

The Effect of Non-contributory Pensions on Saving in Mexico*

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Abstract

This paper examines the effects of non-contributory pension programs at the federal and state levels on Mexican households' saving patterns using micro data from the Mexican Income and Expenditure Survey. The federal program appears to reduce the saving rate of households whose oldest member is either 18 to 54 or 65 to 69. State programs have no significant effects on household saving rates in the smallest localities, but they may reduce the saving of households with members in their sixties in larger localities. When combined, the programs do not significantly impact households' aggregate saving, probably due to their differential effects by population strata. Importantly, they have no impact on the savings of households whose oldest member is age-eligible (70 and older). Increases in human capital investments, like education and health, and reductions in household-level labor supply might play a role in the measured impacts.

JEL classifications: D14, J26, O12, H55

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1. Introduction

In the last 15 years, many Latin American countries have implemented non-contributory (NC) pension programs for the elderly, spending on average 0.56 percent of GDP on them (Levy and Schady, 2013). These NC pensions, which are typically conditioned on age and residence requirements, attempt to reduce elderly poverty by distributing resources to seniors who do not qualify for a contributory pension.¹

Mexico has been no exception to this trend. Since 2001, several Mexican states, starting with the Federal District (DF), have gradually implemented their own NC pension programs in which eligible individuals receive a monthly cash transfer that is almost exclusively conditioned on age and state residence. By 2011, 16 of the 32 states had implemented such local programs (Aguila *et al.*, 2011). On top of these local pension programs, in 2007, the federal government started its own: the *70 y Más* program. The latter initially paid about 40 USD per month to individuals age 70 and older residing in localities with up to 2,500 inhabitants—the smallest in the country.² This federal program was implemented with the explicit purpose of increasing the income of beneficiaries, and its rollout responded to the particularly low coverage of the contribution-based Mexican pension systems in rural areas.³ The program grew rapidly and was expanded to larger localities in the early years, reaching national coverage in 2012.

¹ Many Latin American countries have a contribution-based social security system that is funded by employer and employee contributions. However, they also have a large share of the workforce that does not contribute to the system or does not contribute enough to guarantee a contributory pension when they reach old age.

² The program transfer is 500 Mexican pesos per month. To get the equivalent amount in U.S dollars, we used an exchange rate of 12.5 pesos per dollar, which was the average in the first six months of 2013.

³ The motivation section of the 2007 Rules of Operation of the program states “the Federal Government starts this support program for older adults, with the purpose of improving their income, and as a result, their living conditions.” Please refer to: “Acuerdo por el que se emiten y publican las Reglas de Operación del Programa de Atención a los Adultos Mayores de 70 años y más en zonas rurales para el ejercicio fiscal 2007” published in *Diario Oficial de la Federación* on February 28, 2007.

A potential concern with these pension schemes, however, is that they might lower private saving since they provide a substitute for contribution-based pensions, lower the need for precautionary saving and facilitate increases in consumption. The latter is not necessarily undesirable. However, by changing expectations, NC pension programs might not only alter the overall saving pattern of the elderly, but also of households headed by younger individuals more likely to carry out human capital investments, as would be the case with educational investments on their children.

In this paper, we provide evidence on the potential effects of NC pension programs on the saving patterns of Mexican households. Specifically, we estimate how the combination of the *70 y Más* program with state-level NC pensions affected saving rates using micro data from the Mexican Income and Expenditure Survey (ENIGH) and a difference-in-differences approach that exploits the geographical rollout of the *70 y Más* program, together with the variation in the start date of the state programs. We conduct the analysis for households whose oldest member is age-eligible, and also for different groups of households whose oldest member is younger than 70. This approach yields a broader picture of the potential effects of NC pensions on saving and labor supply of their targeted population, as well as of individuals who are still young, but might also respond to the incentives of such programs.

It is important to gain a better understanding of how non-contributory pension plans impact saving for at least two reasons. *First*, saving rates, which are an important element for the sustained growth that Mexico longs for, continue to be low in the country (around 24 percent of GDP according to Levy and Schady, 2013), and they could be further diminished by the ongoing expansion of these NC pensions programs. *Second*, state and federal programs add up to a significant amount of resources that are being transferred to the Mexican elderly. These resources

can only be expected to increase in the near future.⁴ In fact, the current administration just lowered the eligibility age of the federal NC pension to 65 upon taking office, and the Mexican Congress has yet to discuss a reform that would double the pension amount and make it a permanent component of the Mexican social insurance system. In this context, it is even more relevant to shed some light on the potential effects that these programs have on the saving decisions of those individuals who are close to the eligibility age, and of those younger ones who will face the new set of rules.

To our knowledge, the literature on NC pensions has not directly looked at the effects on the amount and composition of saving. Instead, it has focused on evaluating the affordability of these programs, and their impact on elderly poverty, inequality, the crowding out of private transfers and labor market participation.⁵ For Mexico, two papers find a positive effect of the *70 y Más* program on household expenditures, but none of them looks at either the impact on the amount or the composition of saving (Amuedo-Dorantes and Juarez, 2013; Galiani, Gertler and Bando, 2014). Our study intends to address that gap by assessing, for the first time, the combined impact of the federal and state-level NC pension programs on the amount and composition of household saving.

A related literature finds negative effects of U.S. Social Security on saving (*e.g.* Leimer and Richardson 1992; Engen and Gale 1996; Feldstein 1996). Nevertheless, as noted by Poterba (1996), it is difficult to identify the effect of Social Security on saving because cross-sectional variation in Social Security stems from lifetime income, which is tied to an individual's work

⁴ According to Levy and Schady (2013), the resources spent only on the *70 y Más* program represent about 0.09 percent of Mexican GDP.

⁵ See, for example, Ferreira-Coimbra and Forteza, 2005, or Cruces and Bérngolo, 2013, for Uruguay; Olivera and Zuluaga, 2013, for Colombia and Peru; Juarez and Pfitze, 2013, Amuedo-Dorantes and Juarez, 2013, or Galiani, Gertler and Bando, 2014, for Mexico; Johnson and Williamson, 2008, for a range of countries.

history and, therefore, to her non-Social Security savings. Furthermore, to the extent that individuals of the same age will have similar Social Security benefit schedules, it is hard to get the needed variation in Social Security benefits across similar households. In contrast, during the period we examine in Mexico, NC pension benefits did not depend on individual labor or saving decisions. Furthermore, the age eligibility cutoff, together with the state and federal roll out of these programs, provide exogenous variation that can be exploited for credible identification.

Our results reveal that the *federal* NC pension program is associated with a reduction in the saving rate of two groups of households: those whose oldest member is either age 18 to 54 or 65 to 69 years old. The effects for both groups are quite robust across different saving definitions, identification and robustness checks. *State* NC programs have no significant effects on the saving rate of households in the smallest localities in Mexico, which were the first ones incorporated into the federal program; however, we find some evidence of them reducing the saving of households with members in their sixties in larger localities. Overall, possibly linked to their effect on distinct population strata, the joint impact of federal and state NC pension programs is mostly non-statistically different from zero. That is also true for households whose oldest member is age-eligible (70 and older), whose saving is already low to begin with given their stage in the lifecycle. Our findings prove robust to a number of identification and robustness checks.

