Review of Economics and Statistics Fellowship for NBER Summer Institute Application

Mayra Sáenz

Ph.D. in Agricultural and Applied Economics (expected Fall 2023)
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My research focuses on analyzing family dynamics, particularly in vulnerable groups of the population. My research contributes to the policy debate on mechanisms to improve different dimensions of the lives of older adults, single mothers, and children by implementing policies, identifying the sources of the factors associated with adverse effects on the population's well-being, and nudging people to improve their eating habits.
The Summer Institute Sessions I am most interested in are Economics of Aging, Economics of Children, and Development Economics.

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SUMMARY

- Development economist with more than ten years of experience on multiple research and policy projects related to family economics, gender, food security, nutrition, poverty, and inequality.
- Experienced and effective researcher able to present complex material clearly and concisely.
- Proficient and detail-oriented data analyst.
- Capable of working on projects with multicultural and multidisciplinary teams, and managing multiple tasks simultaneously.
- *Research Interests:* I am an applied economist interested in Household Economics. My research focuses on analyzing family dynamics, particularly in vulnerable groups of the population. My dissertation contributes to the policy debate on mechanisms to improve different dimensions of the lives of the elderly, single mothers, and children by implementing policies, identifying the sources of the factors associated with adverse effects on the population's well-being, and nudging people to improve their eating habits. I use advanced statistical methods to analyze data from different sources (census, household surveys, administrative, or experimental data).

EDUCATION

Ph.D. in Agricultural and Applied Economics, University of Illinois (UIUC) — 2017 - 2023 (expected)

with Minor in *Gender Relations in International Development*

M.A. in Development Economics, Latin American Faculty of Social Sciences (FLACSO) — 2009 - 2011

B.Sc. in Marketing Engineering, Armed Forces Polytechnic School (ESPE) — 2004 - 2009

PROFESSIONAL EXPERIENCE

Research Assistant, Prof. Arends-Kuenning, UIUC — 2022 - Present

- Investigated the pathways into single-motherhood and their implications for children's health and education in Nicaragua.

Research Assistant, Prof. Pflugh Prescott and Prof. Ellison, UIUC — 2021 - Present

- Investigated a new research approach to scale up the adoption of new tools that help to diminish food waste in school cafeterias.
- Investigated the most effective strategies to nudge students to adopt healthy eating habits and conserve natural and fiscal resources.
- Moderated focus groups with School Food Authorities and stakeholders.
- Advised graduate students in developing their research plan and methodology for the thesis.

Consultant, World Bank - Nicaragua Country Office (Summer job) — 2022

- Investigated the role of remittances on spending behavior on education as an investment good and the relationship between remittances and children's school attendance in Central America.

Consultant, World Bank - DECPI 2019 - 2021

- Quantified the impact of performance-based and unconditional facility financing on maternal and child indicators in five Sub-Saharan African countries.
- Wrote technical documentation to perform a pooled analysis based on harmonized experimental data.

Research Assistant, Prof. Michelson, UIUC 2019

- Contributed to survey design for the collection of information from farmers in Tanzania.
- Investigated the effect of fertilizer quality on willingness to pay.

Consultant, Inter-American Development Bank - Social Sector (Summer job) 2018

- Contributed to the design of the methodology and estimate the number of individuals working in the education and health sectors.

Social Research Consultant, Inter-American Development Bank - Social Sector 2013-2017

- Coordinated and provided technical support for harmonizing household surveys for 26 countries in Latin-America and the Caribbean.
- Wrote technical, policy, and research reports.
- Calculated socio-economic indicators related to gender, education, labor, health, and income.
- Performed poverty and inequality analysis.
- Performed the quantitative analysis for the publication "The Early Years: Child Well-being and the Role of Public Policy."
- Trained incoming research fellows on the analysis and the technical standards to work with household surveys.

Researcher, FLACSO - Department of Economics 2011-2013

- Investigated trade policies' effect on Ecuador's economic indicators using a general equilibrium model.
- Advised the Ministry of Industries and Productivity on the methodologies to measure the effectiveness of policy implementation.
- Trained public servants and doctoral students on using statistical software.
- Advised graduate students in developing their research plan and methodology for the thesis.

WORK IN PROGRESS

"Can Institutional Factors Affect Intergenerational Family Transfers?".

"Pathways into single motherhood and their implications for children's wellbeing in Nicaragua" (with M. Arends-Kuenning).

"To waste or not to waste? Exploring the complexity of student dietary behaviors in school cafeterias" (with M. Pflugh Prescott, B. Ellison, R. Ofori, S. Palmer, and I. Ciubotariu).

"Students' peer effects on food selection and consumption" (with M. Pflugh Prescott, B. Ellison, R. Ofori, S. Palmer, and I. Ciubotariu).

"An agent-based model of the school cafeteria and meal patterns: Feedback of school nutrition stakeholders" (with M. Pflugh Prescott, B. Ellison, R. Ofori, S. Palmer, and I. Ciubotariu).

WORKING PAPERS

The effect of monetary losses due to weather shocks on food security in Malawi: A subjective approach, 2020.

Analysis of the tax reform in Ecuador, 2001-2012. (with V. Aguiar and L. Castro). *Economic Commission for Latin America and the Caribbean.* Macroeconomics of the Development Series No.143, 2013.

Ex-ante impacts of three commercial agreements in the Ecuadorian economy (with V. Aguiar and H. Jacome). *Linea Sur Magazine*, 2012.

JOURNAL ARTICLES

Poverty, vulnerability, and the middle class in Latin America (with M. Stampini, M. Robles, P. Ibarraran, and N. Medellin). *Latin American Economic Review*, 2016.

