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**The Effect of an Old-Age Demigrant on the  
Labor Supply and Time Use of the Elderly  
and Non-Elderly in Mexico**

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# The Effect of an Old-Age Demogrant on the Labor Supply and Time Use of the Elderly and Non-Elderly in Mexico

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## Abstract

This paper investigates the effect of a generous demogrant for the elderly that started in 2001 in Mexico City on the labor supply and time use of the elderly and of non-elderly family members who live with them. Using data for the period 2000-2004 and a triple differences approach, I find that prime-age women reduce both their housework and market work time significantly, but only if they live with an age-qualifying woman in a poor neighborhood after the program started. In contrast, the program seems to have no significant effect on the time use of prime-age men. My results suggest that some of the public resources devoted to the elderly could actually spill over to other age groups, especially in countries where extended families are common, and that the gender of the potential beneficiary matters for outcomes.

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# 1 Introduction

This paper investigates the effect of a generous demogrant for the elderly that started in 2001 in Mexico City, on the labor supply and time use of the elderly and of non-elderly family members who live with them. Mexico, like other developing countries, is experiencing an accelerated trend towards aging, which raises the need to allocate more resources to the elderly by implementing or broadening the public programs for them in a sustainable way. In this context, investigating the effect of income support programs for the elderly on the behavior of individuals and households affected by them is relevant to assess their effectiveness and to get an estimate of the extent to which resources allocated to a specific demographic group reach individuals not originally targeted by public programs, especially in countries where extended families are common.

Previous studies on the labor supply of older workers in the U.S. examine the effect of different features of the Social Security program, like the earnings test, on work participation and hours of work , because Social Security benefits are the most important source of income for the elderly in that country (Friedberg, 2000;Gruber and Orszag, 2003)<sup>1</sup>. The Mexican transfer program studied in this paper differs substantially from Social Security. “Pension Alimentaria para Adultos Mayores” (Nutrition transfer for senior adults) pays a monthly transfer of about 70 dollars to individuals age 70 or older who live in the part of Mexico City that belongs to the state of Distrito Federal. The monthly transfer from the program is relatively large and it is not means-tested, not taxable and does not depend on the individual’s earnings or previous contributions. In fact, the transfer is conditioned exclusively on age, so it is not correlated with individual current or past labor and saving decisions,

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<sup>1</sup>For a general survey on the effects of Social Security provisions on the labor supply of older workers, see Hurd (1997). Leonesio (1990) surveys the literature on the effects of the earnings tests on labor supply of older workers in the U.S. Evidence for other countries can be found in Baker and Benjamin (1999) for Canada, and Disney and Tanner (2000) for the UK. Evidence on the effect of other Social Security rules on the decision of retiring vs. working around the world can be found in Gruber and Wise (2005).

or with unobservable individual or household characteristics affecting time use.

As mentioned before, the transfer might also affect the time use of non-elderly individuals who live with potential beneficiaries. Bertrand et al (2003) estimate the effect of a large and unexpected rise in the pensions paid to poor elderly households in South Africa on the labor supply of working-age household members. Using a cross section dataset collected after the policy change, they find a large drop in labor supply for prime-age males and no significant effect for prime-age women<sup>2</sup>. In this paper, I look at the effect of the Mexican demogrant on the labor supply of prime-age individuals, but also on the time devoted to housework and leisure. Another difference with Bertrand et al (2003) is that I also estimate the effect of the transfer program on the time use of individuals 60 to 69 years old, who expect to receive the transfer in a few years, and on the time use of individuals age 70 or older, who are directly targeted by the program.

More generally, this paper also contributes to the extense literature on the effect of transfer programs on the labor supply of beneficiaries<sup>3</sup>. A major concern with transfer programs is that individuals can alter their labor behavior in order to preserve or qualify for higher benefits. The reduction of benefits with other sources of income typically implies large marginal tax rates on earnings that discourage work. In the program considered in this paper, the effect most likely comes from an exogenous increase in the non-labor income of the household, and not from implicit tax rates.

I use panel data from the Mexican Urban Employment Survey (ENEU) for the period 2000-2004 and a triple differences approach. My identification strategy exploits the fact that the metropolitan area of Mexico City has neighborhoods that belong to the state of Distrito Federal and also neighborhoods that belong to State of Mexico. Individuals in elderly households in Distrito Fed-

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<sup>2</sup>Using similar data, Jensen (2003) estimates the effect of the same pension increase in South Africa on private transfers, but provides some evidence of no effect on migration, labor supply or household structure. Case and Deaton (1998) estimate the effect of this pension increase in South Africa on other outcomes, like consumption, schooling and savings.

<sup>3</sup>Moffit (2002) reviews the economic research on this topic.

eral were affected by the program after 2001, whereas individuals in elderly households in State of Mexico were not. I also include individuals in non-elderly households both in Distrito Federal and State of Mexico as additional controls. In my estimations, I also take into account that when the program started in 2001, participation was restricted to elderly individuals in poor neighborhoods, regardless of household income level, but was extended to all Distrito Federal residents who meet the age requirement at the end of 2003.

My results suggest that some of the public resources devoted to the elderly could actually spill over to other age groups and that the gender of the potential beneficiary matters for outcomes. I find that prime-age women reduce both their housework and market work time significantly, but only if they live with an age-qualifying woman in a poor neighborhood in Distrito Federal after the program started. Simple calculations of the earnings foregone by these women show that at least 76% of the transfer from the program is being shared with them. In contrast, the program seems to have no significant effect on the time use of prime-age men, regardless of the gender of the potential recipient they live with. Individuals 60 to 69 years old do not change their time use unless they actually live with a potential beneficiary, so the mere expectation of receiving the program in a few years has not changed the labor supply of these individuals, at least in the early years of the program. However, women 60 to 69 years old living with a potential beneficiary and similar men living in poor neighborhoods in Distrito Federal significantly reduce their labor market participation and hours after the program started. Individuals age 70 or older in Distrito Federal, who are directly targeted by the program, change their time use only if they live with an additional person who qualifies for the program. In particular, they reduce their time devoted to housework, but I find no significant evidence that the program has allowed them to increase their leisure time, probably because they are already consuming more leisure than individuals in other age groups.