We then explore potential explanations for our results, which could be driven by: i) households headed by older individuals about to become eligible for the program decreasing their saving rate in response to the expected NC pension, and/or by ii) households headed by younger individuals perceiving a diminished need to engage in precautionary saving for themselves (just as households headed by older individuals), as well as for their elderly, who will now qualify for a NC pension. In that vein, previous evidence for Mexico shows a significant crowding-out effect

of such programs on the transfers the elderly receive from other, presumably younger, households (Juarez 2009; Amuedo-Dorantes and Juarez, 2013).

To better understand our main findings, we explore how NC pensions are impacting human capital investments –a relatively prominent form of saving among households. We find evidence of the programs raising human capital investments for the groups that reduce their monetary saving, likely reflecting greater educational investments among relatively young households and larger health-related expenditures among older households. If NC pensions insure households against longevity risk, as argued before, they could decrease the need to save in liquid assets to self-insure and allow a shift towards more illiquid assets, like human capital, as argued by Bazdresch and Cuesta (2016) in a different context.⁶ However, the increase in human capital investment we find does not seem to match the decrease in saving. Because of this, we also explore how NC pension programs affect labor supply across various types of households. Our findings suggest that labor supply reductions might have also been partially responsible for the lower saving observed among some of the age groups.

2. Background

Although Mexico is still a relatively young country, it is experiencing an accelerated population aging process. In 2010, about 6 percent of the Mexican population was age 65 and older. However, according to the projections of the Mexican Population Council (Conapo), a sustained increase in this percentage is expected in the following decades, until it reaches 16 percent in 2050.⁷ Such a quick and steep increase in the relative importance of elderly individuals

⁶ Bazdresch and Cuesta (2016) find that *Seguro Popular*, a major health care expansion for the uninsured in Mexico, allowed households to shift their savings from relatively liquid assets to more illiquid ones. This was particularly the case with human capital, presumably due to a lower health risk faced by households after the program.

⁷ These projections are available at Conapo's website (<http://www.gob.mx/conapo>).

raises the need of adequately providing for the elderly, either through contributory or non-contributory pensions, both of which coexist in Mexico.

The contributory pension system currently operating in Mexico is primarily administered by two public institutes: the Mexican Institute of Social Security (IMSS) for salaried employees in the private sector, and the Institute of Health and Social Security for Government Employees (ISSSTE) for federal employees.⁸ The importance of other social security institutions and private pension funds is marginal. Pensions from these two institutes are mostly funded by employer and employee wage-based contributions which, together with a government social contribution, are deposited into individual saving accounts.⁹ By law, only salaried workers are required to save for their retirement through these institutes. Other types of workers, like the self-employed, are allowed to voluntarily participate in IMSS. However, in practice, very few do.

To qualify for a pension from the IMSS, which is the main provider of contributory pensions, the worker must be at least 60 or 65 years old (depending on the type of pension) and have contributed for at least 1,250 weeks (approximately 25 years).¹⁰ After the 2007 reform, the eligibility rules from the ISSSTE are the same. In both instances, the amount of the pension granted is a function of the funds accumulated in the worker's individual account. If those funds

⁸ The military and employees of Pemex, the national public oil company, and of state local governments are covered through their own social security institutes. Employer-provided private pension plans are very limited, and they are provided only to a small fraction of workers in addition to, and not in place of, IMSS coverage (Aguila *et al.*, 2011).

⁹ These accounts are administered by private pension funds called AFOREs (by their Spanish acronym), and the worker can choose between them. This aspect was also part of the 1997 IMSS and 2007 ISSSTE reforms.

¹⁰ IMSS provides two types of pensions for the elderly: i) severance at advanced age pension (Cesantía en Edad Avanzada in Spanish) and ii) old-age pension (Pensión de Vejez). To be eligible for the first one, the worker must be at least 60 years old, have at least 1,250 contribution weeks, and have no job. At age 60, this pension pays 75 percent of the old-age one, with the percentage increasing with each year of age until reaching 100 percent at age 65. For the second one, the requirements are a minimum age of 65 and the same number of contribution weeks.

are not enough, the government guarantees a minimum pension equal to 1 monthly minimum wage (MW) in the case of the IMSS, and 1.5 monthly MW in the case of the ISSSTE.¹¹

According to the Mexican Employment and Social Security Survey,¹² about 4.3 million individuals were receiving a contributory pension in 2013—a share representing 57 percent of the estimated population age 65 and older in that year.¹³ Thus, a large share of individuals ends up not qualifying for this type pension when they reach retirement age. This is partly due to the fact that only salaried workers, who represent about 48 percent of the working age population, are legally forced to save for retirement under the current system.¹⁴ Furthermore, compliance is far from perfect. Finally, as Levy (2008) argues, the relatively low average length of stay in covered employment, especially among low-wage workers, and the frequent transitions between covered and uncovered employment are such that many workers end up not being eligible for a contributory pension, even if they contributed at several points in their working life.¹⁵

In Mexico, NC pensions plans at the state level started in 2001, partly as a response to the low coverage rates of the system described above. That year, the first program of this kind was implemented in the state of DF. After 2001, other Mexican states gradually followed in implementing their own NC pension programs, typically conditioning the transfer paid only on

¹¹ The minimum wage that is used explicitly as a reference for the minimum guaranteed pension in the IMSS law is the one applicable in Distrito Federal (DF), the capital of Mexico. In the 2007 ISSSTE law, the minimum pension is specified as 3,034.20 Mexican pesos, which is equivalent to 1.5 times the DF MW in that year, and it is annually updated according to the inflation in the consumer price index.

¹² 2013 *Encuesta Nacional de Empleo y Seguridad Social* (ENESS), INEGI.

¹³ According to CONAPO projections, the estimated number of individuals age 65 and older in 2013 was approximately 7.6 million.

¹⁴ This figure comes from the Mexican Occupation and Employment Survey for the last quarter of 2013 (*Encuesta Nacional de Ocupación y Empleo*, ENOE) available at: www.inegi.org.mx

¹⁵ Using IMSS and Consar administrative data from 1997 to 2006, Levy (2008) reports that the average high-wage worker spent 77 percent of a 10-year period in covered employment, whereas an average low-wage workers spent only 49 percent (see Chapter 5).

age and state residence. Table A in the Appendix shows these states by program start date. By 2011, 14 of the 32 states had implemented such local programs (Aguila *et al.*, 2011).

In 2007, the federal government decided to start its own NC pension program called *70 y Más*. The program initially paid about 40 USD per month to individuals age 70 and older residing in localities with up to 2,500 inhabitants—those with the lowest social security coverage precisely for being the most rural ones in the country. It was gradually, but rapidly, expanded to larger localities, reaching national coverage in 2012. Table B in the Appendix shows the rollout by locality size. During the initial years, the program was run by the Ministry of Social Development (SEDESOL). And, just as their state level counterparts, the federal NC pension plan was aimed at reducing poverty.