BOOK CHAPTERS

Intergenerational persistence in education, (with M. Robles). In S. Duryea and M. Robles (Ed). *Social Pulse in Latin America and the Caribbean 2017: Family Legacy, Breaking the Mold or Repeating Patterns?* (pp. 12-41). Inter-American Development Bank.

Indicators of context and indicators of outcome, (with S. Duryea , S. Insfrán, M. Robles, V. Saldarriaga and D. Zuluaga). In S. Duryea and M. Robles (Ed). *Social Pulse in Latin America and the Caribbean 2017: Family Legacy, Breaking the Mold or Repeating Patterns?* (pp. 84-140). Inter-American Development Bank.

Indicators of context and indicators of outcome, (with S. Duryea, M. Robles, M. Rubio, and D. Saric). In S. Duryea and M. Robles (Ed). *Latin American and Caribbean Social Pulse 2016: realities and perspectives* (pp. 25-63). Inter-American Development Bank.

The case of Ecuador, (with L. Czarnecki and E. Balleza). *Poverty and inequality in Ecuador, Brazil, and Mexico after the 2008 global crisis.* Peter Lang GmbH, Internationaler Verlag der Wissenschaften.

SCHOLARSHIPS, HONORS AND AWARDS

Conference Travel Award, UIUC	2023
Award for the Most Outstanding Second Year Research Paper, UIUC	2019
Chester Bull Roberts Fellowship, UIUC	2018
M. Frances Henry Fellowship, UIUC	2017 - 2018
Merit-based Fellowship, MA in Development Economics, FLACSO	2009-2011
Award for the Most Outstanding Student in Marketing Engineering, ESPE	2009
Academic Excellence Scholarship, ESPE	2004 - 2008

ADDITIONAL TRAINING

Graduate Teacher Certificate. The Center for Innovation in Teaching and Learning, UIUC	2022
Manage Successful Impact Evaluation Surveys course. Auditor Certificate. World Bank	2021
Multidimensional Poverty Analysis. OPHI, University of Oxford	2016
Labor Markets, Poverty and Inequality in Latin America. CEDLAS, University of La Plata	2012

TEACHING EXPERIENCE

At UIUC:

World Food Economy (Undergraduate), Teaching Assistant for Prof. Michelson 2019 - 2022

World Food Economy (Undergraduate), Teaching Assistant for Prof. Gundersen 2021

Behavioral Economics (Undergraduate), Teaching Assistant for Prof. Lyons 2020

At FLACSO:

Development Economics Thesis Advisor (Graduate), Instructor 2012 - 2013

Quantitative Methods (Graduate), Teaching Assistant for Prof. Ponce 2012

Political Economy for Development (Graduate), Teaching Assistant for Prof. Dutt 2012

Applied Statistics Workshop (Graduate), Teaching Assistant for Prof. Aguiar 2011

General Algebraic Modeling System Workshop (Graduate), Teaching Assistant for Prof. Aguiar 2011

CONFERENCES AND SEMINARS

2023 - Population Association of America (PAA)

2020 - Agricultural and Applied Economics Association Conference

2013 - Swiss Sociological Association Conference (University of Bern)

OTHER PROFESSIONAL SERVICES

President, ACE Graduate Student Organization, UIUC 2020 - 2021

SKILLS

Software: STATA, SPSS, R

Language: English (Proficient), Spanish (native), Italian (Intermediate)

REFERENCES

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Can Institutional Factors Affect Intergenerational Family Transfers?

Mayra Saenz *

Preliminary Draft

April, 2023

Abstract

Intergenerational transfers are essential for the vulnerable elderly. Family transfers of space, time, or money provide insurance against adverse economic shocks, help during illness, support for the elderly in retirement, or assistance for liquidity-constrained family members. However, institutional factors can change the motivations that allow intergenerational transfers to persist. This paper provides evidence on whether policies can affect the provision of intergenerational transfers by studying the implementation of a health insurance policy that facilitates access to health services and diminishes out-of-pocket health expenditures, which lessens the dependency of the elderly population on the extended family.

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1 Introduction

Intergenerational transfers are essential for the vulnerable elderly. Family transfers of space, time, or money provide insurance against adverse economic shocks, help during illness, assist liquidity-constrained family members, and support for the elderly.[1] Children constitute an important source of old age informal safety net by transferring money or devoting time to help with activities of daily living. However, institutional factors can change the motivations that allow intergenerational transfers to continue.

This paper studies the effect of changes in the design of public health insurance programs on intergenerational transfers, specifically upward monetary and nonmonetary transfers —transfers from adult children to elderly parents. To address this question, I study the *"Seguro Popular"*, a Mexican public health insurance, which provides an ideal setting to evaluate the effect of institutional factors on intergenerational transfers.

The Mexican government addressed the lack of basic health coverage by piloting the health insurance program *"Seguro Popular"* in 2002, which was extended to the entire country in 2003. The *"Seguro Popular"* covers services that include a package of mainly primary and secondary interventions managed and delivered at the state level. [2] This program aims to cover all the population without formal sector health insurance, who generally have to rely on the Secretary of Health Institutions or out-of-pocket health expenditures to meet their healthcare needs. [3] The implementation of this program contributes to improving elderly well-being by reducing out-of-pocket expenditures and dependency on the extended family, which provides the ideal setting to evaluate the effect of institutional factors on intergenerational transfers.