According to my findings, the distributional effects of transfer programs for the elderly could be lessened by the response of families affected by them. For instance, if prime-age women living with an elderly woman in poor neighborhoods significantly reduce their labor supply, the decrease in their earnings could reduce the effectiveness of the program in increasing the total income of these extended households. A second concern with this result would be the loss of labor market experience suffered by these working-age women, which might result in lower earnings in the future. Another implication of my results is that if the program were extended to the national level the decrease in the labor supply of individuals 60 to 69 years old who live with a potential beneficiary could conflict with the efforts made on other grounds, particularly pension system reform, to increase the labor supply of people in their 60s. However, given that the transfer considered in this paper is not reduced with income from other sources by design, it might be the less distortive way of transferring resources to the elderly.

This paper is organized as follows. Section 2 describes and provides a brief history of the program. Section 3 describes the data and identification strategy used in this paper and provides some descriptive statistics. Section 4 presents and discusses the results for men and women in different age groups. Section 5 concludes.

## **2 Description of the Program: "Nutrition Transfer for Senior Adults"**

“Pension Alimentaria para Adultos Mayores” (Nutrition transfer for senior adults) is a transfer program for individuals at least 70 years old who live in the part of the metropolitan area of Mexico City that belongs to the state of Distrito Federal (DF). The monthly transfer is about 70 U. S. dollars

per qualifying individual with no limit on the transfer amount that a household can receive from the program<sup>4</sup>. 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 or household income. The program also provides free prescription drugs and free health care to beneficiaries in the hospitals administered by the DF state government.

The program was first announced in January 2001. Due to a limited budget, only relatively poor neighborhoods in DF participated in the first stage of the program. For implementation purposes, the state government classified neighborhoods in DF as poor if they had very high, high or medium poverty levels, according to an urban poverty index calculated by the National Population Council (Conapo)<sup>5</sup>. Social workers from the state 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 state government's annual report for that year.<sup>6</sup> In September 2002, the local government announced a law proposal that would make the program permanent and extend the transfer to all individuals at least 70 years old in DF. By the end of 2002, the program covered almost all of the eligible population in poor areas.<sup>7</sup> At the end of 2003, the law was approved and the program was

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<sup>4</sup>Beneficiaries are given a debit card that can be used at a number of authorized grocery stores and produce markets with no restriction on the kind of goods that can be purchased. Recently, the local government also authorized beneficiaries to use the card to pay for utilities if they want to.

<sup>5</sup>This poverty index uses data from the 2000 Mexican Census, and it is a weighted combination of several indicators at the neighborhood level, such as fraction of individuals without access to health services, infant mortality, fraction of households without water or drainage, fraction of working individuals with earnings less than 2 times the minimum wage, among others.

<sup>6</sup>Informe de Trabajo 2001, Secretaria de Salud del Distrito Federal (2001 Mexico City's Health Department Report).

<sup>7</sup>Informe de Trabajo 2003, Secretaria de Salud del Distrito Federal (2003 Mexico City's Health Department Report).

extended to all individuals at least 70 years old with a minimum residence of 3 years in the DF part of Mexico City, regardless of their individual or household income level and the neighborhood they live in.

### **3 Data and Identification Strategy**

This paper uses quarterly data from the Mexican Urban Employment Survey (ENEU), which is a national rotating panel of urban households that has information on the time devoted to housework and market work during the previous week. I use a sample of individuals at least 18 years old who live in the metropolitan area of Mexico City for the period between the second quarter of 2000 and the third quarter of 2004. Thus, my data covers the period before the start of the program, the initial stage of the program when only poor neighborhoods in DF participated, and the periods after the announcement and the implementation of the extension of the program to all age-qualifying DF residents.

As shown in Figure 1, the metropolitan area of Mexico City is composed by neighborhoods that belong to DF, and also by neighborhoods that have been incorporated into the city, but formally belong to the State of Mexico and are under a separate political administration. Only individuals who are at least 70 years old and live in DF are eligible for the demogrant, while their counterparts in State of Mexico are not. My identification strategy uses the individuals in households with at least one member who is 70 or more years old in State of Mexico, but still within the metro area of the city, as controls for individuals in similar households in DF, which were affected by the program. I also include individuals in households with no members with 70 or more years of age both in DF and in State of Mexico, to control for any underlying economic conditions affecting individuals and families in DF and State of Mexico that have nothing to do with the program.

I estimate the effect of the program on the participation and weekly hours devoted to housework, market work and leisure for men and women in three age groups: 18 to 59 years old, 60 to 69 years old and at least 70 years old. Individuals in the first two age group are not directly targeted by program, but they could change their time use due to the increase in household income induced by the program. Individuals 60 to 69 years old expect to receive the transfer soon, so they could change their time use even if they do not live with a potential beneficiary already.

To identify the neighborhoods that were classified as "poor" by the DF administration and thus, participated from the initial stage of the program, I match the ENEU data with the neighborhood level urban poverty index calculated by the National Population Council (Conapo)<sup>8</sup>. So, in this paper I define an individual to be poor if she lives in a neighborhood with very high, high and medium poverty level, regardless of her individual or household income level or the characteristics of her dwelling. By doing this, I am able to distinguish the effect for individuals in poor neighborhoods, which might be different due to timing of eligibility but also because for them the transfer might represent a higher fraction of household and individual income.