Thus, since 2007, state and federal NC pensions have coexisted in some states, increasing the overall public resources targeted to the Mexican elderly. According to Levy and Schady (2013), total transfers from the *70 y Más* program alone represented about 0.09 percent of GDP in 2011.¹⁶ This is small compared to other countries in Latin America where, on average, NC pensions account for 0.56 percent of GDP. The combination of a higher eligibility age and a relatively less generous pension, compared to other countries, makes the Mexican federal NC pension program appear less onerous.

However, the budget dedicated to this program, as well as the program significance, are likely to increase in the future. In 2012, the new administration lowered the age cutoff of the federal program to 65 years of age. In addition, it proposed a reform that would establish a universal non-contributory pension as a permanent component of the Mexican social insurance system. The proposed reform, which has not yet been approved by the Senate, establishes 65 as

¹⁶ Please refer to Table 1 in their article.

the initial eligibility age and doubles the pension to 1,092 pesos per month—about 51 percent of the minimum pension guaranteed to a worker by IMSS after 25 years of contributions. These parameters could substantially increase the cost of NC pensions in Mexico, not only as a direct consequence of lowering the age cutoff and increasing the pension amount, but also by increasing the value of NC pensions and providing additional incentives to workers for reducing their saving and dropping out of the contributory system.

3. Data

We use the harmonized waves of the Mexican Income and Expenditure Survey (Encuesta Nacional de Ingresos y Gastos de los Hogares, ENIGH) for the period 2000-2012, which is the period covered by the rise and expansion of NC pensions in Mexico. After 2012, the *70 y Más* program covered all Mexican localities, leaving no suitable control groups at the geographical level.

The ENIGH survey is carried out every two years by the Mexican Statistical Institute (Instituto Nacional de Estadística, Geografía e Informática, INEGI, at <http://www.inegi.gob.mx>). The ENIGH covers all household expenditures, including expenditures on education, health, durable assets, micro-enterprise investments, financial asset accumulation, real estate, food, transportation and personal care expenditures. Whereas income from different sources is observed for each individual in the household, expenditures are reported at the household level only. As a result, the household is our unit of analysis.

We work with various definitions of saving. The first one is monetary saving, which is just the difference between the monetary values of income and consumption. Monetary income includes the standard income categories, like labor, business, rent, financial and transfer income.

Monetary consumption includes cash expenditures on all categories, including durable goods (food, education, health, personal care, electronics, furniture, vehicles and housing, among others).

The second measure of saving adds in-kind income (in-kind labor payments, transfers and gifts) and consumption (own consumption and the estimated rent for homeowners) to the monetary measures described above. Including in-kind items has the advantage of taking into account sources of income and consumption that are important for certain households, like own consumption for rural households. However, a potential disadvantage is their subjective valuations.

The third measure of saving is monetary income minus monetary consumption of non-durables. For this measure, we exclude from consumption those categories that represent other forms of saving, like investment in human capital (health and education), housing and real estate, and purchases of durable goods (electronics, machinery, vehicles).¹⁷

For all three definitions, we focus on saving rates, i.e., the difference between income and consumption, divided by the corresponding income measure.

The ENIGH data do not have locality identifiers, but divides the sample in four different strata according to locality size: those with less than 2,500 inhabitants (stratum 4), localities with 2,500-14,999 inhabitants (stratum 3), localities with 15,000-99,999 inhabitants (stratum 2) and localities with 100,000 or more inhabitants (stratum 1). We will use this classification, as the *70 y Más* program was rolled out according to locality size. For state-level NC pension programs, we will use the information on Table A in the appendix on state adoption and the ENIGH state identifiers.

¹⁷ In a previous study of overall household saving patterns in Mexico, Attanasio and Székely (1998) also use the second and third measure of saving and the ENIGH data for the period 1984-1996.

4. Some Descriptive Evidence

Table 1 presents the mean and median saving rates, according to the various definitions of saving discussed above, for the full sample of households in our data by year. The top panel shows the means, calculated using the ENIGH sampling weights. The first two rows show mean saving rates when using monetary income minus consumption, and also when adding in-kind items to both income and consumption. They are negative and become larger in absolute magnitude starting in 2008. The third row shows saving rates when consumption excludes durable goods (instead considered part of saving). Mean saving rates are positive, ranging between 2 to 13 percent of monetary income between 2000 and 2006. However, with the recession, saving rates drop precipitously and, while they seem to progressively recover over time, they are still equal to -10 percent in 2012.

If we look at the various components of saving, there is evidence of significant investments in education and health from 2000 through 2006, when those saving rates hovered around 10 percent. However, they are cut in half from 2008 onwards. Something similar, although at a significantly smaller rate, is observed for saving in durable goods. They fluctuate around 3 percent over the first part of the decade, to drop after 2008. Saving in real estate assets hover around 1 percent for most of the time period, becoming negative, albeit small, in 2012.¹⁸ Financial savings were likewise rather small in 2000 and 2002 (averaging 1 percent of household income), but steadily increased from 2004 to 2008, when they reached 3.5 percent. In 2008, they dropped to approximately 1.7 percent, becoming negative (-2 percent) by 2012. Overall, mean saving rates using these various components fluctuated between -2 percent and 4 percent over the time period under analysis.

¹⁸ The only atypical value of housing investment during the whole period is that corresponding to 2008 (equal to 16 percent). We ignore this atypical value in this descriptive discussion.

Most overall mean saving rates in the top panel of Table 1 are negative because of large negative outliers. This is confirmed by the fact that median saving rates are either zero or positive (see bottom panel). Median saving rates when in-kind items are included in income and consumption are the lowest (ranging between 2.5 and 9 percent of income), followed by those obtained when using only monetary variables (ranging between 8 and 14 percent of income). The median saving rates that include in-kind items are roughly comparable to those reported by Attanasio and Székely (1998), who also use the ENIGH data for the period 1984-1996.¹⁹ Median saving rates when excluding the consumption of durables are the largest, ranging between 14 to 22 percent of income. Because most saving is done by a small fraction of the population, the median saving rates for the various components are equal to zero, with the exception of savings in human capital, which ranges between half a percent and 5 percent of household income over the period. Overall, the median saving rate computed from adding up these components fluctuates between 2.6 percent and 7 percent for the 2000-2012 period. In sum, for the most part, median saving rates did not change much over the 2000-2008 period. Nevertheless, they decreased sharply after 2008 and had not yet recovered their 2008 level by 2012. Once again, this might be attributed in part to the impact of the 2009 recession.

Because mean saving rates are impacted by large negative outliers, we trim our sample, excluding households with monetary saving rates in the bottom and top 2 percent of the distribution for the whole period.²⁰ In addition, given that the median household saving is zero for all categories, except human capital, we focus on the three overall saving measures already described, and provide additional results for the human capital category.