This study adds to the literature of intergenerational economic ties,[4] health insurance, and wealth accumulation under different social, political, and economic contexts.[5] Previous research has investigated the motivation and the nature of intergenerational transfers from parents to children – downward transfers –, whereas this paper provides evidence on whether policies can affect the provision of transfers from children to parents – upward transfers. Likewise, traditional literature on health insurance analyzes the effect of healthcare access on indicators related to health, including utilization, diagnosis, and preventive tests,[6] whereas this paper studies the implementation of a health insurance policy—which facilitates access to health services and diminishes out-of-pocket health expenditures— and its effect on monetary and nonmonetary transfers.

This paper also contributes to the literature on wealth accumulation by providing evidence of the role of health insurance policies on wealth-building opportunities for adult children. In the past, it has been shown that an increase in Social Security benefits lessens the burden of future generations (e.g., adult children), while a reduction in these benefits has significant effects on the mental health of future generations by

[1] See Soldo and Hill (1993) for a further discussion of the topic.
[2] The services and interventions covered by the *"Seguro Popular"* have increased over time.
[3] Parker et al. (2018) provide evidence of the magnitude of out-of-pocket expenditures to cover health costs.
[4] For references, see, for example,Barczyk and Kredler (2018); Becker (1974); Boyd (1989); Brandt and Deindl (2013); Breyer and v. d. Schulenburg (1987); Dunifon et al. (2018); Fingerman et al. (2020); Klaus (2019); Kleban et al. (1989); Mukherjee (2018); Orozco-Rocha et al. (2021); Stoller (1983); Thomas and Dommermuth (2020); Umberson (1992); Whitbeck et al. (1994); Yahirun et al. (2017)
[5] For references, see, for example, Aterido et al. (2011); Bernstein (2012); Breyer and v. d. Schulenburg (1987); Parker et al. (2018); Pfutze (2014)
[6] Parker et al. (2018) study the effect of healthcare access on different health indicators.

causing a financial, emotional, and physical burden on the adult children. This paper allows us to identify the effect of the health dimension of the Social Security Benefits instead of analyzing the general access to Social Security (such as health and pension).

The main research question is to what extent institutional factors affect intergenerational transfers; this is, what is the impact of the *"Seguro Popular"* on monetary and nonmonetary transfers from adult children to elderly parents? To address this broad question, the paper empirically tests whether government-financed insurance program increases or diminishes the parents' probability of getting transfers from adult children. Economic theory provides ambiguous predictions about the answer to this question. On the one hand, Becker et al. (2016) argue elderly parents benefit from social programs because, in addition to their children's support, they also receive monetary transfers from the government. On the other hand, public insurance may crowd out the support from adult children to parents, leaving them in worse conditions than before the program's implementation. It remains an empirical question whether public insurance benefits the elderly and changes children's transfers to parents.

The main findings of my analysis on *"Seguro Popular,"* show that enrolling in *Seguro Popular* increases the probability of receiving transfers from adult children to parents. The results highlight that the flow of resources within the extended family has implications for the accumulation of wealth across all generations as well as for the alleviation or aggravation of the burden on adult children when being in charge of the older generations. Therefore, implementing policies that improve the well-being of the elderly population has financial, physical, and emotional spillovers on future generations.

This paper is structured as follows. Section 2 describes the empirical strategy. Section 3 presents the data and descriptive statistics. In Section 4, I present the main empirical findings and discuss the economic implications. Section 5 concludes.

2 Empirical Strategy

I estimate a difference-in-difference matching model based on the MHAS spanning the years 2001 and 2012, which correspond to the periods before and after the introduction of the *"Seguro Popular"*. I look at the change in the probability of receiving monetary and nonmonetary transfers from adult children before and after the enrollment in *"Seguro Popular"*. I compare this difference with a properly selected control group, accounting for the possibility of endogenous decision of enrollment.

First, I address the methodological issue of selecting a valid counterfactual. The question related to the enrollment in *"Seguro Popular"* was included in the MHAS questionnaire for the first time in 2012. Following Parker et al. (2018), I identify the individuals enrolled in *"Seguro Popular"* in the baseline (2001) based on the information provided in the follow-up survey from 2012 (endline). Once identified the individuals enrolled in *"Seguro Popular"* ("treated" group) in baseline, I define four potential "control" groups: (C1) individuals non-enrolled in *"Seguro Popular"* in 2012, (C2) individuals that did not get any insurance or plan in 2001 and 2012, (C3) individuals that did not get any insurance or plan in 2001, 2003[7], and 2012, and (C4)

[7]The MHAS from 2003 is the only wave collected between 2001 and 2012.

individuals that did not get any insurance or plan in 2012. C1 not only includes the non-enrolled in *Seguro Popular* but also includes the non-enrolled in any type of insurance and the ones enrolled in a different plan or insurance (private, work, spouse, etc.). Likewise, C4 includes individuals who may have been enrolled in a different type of insurance in the baseline. Therefore, using control groups C1 and C2 would result in biased estimations. On the other hand, control groups C2 and C3 include the individuals who are more likely not to be enrolled in any kind of insurance, neither in baseline nor endline. The difference between the two groups is that individuals in C3 meet one additional characteristic, not to be enrolled in any insurance in 2003, which is the only wave available that covers the period between baseline and endline.[8]