For men and women 18 to 59 years old, I estimate the effect of the program with the triple interaction of a dummy variable that indicates the presence of an individual who is at least 70 years old in the household with a dummy for residing in DF and dummies for the period after 2001, when the program first started in poor neighborhoods; after 2002, when the government announced the law proposal that would make the program permanent and extend it to all DF residents; and after 2003, when this law was actually approved and implemented (for example, individual 70+ in the household $\times$ DF $\times$ after2001). To estimate the effect of the gender of the potential beneficiary on time

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<sup>8</sup>Both the ENEU data and the Conapo Poverty Index can be matched at the census track level, which is really what I call "neighborhood" in this paper. The census track was also the unit at which the treatment was implemented by the DF government.

use, I include similar interactions of a dummy for having a woman who is at least 70 years old in the household, residing in DF after 2001, 2002 and 2003 ( $\text{woman 70+ in the household} \times \text{DF} \times \text{after2001}$ ). Finally, I estimate the effect of the program for individuals who live with an age-qualifying individual in poor neighborhoods, which participated in the program from the beginning by adding a dummy for poor neighborhood to the interactions ( $\text{poor} \times \text{individual 70+ in the household} \times \text{DF} \times \text{after2001}$  and  $\text{poor} \times \text{woman 70+ in the household} \times \text{DF} \times \text{after2001}$ ).

Men and women 60 to 69 years old expect to receive the transfer from the program relatively soon, so for them I separately estimate the effect of residing in DF after the program started ( $\text{DF} \times \text{after2001}$ ) and the effect of living with an age-qualifying individual after the program started. In addition, in my data the vast majority of individuals 60 to 69 years old who live with someone who is at least 70 years old, live with an individual of opposite sex. As a consequence, I cannot estimate the effect of having a potential beneficiary separately from the effect of having a female potential beneficiary.

For individuals age 70 or older, I estimate the effect of being eligible for the program as living in DF after the program started ( $\text{DF} \times \text{after2001}$ ) and also the effect of having an additional qualifying adult in the household ( $\text{another individual 70+ in the household} \times \text{DF} \times \text{after2001}$ ), which would capture the effect of an additional increase in household income due to the program.. As with the 60 to 69 years old group, I cannot separately estimate the effect of living with another woman age 70 or older.

For all age groups, I estimate the effect on participation in housework and market work with a probit model and the effect on housework, market work and leisure hours with a regression. I cluster the standard errors at the neighborhood level as suggested by Bertrand, Duflo and Mullainathan (2004). In all estimations, I control for age, years of education, dummies for DF resident, year

dummies, a dummy for married, poor, for having an individual age 70 or older in the household, for having a woman 70 or older in the household and all the relevant double and triple interactions.

The top panel of Table 1 shows the descriptive statistics of the variables used in the estimation before the program started for individuals in households with at least one person with 70 or more years of age, and individuals with no individuals 70 or more years of age in the household, both in DF and State of Mexico. In general, individuals in elderly households are older, less educated, more likely to be female and less likely to be married than individuals in non-elderly households. For both groups, individuals in DF households are older and have more years of education than individuals in similar households in State of Mexico. Most of the differences in means for the individuals in comparable households in DF and State of Mexico are statistically significant, but not very large. The bottom panel of Table 1 shows that households in DF have less members than households in State of Mexico. Non elderly households in both states have more adults 18 to 59 years old than non-elderly households, but less adults 60 to 69 years old. Most of the differences in means for households are significant between DF and State of Mexico but the magnitude of the differences is small. For elderly households, the number of total household members at least 70 years old, and the number of men and women at least 70 years old are not significant between households in DF and State of Mexico. On average, elderly households in DF have 1.19 elderly members and households in State of Mexico have 1.17 elderly members. Elderly households in both states have more women older than 70 than men, due to the greater longevity of women. The only striking difference between states is the fraction of households in poor neighborhoods. In DF, 37.8 percent of elderly households are in poor neighborhoods compared to 68.3 percent of similar households in State of Mexico; and 53.2 percent of non-elderly households in DF are in poor neighborhoods compared to 72.2 percent of similar households in State of Mexico. To account for this difference, in my estimations I control

for the effect of individual and household characteristics, for state and, in particular, for residing in a neighborhood classified as poor, as mentioned before.

Table 2 shows the mean participation and hours devoted to housework, market work and leisure for men and women in the different age groups considered in the analysis. For both men and women, work participation and hours decrease with age as would be expected. For men, housework hours time increases with age, whereas for women it decreases only after age 70. In general, women devote much more time to housework and less time to market work than men. About 97 percent of women 18 to 59 years old report doing some housework compared with only 67 percent of men in the same age group. Women 18 to 59 and 60 to 69 years old spend on average 33 hours per week doing housework, whereas for men housework hours never exceed 10 hours per week. Women 18 to 59 years old have a 42 percent labor force participation rate and 16 average working hours per week, whereas men in the same age group have a labor force participation rate of 82 percent and 39 mean hours of work per week. Only 7 percent of women older than 70 participate in the labor force and they work an average of 2 hours per week. In contrast, 23 percent of men older than 70 still work and they devote 9 hours per week to work on average. In general, men have slightly more leisure hours per week than women in the same age group, but the differences are not large. As would be expected, both men and women older than 70 have the highest leisure hours.