¹⁹ For that period, Attanasio and Székely (1998) report median saving rates, including in-kind income and consumption items, ranging between 2 and 6 percent.

²⁰ This results in dropping 6,068 households in all of the period 2000-2012.

5. Empirical Strategy

Our main aim is to explore how state and federal NC pensions are impacting household saving rates. To that end, we divide households into 5 age groups according to the age of their oldest member: 18-54, 55-59, 60-64, 65-69, 70 and older. We chose these age groups to reflect the different stages of the lifecycle of households, with the first group (18-54) being in their prime working years. For older groups, we chose a finer age breakdown to better capture the potential effect of the expectation of receiving the program in the future (55-59, 60-64, 65-69) and the actual program receipt (70+).

In the years covered by our data, only households in the oldest group qualified for the federal and state NC pensions, depending on the locality size strata and the state in which they resided. However, these NC programs could potentially affect the saving decisions not only of the main beneficiaries, but also that of younger age groups through changes in saving for retirement and the provision of assistance to elderly family members. Thus, we estimate the following benchmark equation for households in each age group:

$$(1) \quad S_{hlst} = \alpha + X_h\beta + \gamma_1 SNCP_{st} * FNCP_{lt} + \gamma_2 FNCP_{lt} + \gamma_3 SNCP_{st} + \gamma_4 SNCP_{st} * tloc_{lt} + \gamma_5 SNCP_{st} * post + \gamma_6 post + \theta_s + \rho_l + \delta t + \varepsilon_{hlst},$$

where S_{hlst} is the saving rate of household h in locality size l state s at time t , X_h is a vector of household level characteristics (a dummy for female head, age and education of the household head, share of household members in different age and education groups), $SNCP_{st}$ is a dummy equal to 1 if the state s , where the household resided, had a NC local pension program at time t , $FNCP_{lt}$ is a dummy for whether the household resided in a locality stratum l , where the 70 y Más federal program operated at time t .

For our main results, we compare only households in localities with less than 2,500

inhabitants (stratum 4), in which the federal program started in 2007, to those in localities with 100,000 or more inhabitants (stratum 1), which did not have the program until after 2012. Thus, the variable $FNCP_{it}$ is the interaction of $tloc$, a dummy for stratum 4, and $post$, a dummy for after 2007. We also include state (θ_s) and locality strata (ρ_l) fixed-effects, plus a time trend, to account for any time-varying factors in saving rates not related to the NC programs. In all estimations, standard errors are clustered at the state level. In the above equation, the coefficient γ_1 captures the combined effect of the federal and state-level NC pension programs on the saving rate of households. The coefficients γ_2 and γ_3 capture the separate impacts of the state and federal NC pension programs, respectively.

We choose strata 1 and 4 for our main results to reduce concerns about potential anticipation effects of receiving the program for individuals in the largest localities. In fact, after 2009, when the Mexican government incorporated localities with up to 30,000 inhabitants to the program, no further expansions took place for three years. In any case, it is worth noting that any anticipation effects at the locality level would work against finding significant effects of the program on the saving of the treatment group.

To tackle the concern about the comparability of these two strata, Figure 1 provides a first look at the trends for household saving for the four locality size strata available in the ENIGH. Consistently, during the period 2000-2012, households in the largest localities in the country – those with more than 100,000 inhabitants– had the highest mean saving rate, whereas households in the smallest localities – those with less than 2,500 inhabitants– had the lowest one. However, mean monetary savings trended similarly for households in those two strata prior to the start of the *70 y Más* federal program in 2007, which supports the validity of our identification strategy. After 2006, household saving rates trended similarly for households in the two highest strata (1 and 2,

those in large localities) and for households in the two lowest strata (3 and 4, those in the smallest localities), more than doubling the gap between households in the smallest and largest localities between 2000 and 2012. In addition to this graphical evidence in favor of the parallel trends assumption, in the next section we also check for any pre-trends and perform a robustness check including all locality strata in our estimation and find results similar to those including only strata 1 and 4.

6. Findings

A) Main Results

Do NC pension programs lower household saving rates? Table 2 addresses this question using various measures of household saving, namely: i) the difference between monetary income and expenditures (Panel A), ii) the difference between income and expenditures when we include in-kind items in both (Panel B), and iii) the difference between monetary income and expenditures when we only include non-durable goods in the latter (Panel C). In each of the three panels, the first row shows the *combined* effect of being in a locality and state where both NC programs operate, whereas the second row shows the effect of the federal NC program alone, and the third row displays the impact of the state NC program.

For most age groups, the coefficients on the *combined* impact of the state and federal NC programs are generally negative, but not statistically different from zero. Only households whose oldest member is 65 to 69 years old report saving *increases* of approximately 14 percentage points when we look at the first measure of monetary saving, but the effect is never present for the alternative measures of saving.

Most of the impact of NC pension programs on household saving originates from the *federal* NC pension program. In particular, for all three measures of saving discussed above,

households whose oldest member is 65 to 69 years old appear to significantly *curtail* their saving rate anywhere between 8 and 12 percentage points. In addition, the federal NC pension program also appears to reduce monetary, as well as monetary plus in-kind saving of households whose oldest member is 18 to 54 years old by approximately 4 percentage points. Finally, the federal NC pension program lowers monetary plus in-kind saving of households eligible for these programs, i.e., those whose oldest adult is age 70 and older, by approximately 7 percentage points, but only significant at 10 percent.

For households age 18 to 54 and 65 to 69, the estimated impacts of the federal program on monetary saving are sizable compared to their mean saving rates in the period before the program (2000-2006). Households whose oldest member is 65 to to 69 years old had a mean monetary saving rate of 6.1 percent before the program, whereas those whose oldest member is 18 to 54 had a corresponding mean close to zero (-0.11 percent). To explore whether the magnitude of these impacts could be due to the presence of outliers, we estimated median regressions for our monetary saving definition. As seen in Table C in the appendix, the estimated impacts for both age groups are qualitatively similar to those in Table 2 and are still large in magnitude. The federal NC program lowered the median monetary saving of households headed by individuals in the 18 to 54 age group by 2.3 percentage points, and that of households headed by individuals in the 65 to 69 age group by 12 percentage points (28 and 83 percent of their corresponding pre-program medians, respectively). This evidence suggests that the large impacts of the federal program on mean monetary saving are not merely due to the presence of outliers.

Do *state* NC programs have any impact on household saving? The evidence here is significantly weaker, with sporadic impacts on different households depending on the measure of saving being used. For example, when we restrict our attention to monetary saving, the state NC

pension programs appear to reduce the saving of households whose oldest member is 60 to 64 years old only. If we add to the monetary measure of saving in-kind items, we find that the state NC pension programs lower the saving rates of younger households whose oldest member is 18 to 54 years old by roughly 5 percentage points. Lastly, using the broadest measure of saving, which adds non-durable items to monetary plus in-kind saving, state NC pension programs curtail saving by households whose oldest member is 65 to 69 years old by 4 percentage points, although this effect is significant at 10 percent only.

