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Universal Minimum Old Age Pensions

Impact on Poverty and Fiscal Cost in 18 Latin American Countries

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Abstract

Alleviating poverty for the elderly requires a different approach from other age groups, and a minimum pension is likely to be the only viable option. This paper examines the impact on old age poverty and the fiscal cost of universal minimum old age pensions in 18 Latin American countries using recent household survey data. First the authors measure old age poverty rates for these countries. Then they discuss the design of minimum pensions schemes—means-tested or not—as well as the disincentives they introduce for the economic and social behavior of households including labor supply, saving and family solidarity. Finally, the authors use household survey data to simulate the fiscal cost and the impact on poverty rates of alternative minimum pension schemes in the 18 countries. They show that a universal minimum pension would substantially reduce poverty among the elderly (except in Argentina, Brazil, Chile and Uruguay where minimum pension systems already exist and poverty rates are low). Such schemes have much to be commended in terms of incentives, spillover effects and administrative simplicity, but they have a high fiscal cost. The latter is a function of the age at which benefits are awarded, the prevailing longevity, the generosity of benefits, the efficacy of means testing, and the fiscal capacity of the country.

Universal Minimum Old Age Pensions:
Impact on Poverty and Fiscal Cost in 18 Latin American Countries

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Introduction

Alleviating poverty in old age requires a different approach from other age groups. Since policies that go through labor and output markets and educational and training programs are ineffective, the only available instrument to alleviate old age poverty is a transfer of real income (possibly through price subsidies). In most developed countries, pension systems—which generally consist of a balanced combination of pay-as-you-go and funded schemes—include minimum pension schemes and are strongly redistributive, yielding a sizeable difference between poverty rates before and after transfer.[2] By contrast, in developing countries with pension systems, one observes that they have a limited potential to solve old-age poverty because of the low coverage of those systems. Coverage rates are below 30% in half Latin American countries (see Appendix Table A1).. They range from around 10 % of the labor force in Peru and Bolivia to about 60 % in Chile. These figures are for 2006 and are based on the number of contributors (Mesa-Lago 2004, Rofman et al. 2008). As to the coverage of the elderly, the rates are extremely low in most Latin American countries. They range from 5% in Honduras to 85% in Uruguay. They are about or higher than 60 % in Argentina, Brazil, Chile and Uruguay plus Costa Rica and Bolivia.

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[2] Public old age pension systems are generally considered to have two objectives: income replacement and poverty prevention. Contributory schemes (also called earnings-related or insurance-based schemes) are used for the first objective. To fulfill the second objective, one relies on noncontributory schemes providing minimum rate benefits (also called social pension). Both separation and combination of these objectives have merits. By separating the two functions, one hopes that the only distortions will arise from the redistributive pillar and that the contributory pillar will carry no deadweight loss. By combining them, it is hoped that workers will perceive the contributions they have to pay as an insurance premium and not as a tax. How payroll taxes are perceived is an open and unresolved question (See on this point, Schokkaert et al. 2003 and Gill et al. 2005). Another advantage of merging the two functions is to make the whole system more politically sustainable. This view prevails in Continental European countries which follow the Bismarckian tradition (Casamatta et al. 2001). Empirically and theoretically, there appears to be a positive relationship between the generosity of a pension system and its contributory nature.

A more efficient solution consists of lump-sum transfers financed by tax receipts. These are pensions aimed at providing a replacement income to old persons under the poverty line and are of two types (Willmore 2001; Holzmann et al. 2009).[3] The first type of minimum pension covers unconditionally all the elderly. Benefits are the same for everyone regardless of income, assets or work history. This distinguishes it from means-tested pensions which do not provide benefits (or provide reduced benefits) to those who have other income or assets, and from the minimum pension guarantee for which beneficiaries must have a history of contributions. In the OECD, only one country (New Zealand) provides a universal pension to its aged population with the objective to lift old persons above the poverty line. In low and middle income countries, only four countries have such universal minimum pension arrangements: Mauritius, Namibia, Botswana and Bolivia.[4] They are easy to administer and do not require information on the income of assets of the beneficiaries. They offer a pension which is relatively low and, with the exception of Mauritius, not high enough to lift its beneficiaries above the poverty line.