## **4 Results**

### **4.1 Results for working-age individuals**

The left panel of Table 3 shows that for women 18 to 59 years old who live with an age-qualifying individual in DF after the program started few of the estimated effects are significant, probably because

the program affected all age-qualifying city residents only after 2003. In fact, the only significant effects for these women are a decrease of 96 percentage points in housework participation after 2003 and an increase of 1.5 percentage points if they live with an elderly woman, and a decrease of 15 leisure hours per week for women who live with an elderly woman after 2003, significant only at 10%. In contrast, women 18 to 59 years old in poor neighborhoods in DF, which participated in the program from the beginning, significantly increase their housework participation by 1.5 percentage points if they live with an age-qualifying individual after 2001, 2002 and 2003, but they significantly reduce this participation by 98 percentage points if they live with an age-qualifying woman. For women in poor neighborhoods in DF, living with an individual age 70 or older has a negative effect on housework hours and living with a woman age 70 or older has a positive effect, but none of these effects is significant. Women 18 to 59 in poor households increase their work participation and hours if they live with an elderly individual after the program started, although not significantly. In contrast, they decrease work participation and hours if they live with an elderly woman and only the effects on work hours are significant. These women decrease work hours by roughly 7.7 hours per week after 2001, when the program first started, by 7.6 hours per week after 2002 and by 10.6 hours per week after 2003, when the program became permanent. Prime-age women living with an elderly woman in poor neighborhoods increase their leisure hours after the program started, which is consistent with the observed reduction in their time devoted to both housework and market work, but the only significant effect on leisure is an increase of 22.1 hours per week after 2003.

The right panel of Table 3 shows that men 18 to 59 years old living with an individual age 70 or older in DF decrease their housework participation and hours after the program, but the only significant effects are the decrease of 33 percentage points in housework participation after 2001; and for housework hours, the decrease of 3.3 hours after 2001 and of 5.8 hours after 2002. In contrast,

living with a woman age 70 or older has a positive effect on housework participation and hours, but only the increase of 23.6 percentage points in participation after 2001 is significant at 5%, and the increase of 7.5 hours after 2002 and of 4.3 hours after 2003 are significant at 10%. Living with an elderly woman after the program started has negative effects on work participation and hours for men in DF, both in poor and non-poor neighborhoods, but none of these effects is significant. Most of the other estimated effects for men in this age group are small and not significant at conventional levels. In addition, some of the effects change signs from year to year, which suggests that, except for the effects on housework, the program had no significant effect on the time use of men 18 to 59 years old who live with a potential beneficiary in DF, not even for those living in poor neighborhoods. This result differs from Bertrand et al (2003), who find that in South Africa prime-age males experience the largest reduction in labor supply as a result of a substantial pension increase. This contradicting result could be due to the cultural differences in the attitude towards market work between urban Mexico and South Africa. Bertrand et al (2003) note the low employment rate for prime-age males in their data (0.26). In contrast, prime-age males have the highest labor force participation rate (0.88) and average market work hours per week in my data (see Table 2). In addition, anecdotal evidence suggests that in urban Mexico, prime-age men are expected to work outside the house and not doing so is socially frowned upon. Given this, it is not surprising that even men living with a potential beneficiary do not change their time use significantly, in particular their time devoted to market work, after the program started.

To get a rough estimate of how much of the transfer from the program is shared with prime-age women, I do a back-of-the-envelope calculation of the earnings foregone by them. I calculate the mean hourly wage for women 18 to 59 years old with my data and multiply this mean wage by the average effect on hours obtained from my estimations. For instance, the mean hourly wage for

women 18 to 59 years old who live in a poor neighborhood in DF is \$1.76 USD and on average women in these neighborhoods who live with an age qualifying woman decrease their hours of work by 7.6 to 10.6 hours per week after 2002 and 2003, so the earnings foregone by these women range from \$53.5USD per month after 2002 ( $1.76 \times 7.6 \times 4$ ) and to \$74.6 USD ( $1.76 \times 10.6 \times 4$ ) after 2003. Considering that the individual transfer from the program is approximately \$70USD per month, this simple calculation suggests that at least 76% of the transfer is being shared with prime-age women, which would also suggest that household income is not increasing by the full amount of the transfer.

## **4.2 Results for individuals 60 to 69 years old**

Table 4 shows that for women 60 to 69 years old none of the effects of living in DF after the program started is significant, not even for those living in poor neighborhoods in DF, suggesting that the expectation of receiving the program soon does not affect the time use of women in this age group. In contrast, for both women in DF and women in poor neighborhoods in DF, the program seems to have affected their time use only if they live with a potential beneficiary and most of the significant effects are observed after 2002, after the extension and permanence of the program was announced. For all women in DF who live with an individual age 70 or older the program increase their participation in housework by about 8 percentage points after 2002 and 2003, and housework hours by 17 to 19 hours per week after those years. These women decrease their labor force participation by 30 to 35 percentage points, and their work hours by 18 to 25 hours per week, but these effects on hours of work are not significant. For women 60 to 69 years old in poor neighborhoods in DF, living with an individual at least 70 years old significantly decreases housework participation and hours, and surprisingly, increases work participation and hours. All these effects are particularly large after 2002. Housework participation decreases by 94 points after 2002 and 2003 and housework hours decrease by about 20

hours per week after those years as a result of the program. Labor force participation for these women increases by about 70 percentage points after and work hours increase after 56 to 62 hours per week after 2002 and 2003, and so leisure weekly hours decrease by 36 to 41 hours, but only the last effect is significant at 10%. This increase in work participation and hours of women living with a qualifying individual in poor neighborhoods is large, especially considering the mean participation and hours for women in this age group. Most of these women live with a man at least 70 years old, as I mentioned before. For women 18 to 59 in poor neighborhoods, living with a man age 70 or older increases labor force participation and hours, even though these effects are mostly not significant (see Table 3). Even though for women 60 to 69 years old in poor neighborhoods I do not have the gender variation to estimate the effect of living with an age-qualifying man versus a woman, it might be that part of this large increase in the time devoted to work is due to living with a man who qualifies for the program.

