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SOCIAL PENSION INCOME ASSOCIATED WITH SMALL IMPROVEMENTS IN SELF-REPORTED HEALTH OF POOR OLDER MEN IN COLOMBIA

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Abstract

The countries of Latin American are aging rapidly. Because most countries in the region lack adequate social protection systems, many Latin American governments have introduced noncontributory pension programs to reduce poverty and food shortages. This study assessed the effects of a large national noncontributory pension program on the health and health care use of older people in Colombia. Using an instrumental variables approach that exploited differential rollout of the program across municipalities, we found evidence that the program led to significant but small improvements in self-reported health and reductions in hospitalizations among men. No significant effects were found among women or among men for other health and health care use outcomes. A small noncontributory pension was associated with improvements in self-reported measures of health for vulnerable older men, but these effects are small in magnitude. Researchers and policy makers should assess ways to maximize the health benefits of cash transfers to poor older people.

Over the past few decades the expansion of health insurance has been the key public health policy priority advocated by researchers and international organizations in much of the developed and developing world.[1–3] However, recent evidence suggests that expanding health insurance and services might not be sufficient to improve population health. Despite having health insurance, members of poor and vulnerable communities face barriers to health care access, since user fees and copayments, costs of transportation, low health literacy, and poor health limit their ability to visit health care facilities.[4] This resonates with a large body of evidence suggesting that social determinants, including income and poverty, are strongly associated with health, morbidity, and mortality.[5–7]

One of the critical challenges faced by countries in Latin America is rapid population aging. In the next fifty years, it is estimated that the proportion of Latin Americans ages sixty and older will increase from 9 percent to 24 percent.[8] Adding to the effects of aging, old-age poverty rates average 22 percent in Latin American countries,[8] where pension systems are weak and largely favor the nonpoor.[9] In Colombia, 40 percent of older people have incomes below the poverty line, compared to around 38 percent among all age groups.[8] Furthermore, approximately two-thirds of Latin American workers are in the informal economy and make little or no contributions to pensions.[10,11] Lack of social protection and resulting levels of poverty in older age are likely to influence older people's ability to maintain good physical and mental health.

While several Latin American countries have achieved near-universal health insurance coverage, the lack of social protection systems will likely reduce the effectiveness of that coverage and result in increased costs to the health care system

among the region's rapidly aging populations.[4] Colombia introduced a major reform in 1993, making health insurance mandatory and creating a system of subsidized health care for poor people called Régimen Subsidiado—which led to an increase in coverage from 6 percent in 1998 to more than 70 percent in 2007 among people in the lowest income quartile.[12] Although Régimen Subsidiado has been shown to improve health outcomes and access to medicines,[13] the health system faces serious challenges as a result of rising costs related to chronic diseases, worsening inequality, and poor quality of services, among other things.[14]

Noncontributory Pension Programs And Health

To alleviate poverty in older age, many Latin American countries have introduced so-called social or noncontributory pensions, which provide cash benefits to poor older adults who lack any other pension—often as a result of having a history of employment in the informal economy.[8,15,16] Programs in Brazil (Benefício de Prestação Continuada), Mexico (70 y Más), and Costa Rica (Régimen No Contributivo) have expanded rapidly, covering significant shares of the older population with comprehensive benefits of around US$195 per month in Brazil and US$125 in Costa Rica.[9,16] Social pensions have been shown to reduce poverty, food shortages, and labor supply among older people and to increase investments in human and social capital.[17–22]

An important, yet underexplored, hypothesis is that noncontributory pension programs may also bring important health benefits to older people.[23] Supplementary income may improve nutrition, housing, and access to medicines and doctor visits,[23] and it may also enable older people to reduce their paid work and exposure to occupational hazards.[24] On the other hand, access to social pensions might not always

translate into better health. For example, there is evidence that pension pooling (the sharing of pension income between couples and with other household members) is widespread in Latin American households and may often be linked to abuse of pensioners and forcible appropriation of benefits by other family members.[20] Also, evidence from conditional cash benefit programs (welfare programs that require the recipient to take certain actions) suggests that they may lead to increases in body mass index and blood pressure—likely associated with increased intake of high-calorie food.[25] Likewise, the health benefits of pensions may be contingent on the availability of medicines and health services as well as on health awareness, particularly in poor rural areas.[26] Although many low- and middle-income countries, including Colombia, have greatly expanded access to health care services, poor older people still face significant barriers to accessing those services.[4]