The second type of minimum pension is also universal but subject to means-testing. This welfare pension can be completed by housing subsidy or the possibility of being admitted in a public nursing home.[5] A number of developing countries have universal means-tested schemes although the means test applies to the household and not to the individual. The most famous examples are Brazil and South Africa. The South African minimum pension is quite generous in terms of level (about one-third of per capita income) and the

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[3] It should be noted that reduced contributory pensions are also called "minimum pension schemes." These are aimed at workers who have had some work career but could not accumulate enough pension rights to reach a certain minimum level. These workers are entitled to a minimum pension that is not subject to any condition, except age condition and sometimes family structure.

4 On Mauritius, see Willmore 2003.

[5] There is also an age condition and, in some cases, conditions of citizenship or legal residency.

number of beneficiaries is high reaching 88% of the covered population. The pension is paid to men aged 65 and women aged 60 and over. It is funded through general taxation. The Brazilian minimum pension, for which the eligibility age is 60 for men and 55 for women, corresponds to the minimum wage (Carvalho Filho 2008, Iwakami et al. 2004). It is also worth mentioning Mexico City (Federal District) and its program of transfers for food expenses to the elderly living in poor areas. A few studies examine the incidence of minimum pension schemes. Barrientos (2003a) studies the effect of social pensions on the poverty rate of elderly people in rural Brazil and South Africa and computes poverty rates and poverty gaps with and without means-tested minimum pension. He shows that. in both countries. the non-contributory pension reduces both the rate of poverty and the poverty gap. Rivera-Marques, Morris, Wodon and Siaens (2004) study the incidence of Mexico City's safety net for the elderly and show that the program reduces poverty and inequality but that its performance in terms of poverty reduction is weaker as soon as the eligibility rules are relaxed (no means test and extension to non-poor areas). Other recent analyses of universal means-tested pension schemes—which are discussed below—include Carvalho Filho 2008; Bertrand, Mullainathan and Miller 2003; and Duflo 2003. In Latin America, five countries—Argentina, Brazil, Chile, Costa Rica and Uruguay— have non-contributory pensions (Bertranou, Solorio and van Ginneken 2002 and 2004). These programs generally have a social assistance character in that they are targeted at the poor and disabled who have no contributory capacity. In Brazil and Costa Rica, part of the social assistance pension benefits is financed by cross-subsidies from social insurance programs. In terms of coverage, Chile, Uruguay and Costa Rica offer the greatest coverage but, in absolute terms, Brazil has a social assistance program with more

than 2 million beneficiaries and, if the rural pensions program is included, the number of beneficiaries exceeds 8 million.[6] Even with high rate of coverage poverty will only be eradicated if benefits are high enough and the family structure is not too burdensome. See Table 1.

Table 1.   Pension Policies in Latin American Countries

Country	Type of pension system	Year of pension reform	Coverage of the economically active population	Coverage of employed persons	Coverage of elderly
Argentina	mixed	1994	40.9	44.6	70.5
Bolivia	private	1997	12.5	13.1	89.8
Brazil	public	-	48.1	51.7	85.3
Chile	private	1981	62.7	67.3	75.5
Colombia	pub/priv	1994	31.8	32.3	25.1
CostaRica	mixed	2001	62.7	65.1	59.2
Dom Rep	private	2003	20.2	23.7	11.9
Ecuador	mixed	2004	26.2	26.6	31.0
Guatemala	public	-	26.8	27.2	15.4
Honduras	public	-	20.1	20.7	5.3
Mexico	private	1997	35.9	36.0	23.3
Nicaragua	private	2004	18.5	19.3	44.9
Panama	public	-	45.1	54.4	41.7
Peru	pub/priv	1993	14.0	14.6	27.7
Paraguay	public	-	12.8	13.5	14.9
Salvador	private	1998	29.1	31.2	16.2
Uruguay	mixed	1996	61.1	67.3	85.6
Venezuela	public	-	35.3	37.8	31.3