The right panel of Table 4 shows that men 60 to 69 years old in DF do not change their time use because they expect to receive the program in a few years. All the effects of living in DF after the program started, even for men in poor neighborhoods, are small and not significant, except for an increase in 2 housework per week after 2002 and 2003, significant only at 10%. Men living with an individual age 70 or older in DF decrease their housework time, and increase their working time, and these effects are large and significant only after 2002, when the announcement of the program extension was made. For these men, housework participation declines by 95 percentage points and housework hours fall by about 14 hours per week after 2002 and 2003. In contrast, their labor force participation by 53 to 73 percentage points and hours of work by 18 to 24 after those years, but only the effect after 2003 is significant at 10%. Leisure hours decrease for these men after 2002 and 2003, but none of these effects is significant. For men 60 to 69 years old in poor neighborhoods in DF, living with an age-qualifying individual increases their time devoted to housework, decreases their

time devoted to market work and increases their leisure time. Most of these effects are significant only after 2002 even though poor neighborhoods participated in the program since 2001. These men increase their housework participation by 7.3 percentage points and housework hours by 21 to 23 hours per week after 2002 and 2003, and they sharply decrease their work participation by 28 to 33 percentage points and work hours by 53 to 58 hours per week after those years, which contrasts with the results obtained for poor women in the same age group. Leisure time increases by 16 hours after 2001, but this effect is not significant, and by about 35 hours after 2002 and 2003.

### **4.3 Results for individuals at least 70 years old**

Table 5 shows the results for individuals at least 70 years old in DF, who are the direct beneficiaries of the program. For both men and women age 70 or older most of the effects of being eligible for the program are not significant at conventional levels, not even for those in poor neighborhoods, only some of the effects of having an additional eligible person in the household.

For women in DF, having another potential beneficiary in the household decreases housework participation by about 96 percentage points after 2002 and 2003; and it decreases labor force participation by about 8 percentage points. Work hours also decrease, but only the decrease of 6.6 hours after 2002 is significant at 5%. For these women, no effect on leisure time is significant. Poor eligible women who live with another potential beneficiary reduce their housework participation by 95 percentage points after 2001, when the program first started, and significantly reduce housework hours by 10 to 16 hours per week. Together with this reduction in housework time, poor eligible women who live with another qualifying individual increase their labor force participation by 97 percentage points in all years after the program started and only the increase of 12.4 hours in their weekly hours of work after 2003 is significant at 10%. Despite this increase in time devoted to market work, column

5 of Table 5 shows that the estimated effects on leisure are all positive, but not significant for poor elderly women who live with an additional potential beneficiary.

For men at least 70 years old, the only significant effects are the decrease of 2 to 3 weekly housework hours experienced by men who live with an additional qualifying individual in poor neighborhoods and the decrease of 19 percentage points in their labor force participation after 2002.

## **5 Conclusions**

This paper estimates the effect of a recent demogrant for individuals age 70 or older who live in Mexico City on the time use of eligible individuals and of non-elderly family members who live with them. As the amount of public resources allocated to the elderly grows in Mexico in response to the aging of the population, it becomes relevant to evaluate the effects of old-age support programs on the behavior of the elderly and their families.

My results show that the transfer from the program has an effect on the time use of non-elderly household members who live with eligible individuals, even though they are not directly targeted by the program, and that this effect varies with the gender of the potential recipient. Prime-age women reduce both their housework and market work time significantly, but only if they live with a age-qualifying woman in a poor neighborhood in DF after the program started. In contrast, the program seems to have no significant effect on the time use of prime-age men, regardless of the gender of the potential recipient they live with. Simple calculations of the earnings foregone by prime-age women who live with a woman age 70 or older show that at least 76% of the transfer from the program is being shared with them. The decrease in labor earnings for prime age-women in such households

could mitigate the effect of the program on total household income and the loss of labor market experience for these women could be translated into lower earnings in the future.

Individuals 60 to 69 years old, who expect to receive the program in a few years, do not change their time use unless they actually live with a potential beneficiary. This suggests that for the first years of operation of the program the expectation of receiving the program has not changed the labor market behavior of individuals who are close to receiving the program. However, women 60 to 69 years old living with a potential beneficiary in DF and comparable men in poor neighborhoods in DF significantly reduce their labor market participation and hours, which is a result that conflicts with the efforts made on other grounds to increase the labor supply of people in their 60s. My results show that eligible individuals change their time use only if they live with an additional person who qualifies for the program. However, the effect of the program on the leisure time of qualifying individuals is not significant, probably because they are already consuming more leisure than other age groups.