In sum, it is the federal NC pension program that appears to have had a more consistent impact on the saving of two groups of households, in particular: i) younger households, whose oldest member is 18 to 54 years old, and ii) older households nearing the eligibility age for the program. A potential explanation for the lower saving rates of younger households is the lesser need to save to support age-eligible parents or close relatives to whom they would transfer resources in the absence of a federal NC pension program. In this vein, previous studies for Mexico have found a significant crowding out of such private transfers, after the implementation of a state NC pension in DF (Juarez, 2009) and the *70 y Más* federal program (Amuedo-Dorantes and Juarez, 2013). These crowding out estimates range from 30 to 80 percent, which imply that a significant fraction of resources of the NC programs could be redistributed to younger households, potentially raising their current income and lowering their saving rate. In addition, these programs might reduce the longevity risk to which their uncovered elderly relatives are exposed by providing them with a public transfer for the rest of their lives, further reducing their precautionary savings. The impact of the federal NC pension program on the saving of households whose oldest member is close to becoming eligible (age 60-69) fits well with the literature on precautionary savings.

B) Identification

The validity of the interpretation given to the estimates in Table 2 rests on the assumption that differences in saving rates between households exposed to state and/or federal NC programs and similar unexposed households are not pre-existent. To assess whether that was indeed the case, we construct a lead dummy for the year preceding the implementation of the NC program in our data.²¹ We then interact that lead dummy with both the state and federal NC program dummies, and include those interaction terms in the estimation of equation (1). If there were pre-existing trends driving the NC program impacts observed herein, we would expect these placebo interaction terms to produce statistically significant coefficients in the same direction of the effects discussed above. The results of this test are shown in Table 3. Because the results in Table 2 using the three different measures of saving are similar, we focus our attention on the first measure of monetary saving.

The negative impact of the federal NC program in either younger households (whose oldest member is 18 to 54 years old) or older households (whose oldest member is nearing the eligibility age, *i.e.* 65 to 69 years old) persists, with no statistically significant placebo interaction terms. It is also reassuring that the point estimates are similar to the ones in Table 2 despite the inclusion of the placebo interaction terms. In sum, the negative impact of the federal NC program on the saving of younger and older households nearing the eligibility age for the *70 y Más* program in Table 2 does not appear to be the byproduct of a pre-existing difference in saving between treated and non-treated households.

C) Robustness Checks

²¹ Because our data refer to 2000, 2002, 2004, 2006, 2008, 2010 and 2012, if the NC programs was implemented in a particular state in 2004, as in the case of Chihuahua and Nuevo Leon, the lead dummy will refer to the year 2002. If the NC program was implemented in 2005, as was the case in Veracruz, the lead dummy will refer to 2004.

We also perform additional checks to assess the sensitivity of our findings to the choice of locality strata for estimation. Specifically, we re-estimate equation (1) using households in all locality strata, instead of using only those in strata 1 and 4. We redefine our federal NC pension program variable to be equal to 1 for each locality stratum after such stratum was incorporated into the program (see Table A in the appendix). We present the results of this exercise in Table 4. According to the estimates in Table 4, monetary saving in households whose oldest member is 65 to 69 years of age continues to significantly drop by approximately 9.4 percentage points due to the implementation of the federal NC program. A drop of 2.7 percentage points is also observed for the saving of households whose oldest member is 18 to 54 years old, due to the same program. Both estimates are similar in magnitude to those obtained in Table 2 when we restrict our sample to only households that were first treated (stratum 4) and never treated (stratum 1). In addition, including households in all population strata yields a negative effect of state NC pension programs of approximately 4.6 percentage points on the saving of households in the 60-64 and 65-69 age groups, suggesting that these programs might be reaching households in localities larger than 2,500 inhabitants.

We perform a similar estimation including all locality strata, but allowing the effect of federal and state NC pension programs to vary by stratum. Stratum 1 is the reference one. Results are displayed in Table D in the appendix. The most remarkable finding is that the effect of the federal NC program alone for households in the 65-69 and 18-54 age groups in stratum 4 are very similar to the effects captured in our main results (-0.129 and -0.036, respectively). The effects of state NC pension programs are negative and around 4.6-4.8 percentage points for households whose oldest member is in her sixties, and no significant variation across strata is found.

7. Driving Forces? Increased Human Capital Investments and Lower Labor Supply

The estimates, thus far, refer to aggregate household saving. It is natural to inquire how such impacts are materialized –namely, which saving components are primarily affected, as well as about the role played by changes in household labor supply in the impacts being measured. To answer those questions, Panel A in Table 5 first displays the impact of the state and federal NC programs on investments in human capital. We focus on human capital because, as shown in Table 1, saving in durable goods, real estate and financial assets is zero for the majority of households.²²

Among households whose oldest member is age 18-54, federal NC programs seem to increase investments in human capital by approximately 2 percentage points. A potential explanation for these positive effects is that the increase in income resulting from the reduced transfer of resources to the elderly might be partially reallocated to household youth through an increase in educational investments. A similar result is obtained for households in the 55-59 age group. The other groups of households whose investments in human capital are increased by the federal NC program are those whose oldest member is at least 65 years of age. Given their age, part of this increase among older households could reflect investments in health. However, some of it might also come from increased investments in education of co-residing children, as suggested by Gutiérrez, Juárez and Rubli (2015).²³ If NC pensions lower the longevity risk faced by older households and by younger households with elderly relatives, these households might partly shift their investment to more illiquid assets, such as human capital, as argued by Bazdresch and Cuesta (2016) in the case of the *Seguro Popular* program.

²² Investments in human capital, durable goods and housing are excluded from expenditures in the third definition used in Panel C of Table 2, so they are considered part of saving. Financial investment is excluded from all of our overall saving measures in Table 2.

²³ These authors find that the state NC pension program in DF has positive effects on the school enrollment of adolescent children who reside with potential beneficiaries.

The combined impact of the federal and state NC program positively affects saving in human capital for households whose oldest member is 60 to 64 years old, but the opposite holds for those age 65 to 69, and no other impacts are found for other age groups. The positive effect of the federal NC pension program on human capital found for households in the 18-54 and 65-69 might explain why the effects on Table 2 in Panel C are smaller than those in Panel A. Indeed, as mentioned before, this category is included as expenditures in the first saving definition, but not in the third one. So, the decrease in monetary saving for these households reflects, in part, increased investment in human capital. However, as seen in Panel C, some negative effects of the federal NC pension program remain even after taking out this type of investment from the consumption definition.