Later, I perform Propensity Score Matching (PSM) to match the individuals in the "treated" group to the ones that exhibit the same propensity to enroll in *"Seguro Popular"* for each of the four potential control groups. Matching on the propensity score is implemented using the Local Linear Regression (LLR) estimator (Heckman et al., 1998). The implementation is derived from a linear probit explaining enrollment in *"Seguro Popular"* and controlling for a set of demographic, household, and health characteristics relevant to modeling the program-participation decision. The predicted values from the probit model are used as estimates of the propensity score. I discard the nonparametric regression results in regions where the density of the propensity score in the control group is small. This is, the observations outside the common support are excluded.(Chabé-Ferret, 2015; Frölich, 2004). I combine the difference-in-difference approach and the matching estimator technique to infer the causal effect (Bellak et al., 2006; Buscha et al., 2012; Chabé-Ferret, 2015; Heckman et al., 1997, 1998; Parker et al., 2018). This methodology takes the endogeneity of the enrollment decision into account and is more effective in reducing bias that comes from contaminated data by temporally-invariant components. In particular, I estimate the following model:

$$y_{it} = \alpha + \beta' SP_{it} + \delta' X_{it} + \gamma' Z_{iht} + \lambda CH_{it} + \nu_t + \varepsilon_{it} \tag{1}$$

where y_{it} is the outcome variable for individual i in year t. In this case, I estimate the model for three indicator variables equal to one if individual i received transfers from adult children in time t. Specifically, if the individual receives (i) any transfer from adult children, (ii) help with chores from children and grandchildren and (iii) financial transfer from adult children. SP_{it} is an indicator variable equal to one if the individual i in year t has enrolled in *"Seguro Popular"*. X_{it} is a set of individual characteristics. Z_{iht} is a set of household characteristics. CH_{it} is a set of adult children's characteristics. ν_t are year effects, and ε_{it} is the error term. All the estimates have robust standard errors. The controls X include age, gender, and years of education attained. Z includes household assets (radio, television, refrigerator, washing machine, phone, water heater) and household access to piped water or to a toilet. The adult children characteristics included in CH are age, years of education attained, gender, marital status, economic situation, and economic activity. As described above, t in equation 1 refers to 2012, which is the endline. Therefore the interaction variable SP_{it} equal to one if the individual i enrolled in *Seguro Popular* in 2012.

[8]One limitation of the data is that we cannot identify the duration of the enrollment in *Seguro Popular*

3 Data and Descriptive Statistics

I use data from the Mexican Health and Aging Study (MHAS) sponsored by the National Institutes of Health/National Institute of Aging in the United States and the National Institute of Statistics and Geography (INEGI). It is a national longitudinal study of adults 50 years and older in Mexico. The MHAS was designed to evaluate the aging process, the impact of diseases, and the capacity of individuals to carry out activities of daily living (ADLs) and Instrumental Activities of Daily Living (IADLs). The MHAS collects a wide range of information, such as demographic and socioeconomic characteristics, family dependency, physical activity, and public and private transfers. This information provides a rich picture of family dynamics and status (INEGI, 2013).

The first wave was collected in 2001 with national, urban, and rural representativeness levels of individuals born in 1951 or earlier. The follow-up surveys were collected in 2003, 2012, 2015, 2018, and 2021. However, this analysis is based on the years 2001 and 2012. Thus, the period before and after the introduction to *Seguro Popular*.

The selected sample for this analysis is constituted of individuals that are 49 years old or older at the moment of the first data collection (2001) and participated in the surveys of 2001, 2003, 2012, and 2015, which are the publicly available datasets at the moment of the realization of this study. Thus, I create a balanced panel with 6929 observations for each wave. However, the sample is reduced after matching the individuals enrolled in *Seguro Popular* with their correspondent counterfactual, as is explained in the next section. The panel allows me to identify in the baseline (2001) the individuals who have enrolled in *"Seguro Popular"* health insurance based on the follow-up survey in 2012 (endline) (INEGI, 2013; Wong et al., 2017).

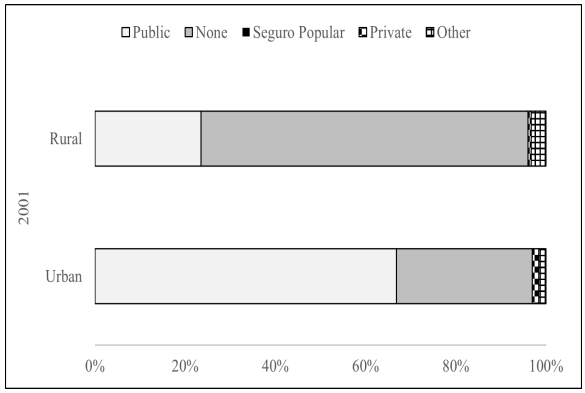
One advantage of the MHAS is that it allows the identification of the characteristics of the type of insurance across the waves. Figure 1 exhibits considerable differences between individuals that live and urban and rural areas for all types of insurance.[9] It shows an important reduction in the percentage of individuals without access to any insurance or plan after the introduction of *Seguro Popular*. For example, the values for the individuals in rural areas go from 73% in 2001 to 19 % in 2012.

One limitation of the MHAS is that it only collects information about *Seguro Popular* in 2012. Therefore, I cannot determine the time window that the respondents had access to this public insurance. However, using the follow-up 2012 survey, we can distinguish four groups of individuals: (i) with insurance in 2001 and 2012, (ii) with insurance in 2001 but without in 2012, (iii) without insurance in 2001 but with one in 2012, and (iv) without insurance neither in 2001 nor 2012. Figure 2 show the four groups disaggregated by gender and area. As in figure 1, Panel A in figure 2 shows that the percentage of the population with access to insurance in the different periods does not differ significantly between women and men, with the highest difference of 5 percentage points in absolute values between the ones with access to insurance in 2001 and 2012. On the other hand, Panel B has different figures, where the highest difference is 40 percentage points