Sources Mesa-Lago (2004) and Rofman et al. (2008)

Evidence on Poverty in Old Age

At the international level, surprisingly little evidence is available on poverty in old age. World Bank statistical compilations, for example, do not report poverty rates for

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[6] We are grateful to Rafael Rofman for sharing with us his data on coverage.

all age groups (World Bank 2005). Data on child poverty are published separately but not data on poverty in old age. Only recently have there been efforts to publish internationally comparable indicators of welfare from an age-specific perspective for rich and poor countries (HelpAge International 2004; Kakwani and Subbarao 2005).

In developed countries, the old age poverty rates are generally not much lower than those for the total population but this is a relatively recent trend. A few decades ago, the average income of the elderly was substantially lower than that of other age groups and their rate of poverty much higher (Förster, Fuchs and Makovec 2003). In developing countries, patterns are different and there is no obvious trend. As far as Latin America is concerned, the poverty headcount for the elderly is clearly lower than for the population average in the cases of Argentina, Brazil, Chile and Uruguay and to a lesser extent in Nicaragua and Panama. It is higher in the other countries as shown in figure 1 below. Argentina, Brazil, Chile and Uruguay—which are among the richest countries in our sample—will often behave differently from the rest.

Poverty in old age can still be observed even in countries—for instance in the OECD—that have generous transfers for the elderly including targeted minimum pensions. This seems puzzling at first sight since the pension is universal and its level is above the poverty line (generally half the median income). There are at least three reasons for this apparent puzzle: family composition (if the other family members do not have any resource. the equivalent income of each member can be below the poverty line); take-up issue (when the pension is means-tested some individuals can be reluctant to claim it) and finally, given that it is subject to a means-test, some elderly people prefer to keep their assets even if these assets do not generate much income (Pestieau 2006).

Data Used in this Study

This study uses microdata from the Socio-Economic Database for Latin America and the Caribbean (SEDLAC) which is based on household surveys conducted across 25 Latin American countries[7]. All household surveys are nationally representative with the exception of Argentina, where surveys cover the urban population only.[8] SEDLAC harmonizes survey data across countries and produces for each country comparable measures of individual and household income, demographic characteristics, education, employment, housing, infrastructure, and durable goods and services.[9]

Individual income in SEDLAC is the sum of income from all sources received by an individual. Where possible, labor income (defined as income from the individual's main occupation) is distinguished from non-labor income, which is divided into three categories: (i) pensions, (ii) capital and benefits and (iii) transfers. Household income is the sum of the total individual income across all household members.[10]

Although consumption is generally the preferred measure of well-being, this study follows other literature focused on the region and uses income instead as this is the only measure of well-being available in most Latin American household surveys. Very

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[7] SEDLAC countries include Argentina, Bahamas, Belize, Bolivia, Brazil, Colombia, Costa Rica, Chile, Dominica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay and Venezuela RB.

[8] This is of limited concern for this study given that the urban population in Argentina represents more than 85% of the total population in the country.

[9] For a complete description of survey instruments underlying the harmonized SEDLAC data and related methodological issues, see http://www.depeco.econo.unlp.edu.ar/sedlac/.

[10] An additional issue arises due to spatial variation in prices and its implications for distributional studies (Deaton, 1997; Ravallion and Chen, 1997). This variation poses a challenge for SEDLAC data (and for the household surveys it is based on) since most LAC countries do not routinely collect information on local prices as part of household surveys, making it difficult to perform price adjustments. In order to correct for this, rural incomes in SEDLAC are increased by a factor of 15% to capture differences in rural-urban prices. This value is an average based on available studies of prices in the region and is certainly arbitrary, but arguably represents an improvement on unadjusted prices.

few countries in the region conduct national household surveys with consumption/expenditure-based questionnaires, and where they exist, they are conducted infrequently. It is expected that SEDLAC will incorporate consumption data in the future as LAC countries start collecting information on household spending more frequently.