Hence, we also look at household labor supply as an alternative channel through which observed reductions in private saving among some households might be taking place. To this end, Panel B in Table 5 presents the estimated effect of federal and state NC pensions programs on the share of individuals age 16 and older in the household who are actually working. We include the same controls as in equation (1). In general, most of the effects of the federal NC pension program, and its interaction with the state-level one, are negative, but only three of them are statistically significant. The combination of state and federal NC pension programs has a negative impact on the labor supply of households whose oldest member is 65 to 69 years of age. For these households, the combined effect of both programs reaches -9.5 percentage points. This reduction could be due to an anticipation effect, although the literature has found no evidence of such an effect for individuals in their sixties thus far (Juarez and Pfitze, 2013; Galiani, Gertler and Bando, 2014).

The federal NC pension program alone has a negative and significant effect on the share of working members in households in the 18-54 and 70 and older groups. The negative impact of 6.3 percentage points is in line with the reduction in labor force participation among beneficiaries found in some previous studies about the *70 y Más* program (Juarez and Pfitze, 2013). The effect for the younger group of households (-4 percentage points) has not been documented before. Previous studies find no effect on the labor supply of prime-age individuals who live with potential beneficiaries (Juarez and Pfitze, 2013; Galiani, Gertler and Bando, 2014). Note that, instead, our result in the first column in the bottom panel of Table 5 refers to the share of working individuals in households whose oldest member is age 18-54, i.e., those with no potential beneficiaries. Thus, our result for the youngest group is not directly comparable to previous studies and could be also due to the increase in income caused by the reduced need to transfer resources to the elderly.

Overall, the results in this section suggest that the decrease in saving caused by NC pensions could be working in part through an associated reduction in labor supply, in addition to hikes in human capital investments by households headed by younger individuals or by those nearing retirement age.

8. Concluding Remarks

In this paper, we provide micro evidence on the effects of NC pension programs on the saving patterns of Mexican households. Our results show that the federal NC pension program by itself is associated with a reduction in the saving rate of households whose oldest member is either age 18 to 54 or 65 to 69 years old. The effect for both groups of households is quite robust across different saving definitions and empirical checks. State NC programs by themselves have no significant effects on the saving rate of households in the smallest localities in Mexico, which were the first ones incorporated into the federal program, but we find some evidence of them reducing

the saving of households with members in their sixties in larger localities. Finally, we find that, overall, the effect of combining federal and state NC pension programs on the saving rate of households is mostly zero, possibly due to each program affecting the saving of households in different population strata. We find no significant impact of NC pension programs on the saving of households whose oldest member is age-eligible (70 and older), probably because the saving of these households is already low to begin with given their age.

The findings for households in the 65 to 69 group could reflect their expectation of receiving the program transfer in a few years. Younger households in the 18-54 age group—households that would be transferring private resources to their elderly in the absence of a NC program—might, in turn, be able to reduce their support to their elderly. The previous evidence for Mexico, which shows a significant crowding-out effect of such programs on the transfers the elderly receive from other households (Juarez, 2009; Amuedo-Dorantes and Juarez, 2013) supports this explanation.

Moreover, these programs might reduce the longevity risk for both older household and younger households with elderly relatives, reducing their need for precautionary savings and shifting part of their investments to relative illiquid assets. We provide complementary evidence showing that the overall reduction in our monetary saving definition could be partly due to increased investments in human capital. As a result, in addition to providing means of support for elderly individuals without access to contributory pensions, NC pensions might have additional positive impacts on household welfare.

At any rate, to the extent that the increase in human capital investments does not match the decrease in saving, we also explore household labor supply responses to these programs as an alternative channel through which saving reductions might be taking place. Our results are

suggestive of reductions in labor supply among younger and older households being also partially responsible for diminished saving following the rollout of the NC pensions.

In sum, our findings suggest that NC pensions lowered household saving of particular age groups during the first decade of their implementation, possibly through anticipation effects, a decrease in the longevity risk faced by households, and a redistribution of income between households of different generations. These effects might become larger as these programs increase their pension amount and expand their coverage by decreasing the age eligibility cutoff. Finally, additional effects could be observed through other mechanisms and for other age groups as these programs become a more permanent component of the Mexican social insurance system.

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Table 1: Means and Medians of Saving as a Proportion of Income

Year	2000	2002	2004	2006	2008	2010	2012
<i>Means</i>							
I-C monetary	-0.024	0.005	-0.125	-0.054	-0.362	-0.217	-0.171
I-C with inkind items	-0.144	-0.076	-0.129	-0.288	-0.506	-0.301	-0.211
I-C monetary (C=nondurables)	0.12	0.134	0.024	0.098	-0.286	-0.134	-0.097
Human capital (health+education)	0.107	0.098	0.116	0.114	0.055	0.057	0.047
Durables	0.033	0.026	0.027	0.033	0.017	0.01	0.019
Housing	0.018	0.012	0.013	0.009	0.159	0.009	-0.002
Financial	0.009	0.001	0.021	0.034	0.035	0.017	-0.021
<i>Medians</i>							
I-C monetary	0.082	0.109	0.097	0.102	0.143	0.143	0.08
I-C with inkind items	0.039	0.062	0.025	0.069	0.089	0.089	0.043
I-C monetary (C=nondurables)	0.193	0.211	0.216	0.223	0.203	0.203	0.135
Human capital (health+education)	0.046	0.034	0.042	0.043	0.01	0.01	0.005
Durables	0	0	0	0	0	0	0
Housing	0	0	0	0	0	0	0
Financial	0	0	0	0	0	0	0
Number of observations	10072	17121	22536	20822	29448	27524	8973

Source: ENIGH 2000-2012.

Notes: Saving is calculated as income minus consumption. Means are calculated using sampling weights.

Table 2: The Impact of Non-contributory Pension Programs on Household Saving, Strata 1 and 4

By Age of Oldest Household Member	18-54	55-59	60-64	65-69	70+
Panel A: Monetary Saving					
State & Federal Non-contributory Pension Programs	-0.020 (0.038)	-0.032 (0.050)	-0.070 (0.084)	0.142** (0.063)	0.025 (0.044)
Federal Non-contributory Pension Program	-0.044*** (0.013)	0.016 (0.037)	-0.013 (0.046)	-0.124*** (0.039)	-0.048 (0.029)
State Non-contributory Pension Program	-0.018 (0.013)	-0.025 (0.032)	-0.037* (0.020)	-0.040 (0.026)	-0.014 (0.026)
Observations	55,671	7,196	6,290	5,041	11,652
R-squared	0.045	0.058	0.068	0.062	0.053
Panel B: Saving including In-kind Items					
State & Federal Non-contributory Pension Programs	-0.048 (0.086)	0.012 (0.096)	-0.385 (0.475)	0.069 (0.118)	0.085 (0.110)
Federal Non-contributory Pension Program	-0.040** (0.016)	0.014 (0.048)	0.566 (0.597)	-0.089* (0.050)	-0.067** (0.033)
State Non-contributory Pension Program	-0.048** (0.023)	-0.057 (0.055)	0.473 (0.541)	-0.078 (0.053)	-0.088 (0.052)
Observations	55,671	7,196	6,290	5,041	11,652
R-squared	0.042	0.041	0.006	0.050	0.029
Panel C: Monetary Saving excluding Durables from Consumption					
State & Federal Non-contributory Pension Programs	-0.017 (0.040)	-0.029 (0.043)	-0.046 (0.082)	0.091 (0.055)	0.003 (0.040)
Federal Non-contributory Pension Program	-0.019 (0.012)	0.034 (0.034)	-0.022 (0.043)	-0.081** (0.038)	-0.018 (0.024)
State Non-contributory Pension Program	-0.012 (0.014)	-0.023 (0.024)	-0.020 (0.017)	-0.044* (0.023)	-0.027 (0.025)
Observations	55,671	7,196	6,290	5,041	11,652
R-squared	0.065	0.073	0.087	0.076	0.064

Source: ENIGH 2000-2012.