Existing studies suggest that receiving a pension is associated with improved access to health care services in Brazil.[20,27] However, whether this translates into better health outcomes remains unclear. Some studies have found that social pensions have positive effects on mental health and well-being among older Mexicans.[28,29] In South Africa, noncontributory pensions have had positive effects on the health of older beneficiaries and of female children in the household if the pension was received by a woman.[30–32] Furthermore, a randomized controlled trial conducted in the Mexican state of Yucatán showed that older people who received a cash benefit showed significant improvements in lung function and hemoglobin levels, although there were no improvements in grip strength.[33] Beneficiaries also used the extra income to pay for doctor visits, medication, and food. Despite the evidence that social pensions have

positive effects on some health outcomes, as noted by a recent systematic review, the evidence regarding the effects of unconditional cash transfers on health-related outcomes remains inconclusive and not systematic.[34]

In this article we examine the health impact of Colombia Mayor, a noncontributory pension program that provides eligible poor people with a monthly transfer of US$16–34. This program was launched in 2003 and at its inception covered nearly 1.5 million older adults[35]—a number expected to increase to 2.4 million by 2018. The program is means tested and currently targets women ages fifty-four and older and men ages fifty-nine and older who meet a poverty threshold for eligibility. During the period when our data were collected, women ages fifty-two and older and men ages fifty-seven and older were eligible. Using a quasi-experimental approach and four waves (from the period 2010–13) of the Encuesta Nacional de Calidad de Vida (ENCV; National Quality of Life Survey), we examined the impact of this program on health, using an instrumental variable approach that exploited the large variation in rollout rates across municipalities over the study period.

Study Data And Methods

Data

As noted above, we used data from four waves (2010–13) of the ENCV, a nationally representative household survey. We restricted our sample to households that contained at least one person potentially eligible for the program based on age and the household's score on the System of Identification of Social Program Beneficiaries (SISBEN), a system used in Colombia to determine eligibility for social welfare programs.[please add source] In that period, as noted above, women had to be at least

age fifty-two and men had to be at least age fifty-seven. Households in levels 1 and 2 of the SISBEN index (people in poverty) are potentially eligible for the program, corresponding to nearly 50 percent of all people in that age group. Applying all eligibility criteria resulted in a sample of 22,297 potentially eligible households.

Health Measures

We used the following four measures of health and health care use for which data were available in the ENCV: self-rated general health (as a binary indicator distinguishing “very good,” “good,” or “regular health” from “bad health”), self-reported health problems (illness, accident, dental problem, or any other health problem that did not involve hospitalization in the past thirty days), doctor visits in the past year among those who reported any health problems, and hospitalization in the past two months.

Socioeconomic Status And Program Participation

The SISBEN index (version 3), ranging from 0 (lowest) to 100 (highest), measures socioeconomic status. It is a weighted summary score of living conditions that are assessed by an extensive household survey. Weights are kept confidential to avoid manipulation. Therefore, SISBEN index scores for participants in the ENCV were calculated by the national statistical institute at our request, based on the participants’ survey responses.

Our main independent variable was a binary indicator that captured whether or not any member of a given household received Colombia Mayor benefits.

Control Variables

Demographic control variables included age, sex, marital status, numbers of potential beneficiaries and of minors in the household and highest educational level

attained, and whether the person suffered from a disability that rendered them permanently unable to work.

Analyses

To account for potential reverse causation between health and receipt of a social pension, we used an instrumental variables approach, applying an identification strategy that exploited the large variation in rollout rates of the program across municipalities. The intuition behind this approach is based on the idea that the program was initially established nationwide without prioritization (for example, according to average incomes) among municipalities. However, the rate at which the program was rolled out differed greatly between municipalities (exhibit 1). While the reasons for these differences are arguably manifold, given that the program was initially little known, its adoption was likely driven to a large extent by political will and social-network effects.[36] While the roll-out may have been systematically related to unobserved characteristics affecting the treatment and outcome variables, such as aggregate health outcomes, any such differences are directly controlled by the use of municipality level fixed effects and a comprehensive set of individual-level controls.

To empirically capture differential rollout across municipalities in terms of the percentage of potential eligible individuals actually receiving the program, we constructed two variables (one on the municipality level and one on the sub-municipality level of aggregation, i.e. disaggregated by whether a household resides in a municipality seat, some other urban setting or a rural area) that we used as instruments to predict whether an eligible household received Colombia Mayor. Using a three-stage instrumental variables approach, we produced models for each outcome by regressing

each outcome variable on the indicator that captured program receipt at the household level and included fixed effects for municipality and year as well as covariates (see online appendix exhibit A1 for more details on the methods).[37]

Limitations

Despite this study's several strengths, some limitations should be considered. First, our data allowed us only to determine whether a household received the Colombia Mayor program. While this may represent a limitation, Colombia is generally characterized as having very strong family ties and multigenerational households, so household benefits are likely to be pooled and shared among all members.

