the IV Tobit results, I calculate the following decomposition proposed by McDonald and Moffit (1980) at the mean of the independent variables:

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

This expression shows that the total income effect on private transfers is the sum of the income effect on the probability of receiving positive transfers and the income effect on the amount of transfers received for those receiving positive transfers. Table 4 shows that an additional peso of income reduces domestic cash transfers received by 58 cents: 43 cents are due to the decrease in the probability of receiving positive transfers, and the additional 15 cents are due to the reduction in the amount of private transfers received for those receiving transfers. Total cash transfers fall by 86 cents with an additional peso of income, and the largest part of this effect is the decrease of 60 cents for 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 countries, suggesting a large potential crowding out effect of public programs for the elderly.

[21] The results from overidentifications tests using 2SLS indicate that the instruments I use are valid for the three equations.

Table 5 shows that for a reference man and woman, who are single and are at least 70 years old, have 6 years of schooling (elementary complete), and reside in Mexico City in 2002, after the policy change, the absolute value of the marginal income effects decreases with income, as predicted by the model in Cox (1987), suggesting that low-income seniors could face the largest crowding out effect. The marginal income effects for remittances are not estimated precisely, which does not affect the significance of the income effects for total cash transfers for the reference woman, but could explain why these effects are not significant for men, even though they are all larger than one in absolute value. Nevertheless, for both individuals the income effects on domestic private transfers, which represent the bulk of private transfers in my data, are all significant and fairly large.

At a monthly pre-transfer income of 700 pesos (70 U. S. dollars), an additional peso of income for the reference woman reduces the domestic private transfers she receives by 1.02 pesos. Calculating the decomposition of the effect shows that 77 cents are due to the decrease in the probability of receiving transfers and the additional 25 cents are due to the decrease in the amount received when transfers are positive. For the reference man, all income effects are larger in absolute value than for the reference woman. A man with 700 pesos of income would experience a drop of 1.66 pesos in domestic private transfers for an additional peso in income: -1.05 pesos are due to the effect on the probability of receiving transfers and -61 cents to the effect on the amount for those receiving transfers. At an income of 2,100 pesos, the income effects are negligible for both individuals, but only 6 percent of women and 14 percent of men in my sample have an income greater than or equal to that amount, which suggests that for the majority of them crowding out could be substantial.

In summary, after controlling for the endogenenity of income, the marginal effects of

income on the amount of private transfers received by elderly individuals are not far from minus one, implying an almost complete crowding out effect. Thus, the Mexico City demogrant might not be completely effective in raising the incomes of the elderly. If private transfers are motivated by altruism, the program could be benefiting their donors instead. However, whether donors are or will be financing the demogrant through higher taxes or budget cuts in other programs is hard to say without information on their characteristics. In addition, the demogrant is currently not financed from a specific tax, but from the general revenues of the state of Distrito Federal, some of which come from federal money.

If instead private transfers are implicit payments for services provided by the elderly, like babysitting or help with home production, the demogrant could be allowing them to reduce these services and increase their leisure. Juarez (2007) finds that the Mexico City demogrant has a negative and significant effect on the time devoted to housework by potential beneficiaries, and a positive, but not significant, effect on their leisure hours[22]. Estimating the effect of the program on other outcomes of interest, like health or mortality, is beyond the scope of this paper, but it is certainly necessary to make a broader assessment of the program.

6 Additional Empirical Checks

In this context, a limitation of the Tobit model is that a single mechanism determines both the probability of receiving a transfer and the amount received if the transfer is positive. As a simple check, I estimated both an IV probit and a 2SLS linear probability model for the transfer decision, and I separately estimated the amount equation by 2SLS. The results, available from

[22]The data used by Juarez (2007) report only total hours devoted to housework, but not a breakdown of specific activities that allows identifying those that could potentially be services to donors.

the author, are consistent with those obtained using the IV Tobit. Reduced-form estimations including the instruments directly in the transfer equations also yield comparable results[23].

My results could be affected if the program encourages shared living, because my data measures transfers occuring between different households, but not those taking place within the same household. 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, for men and women separately, and for singles, because they might be more prone than married couples to change their living arrangements after a policy change. I use the same individual characteristics included in Tobit estimations and my instruments. None of the coefficients on the triple interactions are significant, except for being at least 70 years old in Mexico City in 2004 for women, which is positive and significant, but small. So, the negative income effects I obtain are not due to a change in the living arrangements of the elderly caused by the program, at least in the early years of operation. However, more income in the hands of the elderly could cause a shift to independent living over time, as Costa (1997) finds for the U.S.