SEDLAC's US$ 2-a-day poverty line in local currency units for each country is computed using the 2005 international poverty line adjusted by PPP and the national price index of the country for the month in which the respective country survey was conducted.

Old Age Poverty Rates under Current Policies

Figure 1a presents the poverty ratio for the persons older than 60 and for the whole population in Latin America. The poverty ratio is based on a poverty line equal to half the median income of the household. Figure 1b present the poverty ratio using a different definition of the poverty line, namely a poverty line equal to $2.5 a day. The equivalence scale we use is the OECD scale that is equal to 0.5 + 0.5 x number of adults + 0.3 x number of children (up to age 16).[11]

With the poverty rate calculated with the OECD scale and a poverty line equal to half the median income, Brazil, Chili, Uruguay, Argentina (and to a lesser extent Nicaragua) have low poverty rates comparable to most OECD countries (below 11%).[12] These four

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[11] Poverty rates for the population aged 65+ (instead of 60+) and for per capita income (instead of equivalized income) are presented in the Appendix.

[12] These figures for Latin America can be compared with the figures for Africa where the percentage of households with elderly living alone is small. Elderly with children are also a small percentage (about 1% in Uganda, Burundi, Ghana, Guinea, Kenya, Malawi). However, households headed by the elderly are more frequent, ranging between 12 to 27 percent. The incidence of poverty among elderly persons is generally higher than on average, and higher than among the non-elderly in 11 of the 15 countries for

countries are often associated as having the same "mature" treatment of old age. It is worth noting that they do not all belong to the richest Latin American countries as one can see on Table A1. Mexico and Venezuela are richer than Brazil and Argentina. For the other 14 countries the poverty rates are quite higher and in most cases higher than for the rest of the population. With the US$2.5 a day poverty threshold the poverty rates in ABCU become negligible (<3%), still lower in old age than in the whole population. In Nicaragua as well the poverty rate of the elderly is lower than that of the rest of the population, but both are high..

We draw three main conclusions from the comparison of old age poverty rates in these Latin American countries. First, poverty rates are consistently lower for the elderly than for the whole population in Argentina, Uruguay, Brazil and Chile.[13] Second, in the other countries, the situation is heterogeneous and depends on the poverty line chosen. Using half the median income, Bolivia, Colombia, Costa Rica, Honduras and Mexico have comparable overall levels of poverty in old age and the elderly are poorer than the rest of the population. Finally, the difference between old age and overall poverty rates is not very high for all countries with limited pension systems.

When household per capita income (or expenditure) is used as the main welfare indicator, the assumption made about the way in which resources are shared in the family to which an elderly belongs affects the quality of the estimates, as pointed out by Deaton and Paxson (1998). The assumptions made by statistical agencies can by themselves bias

which data are available. The exceptions are Burundi, Madagascar, Mozambique and Uganda (Kakwani and Subbarao 2005).

[13] Interestingly, this is not the case in Costa Rica which has a non-contributory pension scheme but with the least generous average benefit of the 5 Latin countries with social assistance pensions (Bertranou, Solorio and van Ginneken 2004).

estimates against old age poverty. As an example Deaton (1997, p. 243) cites that the "fact" that there is less poverty among the elderly in the United States depends on the assumption in the official counts that the elderly need less than adults younger than 60.

Two major issues complicate the problem of obtaining poverty rates for old age. First, the elderly may often be living in households that are not that poor even though they themselves are not receiving any pension so that the often used implicit assumption of fair sharing might be invalid.[14] Second, the measurement of poverty in old age needs to be sensitive to the potential impact of economies of scale in household consumption on the perceived well-being of the aged. Typically households with many children are deemed to be among the poorest if one does not adjust for economies of scale. Then pensioner households or households headed by widows, etc are not very highly represented among the poor.[15] To illustrate the importance of equivalence scales,

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[14] Traditionally equal sharing is assumed, with possibly a downward adjustment for children. Yet there is ample evidence to suggest that this is not the case. In the real world, we observe a wide range of situations ranging from the idyllic image of a family all devoted to the care of its elderly members to the more depressing representation of elderly being kept in the closet. The later situation has recently received a lot of attention in India where widows who represent a large fraction of the elderly (55% of women aged 60 and above are widowed—see Jensen 2003) and often do not receive an equal share within the household (Dreze and Srinavasan 1997). There is also the case of the Tanzanian "witches" studied by Miguel (2003) who shows how harshly unproductive members of a family can be treated by the others.