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Table 1: Means of Individual and Household Characteristics  
Before the Program by State of Residence

	Households with at least one person 70+			Households with no individuals 70+		
	DF	State of Mexico	Difference	DF	State of Mexico	Difference
<b>INDIVIDUALS</b>						
Age	53.35 (0.466)	50.19 (0.623)	3.169*** (0.778)	33.51 (0.108)	31.85 (0.107)	1.660*** (0.152)
Years of education	9.35 (0.101)	7.38 (0.127)	1.973*** (0.163)	10.46 (0.032)	9.43 (0.030)	1.031*** (0.044)
Female	0.587	0.561	0.026 (0.164)	0.524	0.510	0.014*** (0.005)
Head	0.332	0.300	0.032** (0.015)	0.333	0.324	0.008* (0.004)
Married	0.423	0.476	-0.054*** (0.017)	0.574	0.583	-0.001* (0.005)
Number of individuals	2522	1415		18167	17141	
<b>HOUSEHOLDS</b>						
Household size	3.307 (0.065)	3.818 (0.105)	-0.510*** (0.124)	3.862 (0.022)	4.156 (0.022)	-0.294*** (0.031)
Women 18-59 years old	0.759 (0.030)	0.867 (0.042)	-0.109** (0.052)	1.252 (0.010)	1.228 (0.009)	0.024* (0.019)
Men 18-59 years old	0.590 (0.028)	0.746 (0.043)	-0.156*** (0.051)	1.098 (0.010)	1.146 (0.009)	-0.048*** (0.014)
Women 60-69 years old	0.214 (0.014)	0.159 (0.018)	0.056** (0.023)	0.091 (0.004)	0.065 (0.003)	0.026*** (0.005)
Men 60-69 years old	0.039 (0.007)	0.054 (0.011)	-0.014 (0.013)	0.092 (0.004)	0.061 (0.003)	-0.031*** (0.005)
Number of members 70+	1.188 (0.008)	1.171 (0.010)	0.017 (0.013)	0	0	0
Women 70+	0.652 (0.010)	0.660 (0.013)	-0.008 (0.016)	0	0	0
Men 70+	0.536 (0.010)	0.511 (0.013)	0.025 (0.017)	0	0	0
Female head	0.392	0.298	0.094*** (0.028)	0.209	0.170	0.039*** (0.007)
Poor	0.378	0.683	-0.305*** (0.028)	0.532	0.722	-0.191*** (0.009)
Number of households	841	8537		6123	5619	

Standard errors are in parentheses. Sample: Households and individuals in the metropolitan area of Mexico City in 2000, before the start of the program. The program targets households with at least one individual at least 70 years old in Distrito Federal (DF). Households with no members age 70 or older in DF and households in State of Mexico do not qualify for the program.

\* Significant at 10%

\*\* Significant at 5%

\*\*\* Significant at 1%

Table 2: Participation and Mean Weekly Hours in Different Activities by Age

	Women			Men		
	18-59	60-69	70+	18-59	60-69	70+
Housework participation	0.97	0.97	0.89	0.67	0.73	0.74
Housework hours per week	32.44 (0.060)	33.38 (0.179)	23.85 (0.201)	6.05 (0.024)	8.87 (0.119)	9.78 (0.153)
Work participation	0.42	0.18	0.07	0.82	0.53	0.23
Work hours per week	16.67 (0.072)	6.42 (0.180)	2.20 (0.119)	38.88 (0.078)	23.45 (0.320)	9.06 (0.286)
Leisure hours per week	116.16 (0.064)	128.10 (0.216)	141.91 (0.231)	119.81 (0.071)	135.59 (0.30)	149.09 (0.301)
Number of observations	88442	7258	6227	79387	5925	4123

Standard errors are in parentheses. Sample: Households and individuals in the metropolitan area of Mexico City in the period 2000-2004. The survey asks for the hours devoted the previous week to housework and market work. Housework includes time devoted to child and elderly care. Market work includes any time devoted to salaried work, self-employment or unpaid work in a family business. Leisure time is total weekly hours (168) minus the reported hours devoted to housework and market work.

Table 3: The Effect of the Demogrant for the Elderly on the Time Use of Individuals 18 to 59 Years Old

	Women					Men				
	Housework Dummy (1)	Housework Hours (2)	Work Dummy (3)	Work Hours (4)	Leisure (5)	Housework Dummy (6)	Housework Hours (7)	Work Dummy (8)	Work Hours (9)	Leisure (10)
<b>Individual 70+ in HH x DF x After Year</b>										
2001	-0.001 (0.020)	1.706 (4.166)	-0.057 (0.126)	-6.496 (6.884)	2.415 (5.156)	-0.330*** (0.110)	-3.263*** (1.310)	0.020 (0.104)	2.144 (7.290)	-1.112 (5.252)
2002	0.012** (0.005)	3.391 (4.433)	0.166 (0.172)	-2.189 (8.150)	-4.846 (7.736)	-0.144 (0.191)	-5.819* (3.405)	-0.237 (0.233)	1.901 (6.681)	-0.773 (7.105)
2003	-0.963*** (0.034)	-1.273 (4.678)	0.042 (0.196)	-6.127 (7.960)	8.440 (6.110)	-0.089 (0.166)	-2.324 (2.232)	0.102* (0.055)	11.582 (7.607)	-11.291** (5.673)
<b>Woman 70+ in HH x DF x After Year</b>										
2001	0.001 (0.022)	0.498 (5.340)	0.044 (0.163)	3.354 (7.600)	-3.536 (6.573)	0.236** (0.060)	2.631 (1.820)	-0.002 (0.138)	-2.581 (8.972)	5.805 (6.407)
2002	-0.037 (0.089)	-2.191 (5.698)	-0.138 (0.193)	-1.195 (8.909)	4.157 (8.374)	0.186 (0.121)	7.469* (3.911)	0.093 (0.081)	-2.513 (9.182)	1.838 (8.507)
2003	0.015*** (0.001)	2.508 (6.002)	-0.009 (0.237)	6.145 (9.041)	-15.532* (8.163)	0.139 (0.135)	4.315* (2.609)	-0.089 (0.207)	-4.192 (10.566)	4.366 (8.442)
<b>Poor x Individual 70+ in HH x DF x After Year</b>										
2001	0.016*** (0.001)	-4.728 (4.898)	0.183 (0.181)	11.373 (8.073)	-6.560 (6.420)	0.211* (0.076)	1.756 (1.854)	0.056 (0.102)	10.241 (9.037)	-6.217 (6.991)
2002	0.015*** (0.001)	-8.276 (5.629)	0.135 (0.236)	13.913 (9.573)	-1.622 (9.057)	0.071 (0.173)	4.127 (3.673)	0.137*** (0.029)	5.233 (8.038)	-1.504 (8.125)
2003	0.015*** (0.001)	-5.563 (5.758)	0.192 (0.249)	18.777** (9.445)	-13.961* (8.186)	0.131 (0.148)	1.751 (2.831)	-0.190 (0.217)	-9.547 (9.035)	10.838 (7.491)
<b>Poor x Woman 70+ in HH x DF x After Year</b>										
2001	-0.986*** (0.003)	0.561 (6.427)	-0.172 (0.189)	-7.745** (3.901)	11.004 (8.538)	-0.258 (0.182)	0.875 (2.471)	-0.252 (0.290)	-12.799 (10.863)	1.332 (8.270)
2002	-0.984*** (0.009)	9.481 (7.436)	-0.137 (0.249)	-7.582* (3.980)	2.634 (10.294)	-0.211 (0.251)	-3.788 (4.323)	-0.448 (0.326)	-8.621 (11.113)	0.429 (10.134)
2003	-0.987*** (0.001)	5.392 (7.426)	-0.221 (0.228)	-10.643*** (3.950)	22.136** (10.333)	-0.222 (0.254)	-2.686 (3.421)	0.043 (0.149)	0.520 (12.422)	-3.900 (10.599)