Second, eligibility for Colombia Mayor may overlap with eligibility for other social programs—notably, subsidized health insurance. However, because of differences in prioritization for these two programs, the effective SISBEN eligibility levels for the two programs do not overlap.

Third, a key limitation is that our study relied on self-reports of health and service use. Although self-reported health has been shown to be very predictive of morbidity and mortality, responses may be affected by the choice of reference groups and cultural factors.

Fourth, although we discuss potential explanations below, we were unable to provide a definitive answer to the question of why results were different for men and women.

Study Results

Appendix exhibit A2 provides an overview of the sample of households with at least one member eligible for Colombia Mayor based on SISBEN index score.[37] The

mean age of the sample was 68.4 years. Fifty-eight percent of the 22,297 people in the sample were female. Fifteen percent reported being in bad health, while 73 percent reported having had a health problem (defined above) that did not involve hospitalization. Among those reporting a health problem (*n* = 3,096), 73 percent had visited a doctor in the past year, while 11 percent of the entire sample reported having been hospitalized in the past three months. Among eligible households, 27 percent of people lived in households in which at least one person receives Colombia Mayor benefits (*n* = 5,954).

Exhibit 2 presents the results of the first-stage probit model showing the significance and magnitude of the two instruments with regard to predicting whether an eligible household receives Colombia Mayor. The numbers of people eligible for Colombia Mayor in a municipality and at the sub-municipality level are both strong predictors of receiving program benefits. Based on commonly used model fit statistics, we can conclude that the instruments were sufficiently strong and that they were not correlated with other predictors of the dependent variable, providing support for the internal validity of our results (see appendix exhibit A3 for a discussion of the model fit statistics). The exhibit also presents results for the predictive value of our demographic covariates, almost all of which were highly significant.[37]

Models of the effects of receiving Colombia Mayor on self-reported health and health care use were estimated for men and women separately (Exhibit 3). Exhibit 4 graphically shows the predicted probabilities for each health outcome for beneficiaries and non-beneficiaries of the program derived from the model results shown in Exhibit 3. When we looked at the results for self-rated health, we found results suggesting that

receiving the benefit led to a significant 5.6 percent reduction in the probability of reporting bad health among poor older men. The results also suggest that receiving the benefit reduced the likelihood of being hospitalized by around 5.4 percent among men. We found no significant effect of Colombia Mayor among women or among men for other health and health care use outcomes.

Discussion

We investigated the effect of Colombia Mayor, a noncontributory pension program in Colombia on health and hospitalizations among poor older people. Exploiting the differential rollout of the program across municipalities, we found that it significantly but marginally reduced self-reports of bad health (in the past year) and hospitalization (in the past two months) among men. We found no significant effect of the program on the health of women.

Our findings for men are in agreement with accumulating evidence of the positive health benefits of social pensions.[20,27,33] Quasi-experimental evidence from Mexico and Brazil suggests that social pensions might not only reduce extreme poverty[17,18] but also improve access to health care services and medication.[20,27] Social pensions have also been shown to improve the health of older South Africans, although some of these effects may be short-lived.[30–32] Evidence also suggests that social pensions may improve mental health.[28] Although we only had self-reported measures of health, our results are in line with evidence from a randomized trial in the Mexican state of Yucatán, which reported positive effects of social pensions on measured biomarkers such as lung function and hemoglobin levels.[33] The findings for men appear to be in line with the

results of a recent systematic review on the effects of cash transfers on health and health care service use in low- and middle-income countries. The review found that although related programs are likely to improve some health outcomes, evidence on their effectiveness remains inconclusive.[34] As stated previously, though, access to social pensions does not always translate into better health, according to a number of studies.[4,20,25,26] While we found significant effects of the program on self-rated health and hospitalizations, we did not find an effect on health problems not leading to hospitalization or on the use of preventive health services. In addition, although the effects on self-rated health were significant, they were modest in magnitude. An important consideration is the fact that the Colombia Mayor cash benefit is substantially smaller than similar benefits in other countries. For example, in the Mexican state of Yucatán, the benefit amounted to US$67, or 30 percent of the minimum wage (the lowest remuneration employers can pay their employees),[33] and in Brazil the benefit was fixed as 100 percent of the minimum wage. This compares to US$34 in Colombia, which corresponds to only around 12 percent of the minimum wage. Such a modest cash benefit may have only a small effect on health. For example, as a result of within-household or family income pooling,[26] additional income may be transferred to younger household members. Although the majority of Colombians are covered by subsidized public health insurance (Régimen Subsidiado),[38] access to medicines or health services in poor and rural areas is not universal,[26] and a small cash benefit might not be sufficient to compensate for unmet health care needs.