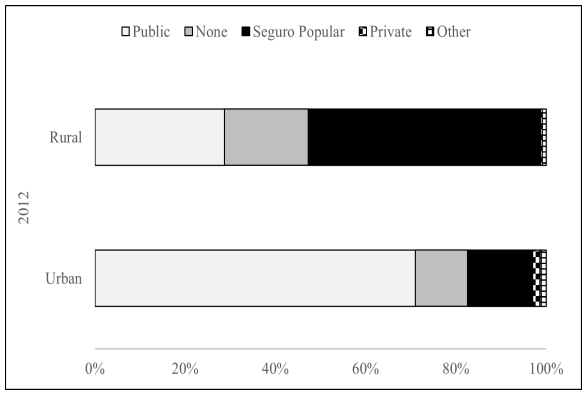
[9]There are not considerable disparities in the type of insurance by gender. However, individuals without insurance in 2001 (52 % of women and 47 % of men) were absorbed by the Seguro Popular. Therefore, the percentage of individuals without access to insurance decreased significantly (15 % of women and 14 % of men)

Figure 1: Type of Insurance by Area and Year

Panel A: By Area 2001



Panel B: By Area 2012



Notes: *Seguro Popular* was introduced in 2002, and the question related to *Seguro Popular* was included in the MHAS only in 2012.
Source: Author's calculations using the Mexican Health and Aging Study (MHAS) 2001 and 2012.

between individuals in urban and rural areas with insurance in 2001 and 2012, and 33 percentage points between individuals without insurance in 2001 but with one in 2012.

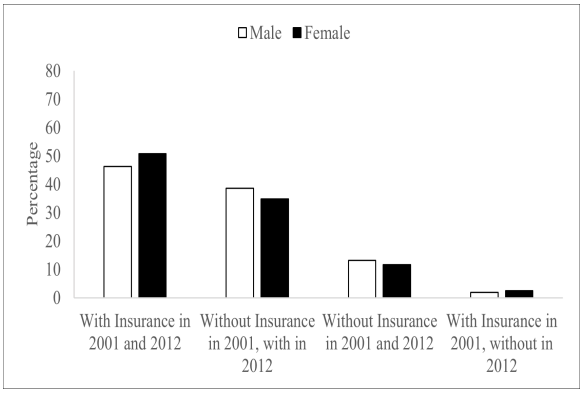
The MHAS collects a rich set of information for three generations of individuals. The person that participates in the survey (the "respondent") corresponds to the second generation, the respondent's parents to the first generation, and the respondent's children to the third generation. In this case, the unit of observation is the respondents, and I aggregate the children's characteristics to the respondent level.

The monetary transfer information is collected through retrospective questions that ask if, in the last two years, the respondent or the spouse has received help in cash or in kind from any of the children or grandchildren. Also, to collect the nonmonetary transfers, the questionnaire includes the question if, in the last two years, the respondent's or spouse's children, children-in-law, or grandchildren devoted at least one hour per week to help with the household chores or transportation.

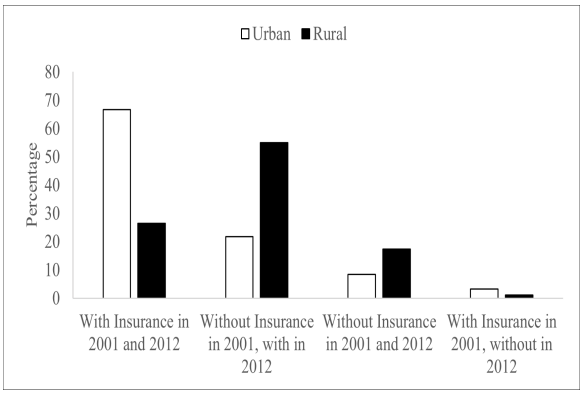
The survey design and the quality of the data collected provide the ideal setting to identify how the

Figure 2: Insurance Status in 2001 and 2012 by Gender and Area

Panel A: By Gender



Panel B: By Area



Notes: *Seguro Popular* was introduced in 2012, and the question related to *Seguro Popular* was included in the MHAS only in 2012.
Source: Author's calculations using the Mexican Health and Aging Study (MHAS) 2001 and 2012.

introduction of *Seguro Popular* affects intergenerational upward transfers.

4 Results

The Propensity Score Matching (PSM) successfully matches the individuals enrolled in *Seguro Popular* with their respective counterfactual. Table 1 shows the probit specification for each of the four control groups defined in the previous section. The estimations effectively predict the propensity to be enrolled in *Seguro Popular*. The estimations show that the variables selected are relevant to predict the probability of enrolling in *Seguro Popular*. In particular, age, gender, assets (household has a phone), and if the individual ever had diabetes are the most significant variables included in the four specifications.

Figure 3 shows the kernel density estimates of the propensity scores for individuals enrolled in *Seguro Popular* (solid blue line) and for the ones in the different control groups (dashed black line), where panels A, B, C, and D exhibit C1, C2, C3, and C4, respectively.