The program induces an exogenous increase in income for eligible individuals, but also for their households. Thus, as an additional check, I estimate Tobits with and without instrumental variables for the 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 member age 60 or older[24]. I also estimate the effect on in-kind

[23]For instance, my reduced-form results show that being at least 70 years old in Mexico City in 2002 decreases the total private transfers received by individuals by 269 pesos, which represents 69 percent of the mean transfer received from the program in that year (377 pesos).

[24]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

transfers received and on cash transfers given because these are only reported at the household level. All estimations control for household characteristics and for the relevant interactions.

The results for households, also available from the author, also show evidence of a positive endogeneity bias. The IV Tobit marginal effects, calculated at the mean of independent variables, show that for households an additional peso in pre-transfer income decreases total cash transfers received by 33 cents. This estimate is similar to the average 0.25 to 0.30 rand decrease in private transfers per additional rand in household income obtained by Jensen (2004), but smaller than my estimates for individuals in Section 5. A possible explanation for this result is that outside donors respond to intra-household income changes by redistributing transfers among members of the same household, further seeking to neutralize their effect. So, estimating the crowding out for those individuals directly affected by the policy adds to previous studies that focus only on the household (Jensen, 2004; Albarran and Attanasio, 2002; Clarke and Wallsten, 2003). 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.

Transfers given increase by 5 cents with an additional peso in household income and this effect is significant at 10%, which strenghtens the idea that private transfers adjust to mitigate the effect of redistributive policies. In-kind transfers received by the household decrease by 2 cents with an additional peso in income, but the effect is not significant. Thus, ignoring in-kind transfers does not change my conclusions about the large crowding out of private transfers in cash experienced by elderly individuals.

the same year, and similar dummy variables for 2004. These instruments capture both the eligibility and the total transfer amount the household could receive from the program.

7 Conclusion

This paper estimates the effect of an exogenous increase in the income of the elderly, caused by a demogrant that started in 2001 in Mexico City, on the amount of private transfers they receive. My key result is that treating income as exogenous replicates the positive or small negative income effects obtained by previous work. In contrast, my instrumental variables estimates are negative, significant and not far from minus one, implying an almost complete crowding out. This crowding out effect is larger for seniors with low incomes, who are the majority in my sample.

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, 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 widely-debated extension of the program to the national level could lead to a substantial reduction in the private support received by the elderly, especially by those with low incomes. As a consequence, the extension might not be effective in increasing their incomes.

It must be recognized, however, that the demogrant could have a beneficial impact on the well-being of the elderly or their donors through aspects not examined in this paper. The demogrant could give a break to donors, it could allow the elderly to provide less services to them and consume more leisure, or to live independently and enjoy more privacy. Studying the effect of this demogrant on other outcomes of interest, like health, nutrition or intra-household

allocation, is certainly relevant to understand the impact of the program and its extension.

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Table 1
Descriptive Statistics for Individuals at least 60 years old

	All	60-69	70+
Years of schooling	5.68	6.24	4.95
	(0.05)	(0.06)	(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	3.93	3.73
	(0.02)	(0.03)	(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	554.73	709.20
	(11.43)	(14.95)	(17.61)
Individual total income	2031.5	2362.9	1603.80
	(70.38)	(79.89)	(123.61)
Government transfers received	34.31	5.26	71.80
	(1.60)	(0.77)	(3.43)
Mean private transfers received			
Domestic cash transfers	171.76	139.62	213.23
	(7.61)	(8.14)	(13.88)
Remittances	25.48	28.03	22.18
	(3.11)	(4.44)	(4.24)
Total cash transfers	197.24	167.65	235.42
	(8.22)	(9.26)	(14.52)
Number of observations	9321	5251	4070