A noteworthy result is that we did not find an effect of Colombia Mayor on women's health. One possible hypothesis is that the observed effect among men is due

to inequalities in gender roles[39] and dynamics of within-household distribution of resources that primarily favor men. In addition, because men are more likely than women to be employed in older age, they may also be more likely to reap the health benefits conferred by a social pension in the form of reduced work and exposure to hazardous conditions. Women also might be more willing than men to share income with other members of the household,[40] benefiting less themselves from the supplementary income. Evidence of this comes from South Africa, where social pensions have been shown to improve the health of young children when an older female member of the household receives a cash benefit, but not if the benefit is received by a male member of the household.[32]

Policy Implications

Latin American countries' countries are aging rapidly, and comprehensive pension programs with high coverage rates for poor older people are rare.[41] While policy over the past few decades has focused on expanding health insurance coverage, our results suggest that reducing old-age poverty may contribute to better health among middle-income countries' aging populations.[8] Although we found relatively small effects for men, our results suggest that social policies that address poverty may be a useful part of a broader strategy to achieve healthy aging. In turn, these programs may also contribute to curbing the costs for health care associated with population aging. The increasing burden of noncommunicable diseases among the lower socioeconomic groups[42] makes this potential source of cost reduction even more important.

Yet our results cast some doubt on the notion that providing cash benefits to the older poor will be sufficient to improve their health and well-being. The ability of older

people to “translate” a cash benefit into better health may be contingent on their ability to use these resources to invest in their health, either by accessing relevant health services or by purchasing health-improving products (such as [please provide]). In Colombia, as in other Latin American countries, there remain substantial barriers to health care access as a result of high copayments, long waiting times, and the lack of adequate health services in remote or poor areas. People are often unaware that they have a health problem and may use services only when it is too late.[43] Demand-side interventions that link social pensions to attendance at clinics, for example, could be effective as strategies to boost social pensions’ health benefits by increasing the demand for preventive health services. Alternatively, pensions could be provided in combination with offers for free preventive health checkups, with the cash benefit distributed by local health centers.[23] A comprehensive approach that combined the delivery of social and health programs could be an effective policy strategy to both reduce poverty and improve the health of older people in low- and middle-income countries.

Conclusion

This study shows that a small cash benefit had modest but positive effects on the self-reported health of poor older men in Colombia, but no measurable effects among women. Although social pensions may have beneficial effects on health and health care service use among vulnerable older people in low- and middle-income countries, it remains uncertain whether cash benefits systematically improve health.[34] To maximize potential health benefits, future research should examine how cash transfers could be

combined with interventions that improve the quality of health care services and reduce barriers to their access among older populations.