The large common support area confirms the validity of the propensity score to be valid Smith and Todd

Table 1: Probability of Being Enrolled in Seguro Popular for Different Comparison Groups in 2001

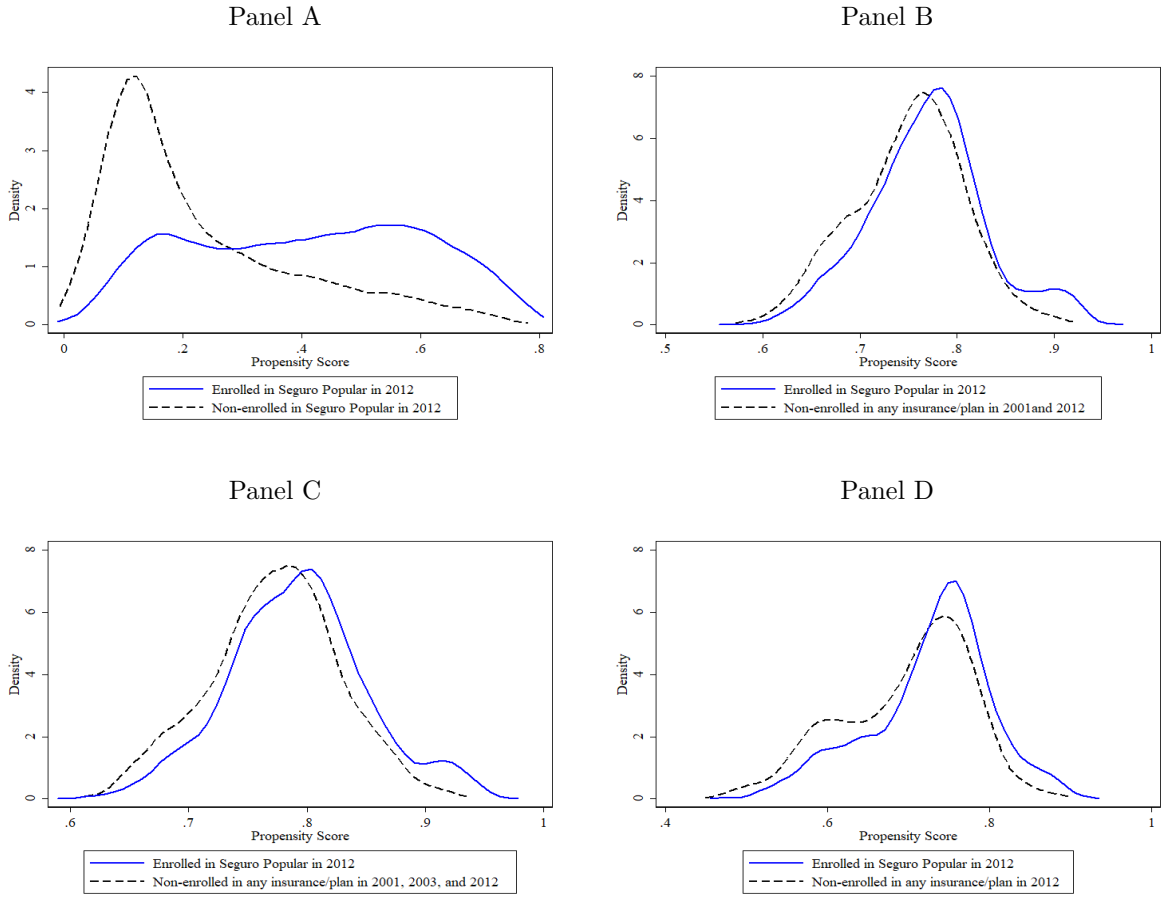
	(1)	(2)	(3)	(4)
Baseline Characteristics	Enrolled in Seguro Popular 2012 vs C1	Enrolled in Seguro Popular 2012 vs C2	Enrolled in Seguro Popular 2012 vs C3	Enrolled in Seguro Popular 2012 vs C4
Respondent age	-0.009***	-0.007*	-0.007*	-0.005
	(0.003)	(0.004)	(0.004)	(0.004)
Respondent gender (Female =1)	-0.003	0.111*	0.140**	0.077
	(0.037)	(0.058)	(0.060)	(0.055)
Respondent years of Education	-0.058***	-0.011	-0.008	-0.019**
	(0.006)	(0.010)	(0.011)	(0.009)
Has access to piped water	-0.119**	0.104	0.132*	0.103
	(0.054)	(0.076)	(0.079)	(0.073)
Has toilet	-0.273***	-0.070	-0.039	-0.137*
	(0.055)	(0.086)	(0.090)	(0.081)
Has radio	0.008	-0.075	-0.059	-0.102
	(0.059)	(0.087)	(0.090)	(0.083)
Has tv	-0.268***	0.026	-0.006	-0.016
	(0.074)	(0.091)	(0.095)	(0.088)
Has refrigerator	-0.152***	0.114	0.111	0.077
	(0.056)	(0.077)	(0.080)	(0.074)
Has wash machine	-0.215***	-0.010	0.005	0.070
	(0.046)	(0.073)	(0.076)	(0.069)
Has phone	-0.391***	-0.230***	-0.218***	-0.264***
	(0.045)	(0.080)	(0.083)	(0.073)
Has water heater	-0.069	-0.102	-0.150*	-0.157**
	(0.047)	(0.086)	(0.090)	(0.079)
Ever had high blood pressure	-0.047	0.020	0.049	0.016
	(0.038)	(0.063)	(0.065)	(0.059)
Ever had diabetes	0.036	0.460***	0.450***	0.356***
	(0.057)	(0.114)	(0.120)	(0.101)
Ever had a heart attack	0.018	0.245	0.249	0.169
	(0.127)	(0.234)	(0.245)	(0.204)
Constant	1.164***	1.103***	1.158***	1.034***
	(0.175)	(0.264)	(0.274)	(0.250)
Observations	6,618	2,401	2,332	2,555

Notes: (C1) individuals non-enrolled in *"Seguro Popular"* in 2012, (C2) individuals that did not get any insurance or plan in 2001 and 2012, (C3) individuals that did not get any insurance or plan in 2001, 2003, and 2012, and (C4) individuals that did not get any insurance or plan in 2012. The symbols *, **, and *** represent the 10%, 5%, and 1% significance levels, respectively.
Source: Author's calculations using the Mexican Health and Aging Study (MHAS) 2001.