Standard errors in parentheses are clustered at the neighborhood level. Sample: Individuals 18 to 59 years old living in the metropolitan area of Mexico City. The estimations were carried out separately for men (N=79,387) and women (N=88,442). Columns 1, 3, 6 and 7 report the marginal effects from a Probit for the probability that individual hours devoted to each activity are positive during the previous week. All other columns report OLS coefficients for the weekly hours devoted to each activity. All estimations control for age, years of education, dummies for DF resident, year dummies, a dummy for married, poor, for having an individual age 70 or older in the household, for having a woman 70 or older in the household and all the relevant double and triple interactions.

\* Significant at 10%

\*\* Significant at 5%

\*\*\* Significant at 1%

Table 4: The Effect of the Demogrant for the Elderly on the Time Use of Individuals 60 to 69 Years Old

		Women					Men				
		Housework Dummy	Housework Hours	Work Dummy	Work Hours	Leisure	Housework Dummy	Housework Hours	Work Dummy	Work Hours	Leisure
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<b>DF x After Year</b>											
	2001	0.021 (0.049)	2.148 (3.391)	-0.059 (0.125)	-3.254 (4.030)	1.022 (3.034)	-0.019 (0.033)	0.415 (1.445)	-0.001 (0.082)	1.965 (3.596)	-2.101 (3.133)
	2002	0.008 (0.063)	0.398 (3.923)	-0.002 (0.154)	-0.983 (5.276)	0.243 (3.501)	0.032 (0.026)	2.245* (1.363)	-0.062 (0.088)	-0.557 (4.766)	-1.35 (4.095)
	2003	-0.032 (0.087)	-1.054 (3.740)	0.015 (0.162)	0.625 (5.679)	0.183 (4.286)	0.016 (0.031)	2.983* (1.673)	-0.057 (0.094)	-1.368 (4.923)	-1.249 (4.026)
<b>Individual 70+ in HH x DF x After Year</b>											
	2001	0.040*** (0.002)	9.838 (6.473)	0.13 (0.417)	9.342 (14.972)	-18.457 (14.045)	-0.096 (0.204)	-6.864 (5.007)	0.045 (0.269)	-4.197 (12.503)	10.168 (12.316)
	2002	0.081*** (0.006)	19.145** (6.267)	-0.298*** (0.076)	-18.271 (17.364)	-0.306 (16.890)	-0.951*** (0.004)	-14.803*** 4.816	0.525** (0.268)	18.045 (15.031)	-3.645 (13.406)
	2003	0.079*** (0.005)	17.683** 7.822	-0.346*** (0.009)	-25.703 (16.313)	9.69 (14.732)	-0.948*** (0.004)	-13.200*** (5.301)	0.726*** (0.008)	23.922* (13.552)	-12.409 (12.059)
<b>Poor x DF x After Year</b>											
	2001	0.025 (0.052)	0.880 (3.927)	0.093 (0.174)	2.275 (5.623)	-3.048 (4.648)	0.015 (0.030)	0.523 (1.813)	0.008 (0.103)	0.437 (5.038)	-1.203 (4.512)
	2002	0.007 (0.077)	4.183 (4.715)	0.04 (0.200)	1.608 (7.197)	-5.224 (5.595)	-0.034 (0.054)	-1.621 (1.797)	0.058 (0.127)	0.368 (6.208)	0.681 (5.480)
	2003	0.043 (0.040)	5.019 (4.499)	-0.142 (0.138)	-5.835 (7.111)	0.96 (5.967)	0.011 (0.038)	-1.234 (2.144)	0.143 (0.137)	3.261 (6.296)	-2.413 (5.526)
<b>Poor x Individual 70+ in HH x DF x After Year</b>											
	2001	-0.109*** (0.004)	-9.056 (8.867)	0.097 (0.534)	16.140 (20.824)	-7.733 (19.668)	0.055 (0.037)	12.587 (6.500)	-0.288*** (0.078)	-28.239 (18.497)	16.42 (17.589)
	2002	-0.943*** (0.004)	-20.390*** (9.347)	0.685*** (0.047)	56.118** (24.428)	-36.355 (23.170)	0.073*** (0.005)	22.834** (7.097)	-0.320*** (0.009)	-58.215*** (21.922)	35.884* (19.976)
	2003	-0.940*** (0.004)	-21.953*** 10.988	0.707*** (0.007)	62.078** (25.403)	-41.834* (23.378)	0.073*** (0.005)	20.508** 7.679	-0.332*** (0.007)	-53.172** 22.955	34.207 (22.076)