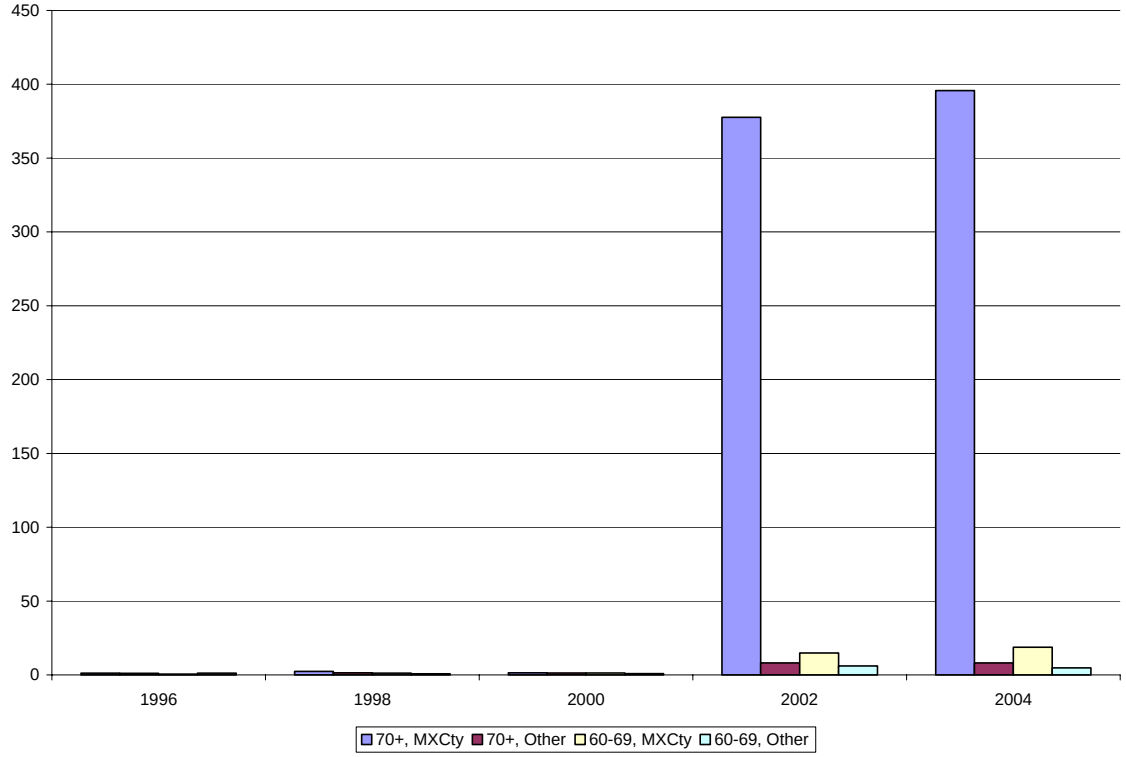
Source: Author's calculations using a nationally representative sample of urban individuals at least 60 years old from the National Income and Expenditure Survey for Mexico (ENIGH), for the years 1996, 1998, 2000, 2002 and 2004. The second column shows the descriptive statistics for the whole sample, 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	-3.930
	(0.041)	(0.220)
Remittances	0.054	-6.785
	(0.140)	(0.347)
Total cash transfers received	-0.051	-5.70
	(0.041)	(2.490)
First-stage 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			
	$\partial Pr(T>0)/\partial Y$	E(T|T>0)	$\partial Pr(T>0)/\partial Y \times$ E(T|T>0)	Pr(T>0)	$\partial E(T\|T>0)/\partial Y$	Pr(T>0) × $\partial E(T\|T>0)/\partial Y$	$\partial E(T)/\partial Y$
Domestic cash transfers	-0.0004	1157.6	-0.431	0.148	-0.992	-0.147	-0.578
	(5×10^{-6})	(61.85)	(0.056)	(0.027)	(0.014)	(0.022)	(0.078)
Remittances	-0.0002	1475.1	-0.285	0.017	-1.253	-0.022	-0.307
	(3×10^{-5})	181.09	0.269	(0.012)	(0.088)	(0.012)	(0.287)
Total cash transfers	-0.0005	1217.5	-0.605	0.162	-1.592	-0.258	-0.863
	(0.0001)	(103.46)	(0.004)	(0.039)	(0.069)	(0.025)	(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 Moffit (1980): $\partial E(T)/\partial Y = \partial Prob(T>0)/\partial Y \times E(T|\ T>0) + Prob(T>0) \times \partial E(T|T>0)/\partial Y$. 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 at Different Income Levels

	Reference Woman			Reference Man		
	Domestic Cash Transfers	Remittances	Total Cash Transfers	Domestic Cash Transfers	Remittances	Total Cash Transfers
Monthly Individual Pre-Transfer Income (in Mexican pesos)						
700	-1.019	-0.155	-1.747	-1.664	-0.533	-3.384
	(0.014)	(0.139)	(1.158)	(0.036)	(0.376)	(2.850)
1000	-0.537	-0.046	-0.723	-1.022	-0.201	-1.968
	(0.039)	(0.052)	(0.235)	(0.082)	(0.186)	(1.588)
1200	-0.329	0.018	-0.335	-0.679	-0.094	-1.172
	(0.040)	(0.024)	(0.065)	(0.088)	(0.102)	(0.783)
2100	-0.012	-0.0001	-0.001	-0.043	-0.046	-0.018
	(0.001)	(0.0002)	(0.005)	(0.020)	(0.052)	(0.030)

Marginal effects calculated using the results of the IV Tobit estimations for a reference individual with 6 years of schooling (primary complete), 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.