[15] Economies of scale resulting from living together and sharing goods such as housing, means of transportation, etc vary across countries, years and income levels. The extent of scale economies depend on the allocation between private and public goods in the household's consumption basket, an allocation which is endogenous depending on prices and income. Household size, age and gender of household members may also influence the amount of resources needed to attain a certain level of well-being. The consumption needs of children are usually thought as being quite lower than that of adults. To go from household's resources to individual well-being, the concept of equivalent household scale is used. For example, the OECD currently uses an equivalence scale equal to 0.5 + 0.5 * (number of adults) + 0.3 * (number of children). A household consisting of two adults and three children would need to spend 2.4 times as much as a single adult to be equally as well off as a single adult. By contrast, in the absence of economies of scale and with the same needs for both children and adults, this family would need 5 time as much as a single adult to reach the same welfare. An alternative equivalence scale formula is simply to take the square root of the family size (which, in our example, would give an equivalent size of 2.2, i.e., close to that of the OECD). Lanjouw, Milanovic and Paternostro (1998) examine the incidence of scale economies on the poverty rate of the elderly in selected transition economies. They show that, without scale economies, poverty in old age is relatively low but that it increases with scale economies and rapidly become more important than in younger age groups.

consider a society in which the elderly on average belong to family units of size 2 whereas the size of households without elderly is 5. Their aggregate income is respectively 5 and 10. Without scale economies, the elderly income is 2.5 and that of individuals living in households without elderly is 2. Using a standard equivalence scale (i.e., the square root of family size), these figures become 3.5 and 4.4. In other words, thanks to the economies of scale, the welfare of the non-elderly families can be higher than that of families with elderly.

In that respect it is interesting to analyze the structure of our elderly households. As it appears in Table A2 in the appendix, Argentina is the country where there are the largest fraction (0.46) of elderly households in which elderly individuals live on their own. In most OECD countries this fraction is even higher. At the other extreme we have Nicaragua with only 10% of elderly households consisting of only elderly individuals. In many countries children (16-) live in elderly households. In Figure 2 we distinguish elderly households with and without non-elderly for poverty based on half the median income (These two subsets are denoted EHH2 and EHH1 respectively). It appears that poverty is relatively higher in the first group in Argentina, Brazil, Uruguay and in El Salvador. In all the other countries, poverty is higher in households made of only elderly individuals.

In a number of cases the differences are huge showing the (assumed) role of family solidarity and the importance of the selected equivalence scale. To explore this point, as a thought experiment, we posit that all the elderly individuals would live on their own. More precisely, we assume that the elderly living with younger family members would split and live separately on their own resources. The outcome of such a

split is given in Figure 3. Here again we see that Argentina, Brazil and Uruguay behave differently from the rest. In these countries poverty is lower for elderly living on their own than for younger individuals.

In this exercise we have used the pivotal age of 60 to define old age. What constitutes "old age" needs to be defined in relationship to longevity. Mortality has been rapidly declining over the last 50 years but there are great variations across countries and over time. All things being equal, average income and poverty levels for individuals above 60 are clearly different if life expectancy is 78, as in developed countries, or 46 as in African countries. If the same cut-off age is chosen for all countries (say 60 or 65), there is a serious selection bias in the group of people above 60 in countries where longevity is 46. However the comparison between rich and poor countries may be seriously flawed because the main reason why life expectancy at birth is low in poor countries is child mortality.