(2005). On average, approximately 88% of the observations are in the common support area in the four control groups. Given that C2 is one of the most ideal control groups and that there is a marginal difference between C2 and C3, as explained in the previous section, I select C2 for the rest of the analysis to take advantage of the sample size.

The matching also satisfies the balancing property Becker and Ichino (2002). Table 2 reports small

Figure 3: Common Support Area for Different Comparison Groups



Notes: Author's calculations using the Mexican Health and Aging Study (MHAS) 2001 and 2012.

differences in the means of the covariates in the treatment and control groups in the common support area and non-significant t-test. As the balancing property holds, the relevant differences between the two groups of individuals, enrolled in *Seguro Popular* (treated) and non-enrolled in any insurance or plan in 2001 and 2012 (control), are explained by the observed explanatory variables, and there are no systematic differences in the propensity of enrolling in *Seguro Popular*.

Table 3 provides the baseline characteristics of the non-enrolled in any insurance or plan in 2001 and 2012, and the enrolled in *Seguro Popular* after performing the matching. All the statistics reported in the table are weighted. The first three rows indicate the outcome variables, which refer to the type of upward transfer that the respondent receives.

Regarding the demographic and household characteristics, more than 30% of the sample receive either monetary or nonmonetary transfer. The most common one is the nonmonetary transfer with more than 45% which is provided to the respondent through help with chores from children and grandchildren. The average age of the respondent is 55 years old. The percentage of women in the untreated group (48%) is smaller

Table 2: Balancing test

	Mean		*% bias*	*t-test*
	Enrolled	Non-enrolled		
Age	55.471	55.638	-3.300	-0.550
Female	0.565	0.540	5.000	0.840
Years of Education	3.230	3.239	-0.200	-0.050
Has access to piped water	0.570	0.569	0.400	0.060
Has to toilet	0.447	0.506	-11.800	-1.970
Has radio	0.888	0.900	-4.100	-0.680
Has tv	0.868	0.877	-2.700	-0.450
Has refrigerator	0.708	0.688	4.400	0.710
Has wash machine	0.508	0.497	2.100	0.360
Has phone	0.282	0.285	-0.800	-0.130
Has water heater	0.285	0.303	-3.900	-0.650
Ever had high blood pressure	0.326	0.337	-2.300	-0.380
Ever had diabetes	0.114	0.132	-6.600	-0.910
Ever had heart attack	0.014	0.014	0.000	0.000

Source: Author's calculations using the Mexican Health and Aging Study (MHAS) 2001.

than in the treated group (56%), although the difference is not statistically significant. The respondents have very low educational attainment. Three years of education is the average among the respondents in the sample, less than the number of years needed to complete primary education. More than 50 % of individuals live in households with access to basic services, such as piped water and sanitation, and more than 75% have a tv, radio, and refrigerator.

Turning to the children's characteristics[10], the respondent has, on average, three children, and 59% of the total children are adults. The average age of adult children is 24 years old, and the average years of education attained is eight. The majority of the non-enrolled respondent's adult children are women (52%), while men have the greater percentage among the enrolled respondent's adult children (54 %). The respondent's adult children's level of education is mainly concentrated in primary and secondary education; more than 70% of the respondent's adult children are single, are in a regular economic situation, and are working.

[10]I define as respondent's children to the individuals that declare to be the biological, step, adopted, or informally adopted respondent's son or daughter

Table 3: Baseline Characteristics after Matching

	Non-enrolled*		Enrolled		
	Mean	S.D.	Mean	S.D.	*p-value*
Receive any transfer from children	0.318	0.467	0.328	0.470	0.822
Receive help with chores from children grandchildren	0.452	0.499	0.472	0.500	0.655
Receive financial transfer from children	0.318	0.467	0.328	0.470	0.822
Respondent Characteristics					
Age in years	55.611	5.296	55.471	4.913	0.755
Female	0.484	0.501	0.565	0.496	0.072
Years of education	3.688	4.095	3.230	3.099	0.129
Household Characteristics					
Has access to piped water	0.586	0.494	0.570	0.495	0.728
Has toilet	0.503	0.502	0.447	0.498	0.216
Has radio	0.911	0.286	0.888	0.316	0.408
Has tv	0.885	0.320	0.868	0.339	0.568
Has refrigerator	0.745	0.437	0.708	0.455	0.357
Has wash machine	0.561	0.498	0.508	0.500	0.245
Has phone	0.401	0.492	0.282	0.450	0.004
Has water heater	0.325	0.470	0.285	0.452	0.336
Average number of children that respondent has.	3.302	1.685	3.279	1.637	0.896
Proportion of adult children in the household	0.585	0.244	0.577	0.234	0.755
Adult Children Characteristics					
Average age	24.237	6.455	24.525	4.879	0.610
Average years of education	8.321	3.371	8.125	3.448	0.591
Proportion Female	0.523	0.429	0.460	0.428	0.168
Proportion with Primary education	0.305	0.443	0.339	0.439	0.468
Proportion with High School Education	0.137	0.309	0.137	0.305	0.997
Proportion with Secondary Education	0.341	0.435	0.309	0.407	0.470
Proportion with Technical Education	0.076	0.246	0.085	0.239	0.737
Proportion with Professional Education	0.103	0.286	0.083	0.240	0.437
Proportion Divorced	0.009	0.093	0.008	0.081	0.988
Proportion Married	0.144	0.317	0.154	0.321	0.780
Proportion Separated	0.037	0.173	0.041	0.181	0.863
Proportion Single	0.746	0.398	0.726	0.395	0.622
Proportion Unmarried Couple	0.055	0.214	0.064	0.221	0.697
Proportion Widowed	0.009	0.093	0.008	0.079	0.907
Proportion with Good Economic Situation	0.216	0.406	0.173	0.374	0.294
Proportion with Regular Economic Situation	0.670	0.459	0.660	0.462	0.838
Proportion dedicated to household activities	0.172	0.347	0.157	0.330	0.662
Proportion dedicated to looking for a job	0.011	0.098	0.018	0.102	0.555
Proportion dedicated to study	0.117	0.296	0.103	0.273	0.632
Proportion working	0.603	0.451	0.651	0.428	0.292