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List of Exhibits

EXHIBITS

Exhibit 1

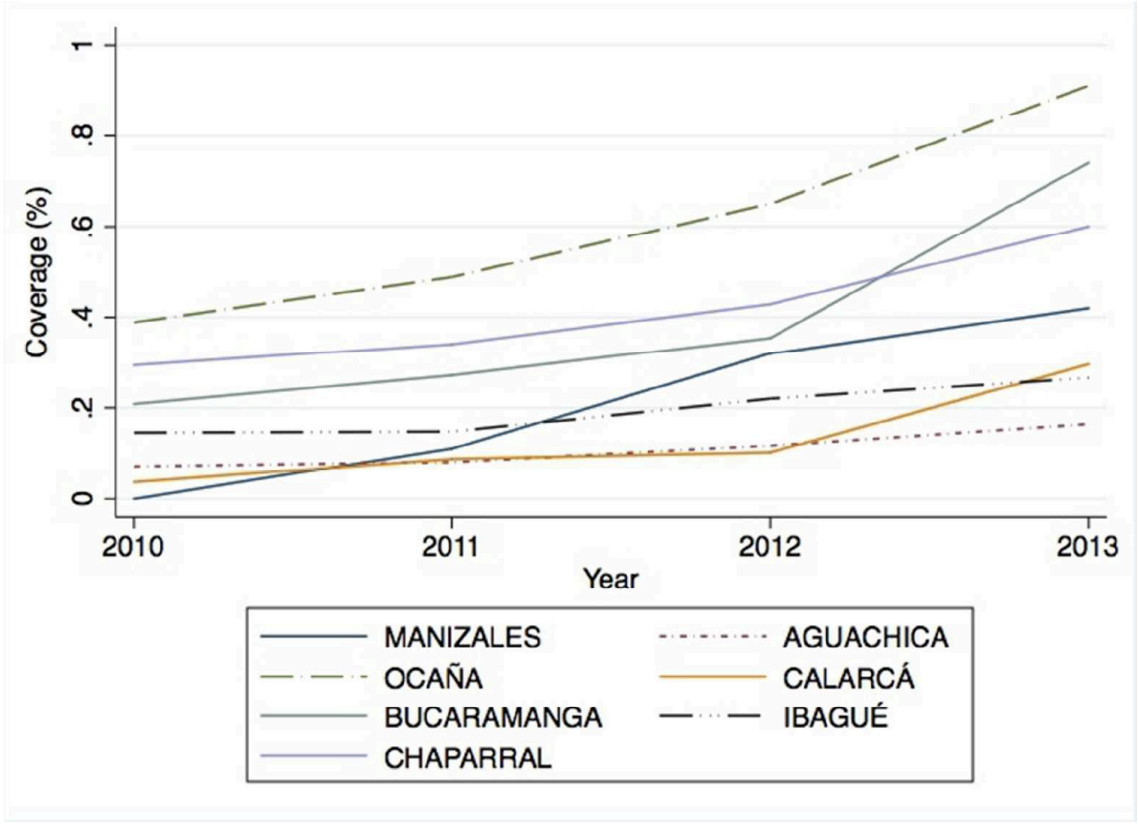

Exhibit 2: Determinants of being a Colombia Mayor beneficiary among poor older people

Instruments	
Municipality level coverage	3.111****
Sub-municipality level coverage	3.269****
Control variables	
Age	0.031****
SISBEN index score	−0.019****
Female (ref: male)	0.129****
Widowed (ref: married)	0.164****
Divorced (ref: married)	0.159****
Single (ref: married)	0.227****
Number of potential beneficiaries in the household	0.295****
Number of minors in the household	−0.110****
Primary education (ref: none)	−0.117****
Secondary education (ref: none)	−0.386****
Postsecondary education (ref: none)	−0.783****
Constant	−4.591****
Model fit statistics	
Observations	22,297
R-squared	0.096
Number of municipalities	286
F statistic	190.8

SOURCE Authors' analysis of data for 2010–13 from the Encuesta Nacional de Calidad de Vida (ENCV, National Quality of Life Survey). NOTES The exhibit shows the regression coefficients that correspond to the linear probability from a (first-stage) probit model that regressed the binary indicator of being a beneficiary on the household level on the two instruments and control variables. It shows only the coefficients that were significantly associated with being a beneficiary across all four models. The model also controls for municipality and year fixed effects but results are omitted from the table. Since the first-stage model is substantially very similar for each of the four health-related outcomes, the exhibit only shows the results from the model for "Bad health". A complete version of the table is included in online appendix exhibit A3 (see note 37 in text). The System of Identification of Social Program Beneficiaries (SISBEN) index score is explained in the text. $^{**}p < 0.05$ $^{***}p < 0.01$ $^{****}p < 0.001$

Exhibit 3: Effects of being a Colombia Mayor beneficiary on health and health care service use among poor older Colombians

Model	Males	Females
Bad health	−0.056****	0.020
Health problem	0.011	−0.014
Doctor visit	0.152	0.009
Hospitalization	−0.054***	0.019

SOURCE Authors' analysis of data for 2010–13 from the Encuesta Nacional de Calidad de Vida (National Quality of Life Survey). NOTES The exhibit shows the regression coefficients from the instrumental variables models for the different outcomes. The coefficients refer to a linear probability model for binary outcomes. The models control for all variables shown in online appendix exhibit A2 (see note 37 in text), but results are not included. Additional information on model fit and results from ordinary least squares models is included in appendix exhibit A3 (see note 37 in text). "Bad health" and "health problem" are explained in the notes to exhibit 2. "Doctor visit" refers to visits in the past year among people who reported any health problem. "Hospitalization" refers to hospital admissions in the past two months. ***$p < 0.01$ ****$p < 0.001$

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