Another difficulty comes from the relation between the pivotal age and the retirement age (i.e., the mandatory age at which workers have to stop working and/or the age at which retirees start benefiting from a pension). The rate of labor participation, formal or informal, above 60 varies significantly across countries and this depends in larger part on existing social security schemes. This is the reason why the appendix reports results for the alternative cut-off age of 65. Table A3 compares the poverty rates for elderly 60+ versus elderly 65+. In most countries poverty is slightly higher with 65+ except in Argentina, Brazil, Chile, Uruguay, Bolivia, Ecuador and Panama.

Table 2. Poverty Headcount Ratios—with & without current pension transfers

Country	All HH's	All HH's, in absence of current transfers	Elderly individuals	Elderly individuals in absence of current transfers
Argentina	0.21	0.33	0.13	0.55
Bolivia	0.23	0.31	0.29	0.52
Brazil	0.22	0.33	0.06	0.52
Chile	0.16	0.23	0.15	0.39
Colombia	0.24	0.29	0.31	0.47
Costa Rica	0.18	0.22	0.32	0.48
Domin Rep	0.18	0.27	0.22	0.41
Ecuador	0.19	0.25	0.25	0.39
El Salvador	0.17	0.29	0.17	0.43
Guatemala	0.22	0.3	0.24	0.35
Honduras	0.28	0.39	0.31	0.52
Mexico	0.19	0.24	0.28	0.43
Nicaragua	0.2	0.25	0.17	0.29
Panama	0.23	0.34	0.23	0.51
Paraguay	0.23	0.3	0.23	0.41
Peru	0.21	0.24	0.23	0.3
Uruguay	0.17	0.33	0.08	0.51
Venezuela	0.18	0.24	0.21	0.38

Source: Authors' calculations using data from the Socio-Economic Database for Latin America and the Caribbean (CEDLAS and World Bank)
OECD adjusted HH sizes are used to calculate the poverty headcount ratios. The poverty line is ½ of the national median per capita income in the surveys.

Poverty Rates without Transfers

Table 2 compares poverty rates (headcount ratios based on a ½ median income poverty line) in those 18 Latin American countries for the elderly. The first columns show the poverty rates under the actual situation and the second set of columns the poverty rates without transfers. Computations are shown for both the elderly and the whole population.

The incidence of social transfers appears clearly particularly when the post transfer poverty rate is low: Argentina's poverty rate falls from around 55 to 13 percent.

Brazil's rate falls from 52 to 6 percent and Uruguay's rate from 51 to 8 percent. In general, however, the reduction in poverty rates is less important than in OECD countries for an obvious reason: with rare exceptions there are no pension systems in Latin American particularly aimed at reducing poverty among poor old people.

Simulating the Impact of Minimum Pensions

We now present the results of a micro-simulation exercise which consists in introducing a minimum pension in 18 Latin American countries. We follow Atkinson *et al*. (2002) and we are concerned with two questions: how much minimum pension schemes would cost and how much poverty would they would permit eradicating. The answer to both questions clearly depends on the particular design of the minimum pension scheme. We present two possible schemes given a target minimum income of z. Let y denote the non public pension income of elderly and p their current public pensions plus social transfers. In other words private pensions, if any, are part of y. Furthermore, we take z as equal to the poverty line.

1) *Unconditional topping-up:* Elderly transfer guaranteeing poverty line income to all individuals aged x or more:

$$T = \text{Max } (0. \ z\text{-}p) \qquad \text{if Age} > x.$$

2) *Conditional topping-up:* Elderly means-tested transfer guaranteeing poverty line income

$$T = \text{Max } (0. \ z\text{-}p\text{-}y) \qquad \text{if Age} > x.$$

The first scheme thus implies a uniform minimum pension and the second a variable one, which depends on households' resources.

We briefly discuss the importance of the key parameters of these schemes.