Notes: *Non-enrolled in any insurance or plan in 2001 and 2012.
The outcome variables, respondent characteristics, and household characteristics are based on 157 non-enrolled and 561 enrolled individuals, while the adult children characteristics, average number of children that respondent has, and proportion of adult children in the household are based on 116 non-enrolled and 373 enrolled observations (except for average years of education, which has 372 observations). The matched sample assigned to the control group did not have individuals with basic education, postgraduate education, excellent economic situation, or very good economic situation. The matched sample assigned to the treatment group did not have individuals with postgraduate education.
Source: Author's calculations using the Mexican Health and Aging Study (MHAS).

Table 4 presents the results from the difference-in-difference estimations for three different specifications. Note that I identify the effect of enrolling in *Seguro Popular* on transfers by comparing the probability of getting a monetary or nonmonetary transfer from adult children of treated individuals switching from non-enrolled to enrolled in *Seguro Popular* with the probability of untreated individuals neither enrolling in a plan or insurance in 2001 nor in 2012. The first column in Table 4 refers to the standard difference-in-difference model without controlling for the respondents' characteristics. The second specification in column two includes demographic and household characteristics, while the third one includes adult children's characteristics. The details of all the characteristics included are in Table 3.

Table 4: Estimation of the effect of *Seguro Popular* on Transfers from Adult Children to Parents

Outcome Variables	(1) Without controls		(2) Controls for age, gender, education, and household characteristics		(3) Controls for age, gender, education, household, and adult children characteristics	
	Coef.	No. of Observations	Coef.	No. of Observations	Coef.	No. of Observations
Receive any transfer from children	0.327**	1,428	0.336**	1,425	0.465**	1,049
	(0.165)		(0.168)		(0.195)	
Receive help with chores from children and grandchildren	0.362**	1,426	0.359**	1,423	0.284	1,054
	(0.164)		(0.167)		(0.195)	
Receive financial transfer from children	0.318*	1,436	0.331**	1,433	0.467**	1,054
	(0.165)		(0.167)		(0.194)	

Notes. Robust standard errors are in parentheses. The symbols *, **, and *** represent the 10%, 5%, and 1% significance levels, respectively.
Source: Author's calculations using the Mexican Health and Aging Study (MHAS) 2001 and 2012.

Under the three specifications, the estimations show a positive and significant effect for receiving any (monetary or nonmonetary) or financial transfer from adult children. The probability of receiving any transfer, help with chores, or financial transfers increases over 30% in the three specifications, except for the nonmonetary transfer. Once controlling for demographic characteristics, I find insignificant effects of enrolling in *Seguro Popular* on receiving help with chores from children and grandchildren (nonmonetary transfers).

Overall, the results suggest that adult children continue supporting with monetary or nonmonetary transfers to their parents even when parents have a positive income shock, given by the reduction of the out-of-pocket health expenditure through the enrollment in *Seguro Popular*. Parker et al. (2018) finding of significant positive effects on the usage of health care services and on receiving diagnostic tests is consistent with this analysis. As respondents get access to the health treatments through *Seguro Popular*, our results suggest that given that this public insurance does not cover the totality of the costs the health treatments imply, such as care, transportation, and medicine, the coverage is complemented by the transfers from adult children to the respondents (the parents). One cautionary note is that we cannot identify if the respondent's adult children also enrolled in *Seguro Popular*, therefore, benefited also from a reduction in out-of-pocket expenditures and

positively affected the transfers to their parents. However, the third specification in Table 4 controls for adult children characteristics, and the effect is higher than in the first and second specifications.

5 Conclusion

I show that elderly individuals who receive *"Seguro Popular"* have a higher probability of receiving transfers and help with chores from children and grandchildren. The effects are not only statistically significant but also economically sizeable. After controling for demographic, household, and adult children characteristics, elderly individuals with access to public health insurance have about 50% higher probability of receiving any type of transfer from their children than individuals with the same characteristics in the baseline that have not received any insurance neither in baseline nor in endline.

I also implement robustness checks to control for other sources of potential endogeneity. The baseline results represented above survived all these robustness checks, generating estimates of the increase in the probability of receiving upward transfers that range between 30% and 55% .

These results also have implications for guiding economic theory. Indeed, they contradict the prediction of the altruism models that state that public transfers merely cancel out private transfers. By contrast, they provide strong support for the exchange models that argue that public transfers are amplified rather than canceled out (Soldo and Hill, 1993).

In addition, these findings have clear policy implications. First, public and private insurances are complementary. Therefore, a relatively small increase in public health coverage for elderly individuals may have large improvements in their health status due to intergenerational transfers. Second, in cases in which children lack resources to support their elderly parents, public insurances provide alleviation for adult children of the burden of maintaining elderly parents. One important implication is that adult children also have more possibilities to accumulate wealth when they age. As a consequence, in addition, to improving the well-being of the elderly population, public insurance may also improve the financial, physical, and emotional condition of future generations.

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