Notes: Standard errors clustered at the state level are in parentheses. All regressions include a constant term along with household level characteristics (a dummy for female head, age and education of the household head, share of household members in different age and education group), dummies for state, stratum 4, and post 2007, the relevant interactions, and a linear trend.

* Coefficient is statistically significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level; no asterisk means the coefficient is not different from zero with a statistical significance.

Table 3: Checks for Pre-trends in the Impact of Non-contributory Pension Programs on Monetary Household Saving

By Age of Oldest Household Member	18-54	55-59	60-64	65-69	70+
State & Federal Non-contributory Pension Programs	-0.036 (0.070)	-0.044 (0.087)	-0.273 (0.230)	0.167 (0.197)	0.035 (0.082)
Placebo State & Federal Non-contributory Pension Programs	0.026 (0.043)	-0.031 (0.083)	0.076 (0.083)	0.181 (0.174)	0.027 (0.084)
Federal Non-contributory Pension Program	-0.047** (0.020)	0.007 (0.064)	-0.019 (0.070)	-0.102* (0.054)	-0.024 (0.047)
Placebo Federal Non-contributory Pension Program	-0.003 (0.016)	0.007 (0.051)	-0.004 (0.065)	-0.037 (0.065)	-0.033 (0.047)
State Non-contributory Pension Program	-0.023 (0.018)	-0.019 (0.040)	-0.041 (0.028)	-0.022 (0.061)	0.004 (0.021)
Placebo State Non-contributory Pension Program	0.007 (0.014)	-0.042 (0.039)	0.024 (0.054)	-0.059 (0.059)	-0.061* (0.036)
Observations	55,671	7,196	6,290	5,041	11,652
R-squared	0.046	0.059	0.069	0.064	0.055

Source: ENIGH 2000-2012.

Notes: Standard errors clustered at the state level are in parentheses. All regressions include a constant term along with household level characteristics (a dummy for female head, age and education of the household head, share of household members in different age and education group), dummies for state, stratum 4, and post 2007, the relevant interactions, and a linear trend.

* Coefficient is statistically significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level; no asterisk means the coefficient is not different from zero with a statistical significance.

Table 4: The Impact of Non-contributory Pension Programs on Household Saving, All Strata

By Age of Oldest Household Member	18-54	55-59	60-64	65-69	70+
State & Federal Non-contributory Pension Programs	0.005 (0.023)	0.003 (0.040)	-0.039 (0.055)	0.063 (0.038)	0.036 (0.033)
Federal Non-contributory Pension Program	-0.027*** (0.008)	-0.003 (0.025)	-0.011 (0.029)	-0.094*** (0.024)	-0.043 (0.025)
State Non-contributory Pension Program	-0.016 (0.013)	-0.016 (0.030)	-0.046** (0.019)	-0.047* (0.023)	-0.020 (0.022)
Observations	78,309	9,791	8,628	6,970	15,961
R-squared	0.041	0.058	0.062	0.055	0.048

Source: ENIGH 2000-2012.

Notes: Standard errors clustered at the state level are in parentheses. All regressions include a constant term along with household level characteristics (a dummy for female head, age and education of the household head, share of household members in different age and education group), dummies for state, stratum, and post 2007, the relevant interactions, and a linear trend.

* Coefficient is statistically significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level; no asterisk means the coefficient is not different from zero with a statistical significance.

Table 5

The Impact of Non-contributory Pension Programs on Human Capital Accumulation and on the Share of Working-age Household Members at Work

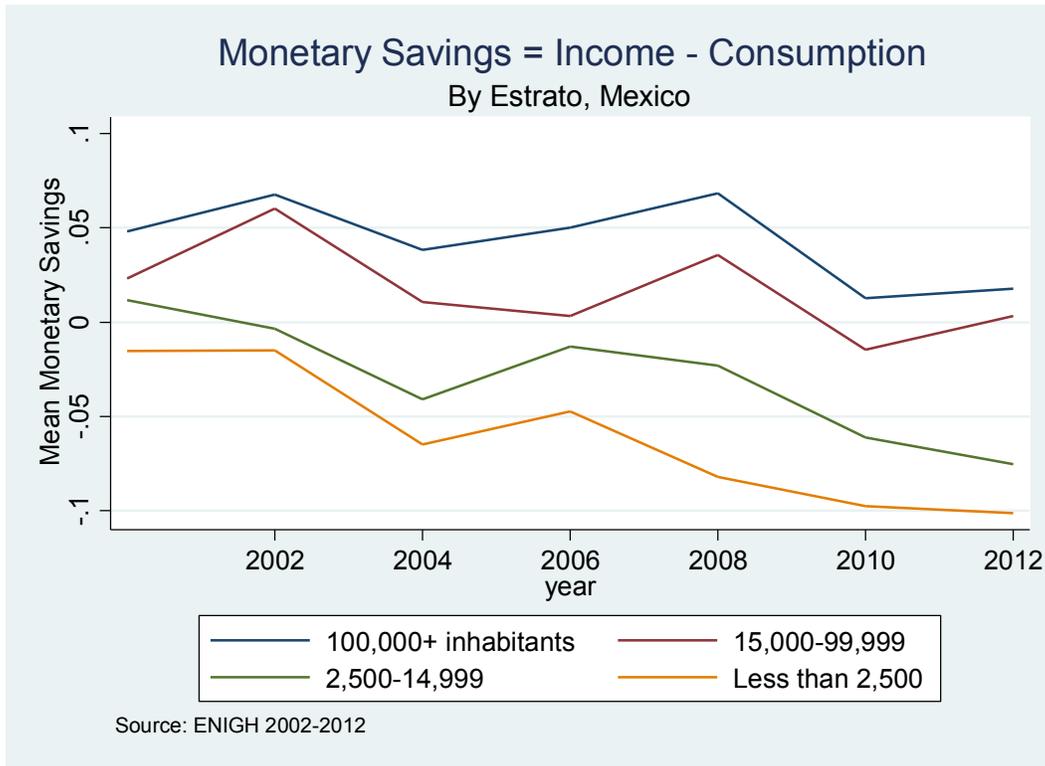
By Age of Oldest Household Member	18-54	55-59	60-64	65-69	70+
Panel A: Human Capital Investments					
State & Federal Non-contributory Pension Programs	0.005 (0.007)	-0.003 (0.011)	0.034** (0.014)	-0.040** (0.019)	-0.020 (0.014)
Federal Non-contributory Pension Program	0.016*** (0.003)	0.019*** (0.006)	-0.010 (0.007)	0.025** (0.010)	0.024** (0.009)
State Non-contributory Pension Program	0.006 (0.004)	0.004 (0.008)	0.011 (0.008)	0.004 (0.010)	-0.006 (0.007)
Observations	55,671	7,196	6,290	5,041	11,652
R-squared	0.082	0.063	0.056	0.047	0.033
Panel B: Share Working					
State & Federal Non-contributory Pension Programs	-0.002 (0.026)	-0.043 (0.034)	-0.027 (0.065)	-0.095** (0.044)	-0.053 (0.056)
Federal Non-contributory Pension Program	-0.040** (0.017)	0.006 (0.020)	-0.041 (0.027)	-0.016 (0.025)	-0.063*** (0.016)
State Non-contributory Pension Program	0.009 (0.020)	-0.025 (0.022)	-0.010 (0.023)	0.037 (0.034)	-0.002 (0.030)
Observations	55,659	7,196	6,290	5,041	11,652
R-squared	0.029	0.047	0.048	0.060	0.134