Standard errors in parentheses are clustered at the neighborhood level. Sample: Individuals 60 to 69 years old living in the metropolitan area of Mexico City. The estimations were carried out separately for men (N=5,925) and women (N=7,258). Columns 1, 3, 6 and 7 report the marginal effects from a Probit for the probability that individual hours devoted to each activity are positive during the previous week. All other columns report OLS coefficients for the weekly hours devoted to each activity. All estimations control for age, years of education, dummies for DF resident, year dummies, a dummy for married, poor, for having an individual age 70 or older in the household, and all the relevant double and triple interactions.

\* Significant at 10%

\*\* Significant at 5%

\*\*\* Significant at 1%

Table 5: The Effect of the Demogrant on the Time Use of Potential Beneficiaries (70+)

	Women					Men				
	Housework Dummy (1)	Housework Hours (2)	Work Dummy (3)	Work Hours (4)	Leisure (5)	Housework Dummy (6)	Housework Hours (7)	Work Dummy (8)	Work Hours (9)	Leisure (10)
<b>DF x After Year</b>										
2001	-0.004 (0.029)	-4.838** (2.317)	0.011 (0.037)	1.237 (1.792)	3.575 (2.988)	-0.039 (0.120)	-1.212 (1.479)	-0.018 (0.132)	-1.968 4.413	2.978 (4.220)
2002	0.029 (0.032)	-3.476 (3.113)	0.09 (0.105)	3.075 (2.590)	0.379 (3.328)	-0.009 (0.134)	0.045 (2.313)	-0.056 (0.120)	-3.779 (4.845)	3.862 (4.738)
2003	-0.024 (0.052)	-4.495* (2.560)	0.028 (0.073)	2.071 (2.265)	2.275 (3.318)	0.092 (0.106)	0.095 (2.100)	-0.040 (0.106)	-4.722 (4.577)	4.433 (4.370)
<b>Another individual 70+ in HH x DF x After Year</b>										
2001	-0.195 (0.227)	3.639 (6.417)	-0.093*** (0.017)	-3.311 (2.047)	-0.48 (6.432)	-0.149 (0.173)	1.258 (2.675)	0.225 (0.242)	5.538 (6.662)	-0.489 (5.760)
2002	-0.960*** (0.005)	6.476 (5.461)	-0.076*** (0.011)	-6.611** (2.712)	0.014 (5.783)	-0.317 (0.236)	0.362 (3.302)	0.208 (0.229)	4.825 (7.407)	-1.708 (6.880)
2003	-0.959*** (0.003)	7.152 (5.958)	-0.078*** (0.010)	-8.753 (5.490)	1.718 (7.589)	-0.06 (0.187)	3.959 (3.882)	0.034 (0.200)	1.417 (7.759)	-8.043 (6.731)
<b>Poor x DF x After Year</b>										
2001	0.031 (0.033)	5.488* (3.076)	-0.008 (0.041)	.039 (2.256)	-5.49 (3.903)	0.007 (0.135)	1.503 (2.151)	-0.002 (0.152)	-0.734 (6.002)	-6.756 (7.101)
2002	-0.036 (0.076)	6.489* (3.822)	-0.043** (0.017)	-4.132 (2.780)	-2.622 (4.328)	0.008 (0.150)	-1.155* (2.919)	0.064 (0.185)	1.813 (7.028)	-5.372 (7.492)
2003	0.038 (0.032)	5.727 (3.558)	-0.035 (0.026)	-2.304 (2.858)	-3.359 (4.411)	-0.108 (0.180)	1.311 (3.024)	0.087 (0.177)	7.060 (6.937)	-5.257 (7.738)
<b>Poor x Another individual 70+ in HH x DF x After Year</b>										
2001	-0.950*** (0.004)	-10.305** (7.499)	0.965*** (0.006)	2.630 (4.710)	7.807 (8.353)	0.151 (0.115)	-2.796** (4.398)	-0.153 (0.109)	-0.378 (10.433)	3.042 (10.540)
2002	-0.093 (0.203)	-14.280** (7.304)	0.963*** (0.005)	4.697 (5.968)	9.783 (9.118)	0.095 (0.174)	-2.094** (4.944)	-0.193*** (0.059)	-7.438 (12.661)	9.749 (12.921)
2003	-0.291 (0.348)	-16.218*** (7.488)	0.967*** (0.004)	12.401* (6.846)	3.778 (9.376)	0.049 (0.197)	-3.359*** (5.159)	0.051 (0.285)	4.826 (12.060)	-2.053 (11.714)

Standard errors in parentheses are clustered at the neighborhood level. Sample: Individuals at least 70 years old living in the metropolitan area of Mexico City. The estimations were carried out separately for men (N=4,123) and women (N=6,227). Columns 1, 3, 6 and 7 report the marginal effects from a Probit for the probability that individual hours devoted to each activity are positive during the previous week. All other columns report OLS coefficients for the weekly hours devoted to each activity. All estimations control for age, years of education, dummies for DF resident, year dummies, a dummy for married, poor, for having another individual age 70 or older in the household and all the relevant double and triple interactions.

\* Significant at 10%

\*\* Significant at 5%

\*\*\* Significant at 1%

Figure 1  
Metropolitan Area of Mexico City