Source: ENIGH 2000-2012.

Notes: Standard errors clustered at the state level are in parentheses. All regressions include a constant term along with household level characteristics (a dummy for female head, age and education of the household head, share of household members in different age and education group), dummies for state, stratum 4, and post 2007, the relevant interactions, and a linear trend.

* Coefficient is statistically significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level; no asterisk means the coefficient is not different from zero with a statistical significance.

Figure 1: Mean Monetary Savings by Locality Size



APPENDIX

Table A: States with NC pension programs 2000-2012

Year	Number of states with NC pensions	States starting NC pensions in that year
2000	None	None
2001	1	DF
2002	1	None
2003	1	None
2004	3	Chihuahua, Nuevo León
2005	4	Veracruz
2006	5	Quintana Roo
2007	9	Chiapas, Jalisco, Sinaloa, Yucatán
2008	11	Baja California Norte, Tabasco
2009	12	Tabasco
2010	13	Durango
2011	14	Zacatecas
2012	14	None

Source: Constructed by the authors based on the information of Table A.1.in Aguila *et al.* (2011).

Table B: Localities eligible for the 70 y Más program

Year	Eligible Localities in the Program	Eligible Localities in the ENIGH	Ineligible Localities in the ENIGH
2000-2006	None	None	All
2007	Localities<2,500 inhabitants	---	---
2008	Localities<20,000 inhabitants	Localities<2,500; 2500-14,999; and 15,000-99,000	Localities 100,000+
2009	Localities<30,000 inhabitants	---	---
2010	Localities<30,000 inhabitants	Localities<2,500; 2500-14,999; and 15,000-99,001	Localities 100,000+
2011	Localities<30,000 inhabitants	---	---
2012	All localities	Localities<2,500; 2500-14,999; 15,000-99,000; and 100,000+	None

Note: Column 2 shows the localities eligible for 70 y Más according to official program rules. Columns 3 and 4 show the eligible and ineligible groups of localities that can be identified in ENIGH in the rounds that are available.

Table C: The Impact of Non-contributory Pension Programs on Household Saving, Strata 1 and 4, Median Regressions

By Age of Oldest Household Member	18-54	55-59	60-64	65-69	70+
State & Federal Non-contributory Pension Programs	-0.037 (0.024)	-0.054 (0.053)	-0.046 (0.062)	0.052 (0.092)	0.005 (0.049)
Federal Non-contributory Pension Program	-0.023* (0.013)	0.035 (0.031)	0.007 (0.034)	-0.120** (0.047)	-0.048* (0.028)
State Non-contributory Pension Program	-0.016* (0.009)	0.010 (0.023)	-0.025 (0.023)	-0.027 (0.031)	-0.002 (0.021)
Observations	55,199	7,037	6,093	4,860	11,109

Source: ENIGH 2000-2012.

Notes: Standard errors clustered at the state level are in parentheses. All regressions include a constant term along with household level characteristics (a dummy for female head, age and education of the household head, share of household members in different age and education group), dummies for state, stratum, the relevant interactions, and a linear trend.

* Coefficient is statistically significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level; no asterisk means the coefficient is not different from zero with a statistical significance.

Table D: The Impact of Non-contributory Pension Programs on Household Saving, All Strata, Different Effects by Strata

By Age of Oldest Household Member	18-54	55-59	60-64	65-69	70+
State & Federal Non-contributory Pension Programs Stratum 4	-0.024 (0.036)	-0.001 (0.047)	-0.074 (0.085)	0.145** (0.060)	0.038 (0.042)
State & Federal Non-contributory Pension Programs Stratum 3	0.033 (0.026)	-0.079 (0.081)	0.049 (0.093)	-0.033 (0.121)	0.145*** (0.045)
State & Federal Non-contributory Pension Programs Stratum 2	0.006 (0.029)	0.063 (0.053)	-0.059 (0.058)	-0.053 (0.079)	-0.057 (0.052)
Federal Non-contributory Pension Programs Stratum 4	-0.036*** (0.013)	-0.002 (0.036)	-0.016 (0.043)	-0.129*** (0.029)	-0.048 (0.034)
Federal Non-contributory Pension Programs Stratum 3	-0.018 (0.023)	0.056 (0.049)	-0.038 (0.069)	-0.038 (0.050)	-0.065 (0.039)
Federal Non-contributory Pension Programs Stratum 2	-0.006 (0.013)	-0.046 (0.032)	0.022 (0.031)	-0.016 (0.058)	-0.001 (0.034)
State Non-contributory Pension Program	-0.019 (0.013)	-0.016 (0.031)	-0.048** (0.019)	-0.046* (0.023)	-0.020 (0.023)
State Non-contributory Pension Programs x Stratum 2	0.006 (0.011)	0.013 (0.036)	0.066 (0.045)	0.061 (0.046)	0.041 (0.027)
State Non-contributory Pension Programs x Stratum 3	-0.025 (0.019)	0.074 (0.052)	-0.055 (0.050)	-0.005 (0.080)	-0.044 (0.037)
State Non-contributory Pension Programs x Stratum 4	0.026 (0.025)	0.049 (0.031)	0.044 (0.058)	-0.059 (0.056)	0.012 (0.037)
Observations	78,309	9,791	8,628	6,970	15,961
R-squared	0.041	0.058	0.063	0.055	0.048

Source: ENIGH 2000-2012.

Notes: Standard errors clustered at the state level are in parentheses. All regressions include a constant term along with household level characteristics (a dummy for female head, age and education of the household head, share of household members in different age and education group), dummies for state, stratum, the relevant interactions, and a linear trend.

* Coefficient is statistically significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level; no asterisk means the coefficient is not different from zero with a statistical significance.