Age. For contributory pensions, the eligibility age is part of the financial constraint conceived individually or collectively. But in the case of non-contributory pensions there is some arbitrariness in determining at what age a person with no resource and no employment history is entitled to a transfer. The eligibility age should be determined by the capacity of the pensioner to work or not. It should thus be a function of her/his health and longevity. Given the level of benefits, the length of the entitlement—i.e., the difference between life expectancy and the age chosen—is what matters for the revenue constraint. Traditionally the retirement age tends to be lower for women than for men even though lately one witnesses harmonization (always towards the higher age) driven by gender equality and budget constraint considerations. We report simulation results for two old age definitions: 60 and older (in the text) and 65 and older (in the appendix).

Means Test. Since the objective is to reduce poverty in old age, the only meaningful choice is between an unconditional minimum pension and a conditional (i.e., means-tested) pension. A minimum pension guarantee which covers only workers with some minimal career would exclude too many people. An unconditional pension has a number of advantages: it is administratively simpler; it implies less disincentives to work and save; and it carries less stigma. It is however costlier though there is the possibility of taxing those who do not really need it but this then creates some undesirable administrative costs: testing means or taxing those who do not need the pension are procedures that are formally similar. Therefore, a priori, an unconditional pension would cost more than a conditional one but would be more attractive. The choice boils down to questions of financial feasibility and, above all, political support. If there are strong revenue constraints, it might be desirable to introduce other types of conditionality. For

example, in Mexico, the uniform pension is offered in the Federal District to those known to be the poorest. In Brazil, the uniform pension (which is means tested) was initially restricted to rural areas.

Level of Benefits. It is reasonable to set the level of benefits as a function of an indicator of poverty such as the minimum wage or the poverty line. The benefit could be in cash or in nature. When there is a risk that the pension would not reach the elderly and when the pension is likely to be very small, it might be preferable to provide benefits such as food or health stamps than cash. In the microsimulations we take the poverty threshold as a benefit target.

Fiscal Cost. To approximate the cost of providing a minimum rate pension. we use the revenue constraint

$$tEY = ET$$

where t is the contribution rate;   Y is the individual income; and T is the level of minimum pension. We use the operator E as a short for the sum over all the individuals concerned. The feasibility of our minimum pension scheme will clearly depend on the level of t, that is the fraction of mean income that is needed to finance it..

Incentive Effects of Minimum Pensions

Minimum pensions are expected to have disincentive effects on individual decisions and on the economic and social behavior of households—in particular, how pensions are shared within the family unit and their incidence on the labor supply of the members of the family—and policy design needs to take these into account.. In our microsimulations,

these incentive effects are <u>not</u> taken into account,[16] but we discuss here the various behavioral reactions one can expect from minimum pensions schemes.

Retirement Decision. In developed countries. low rates of activity among elderly workers and low effective age of retirement threaten the financial viability of social security systems by generating, in conjunction with increasing longevity, high dependency ratios (Dethier 2009; Gruber and Wise 1999). The availability of a minimum pension at an early age is a factor explaining early retirement. For developing countries, a low rate of labor participation in old age is less of an issue. The problem can be avoided by choosing an entitlement age that is not too low. Comparing means-tested and unconditional minimum pension schemes, the former one will induce retirement earlier than the latter to the extent that it includes an earnings test.

Prodigality Effect. In the presence of a minimum pension. some individuals who would otherwise have saved for retirement could be tempted to reach retirement without any resources trusting that they are entitled to some minimal protection. These individuals, labeled "rational prodigals" in the economic literature, have to be induced to save by making the minimum pension less attractive. However, by doing so in a world of asymmetric information, one penalizes people who really depend on the minimum pension because they are unable to accumulate enough resources for retirement. The prodigality argument was introduced by Hayek (1960, p. 286) who advocated an old age pension whose raison d'être "is not that people should be coerced to do what is in their individual interest but that by neglecting to make provisions, they would become a charge

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[16] To do so we would require behavioral microsimulations which are outside the scope of this paper.

to the public. Up to this point the justification for the whole apparatus of 'social security' can probably be accepted by the most consistent defenders of liberty." [17]

Mobility. The incidence of a minimum pension when workers are mobile is ambiguous. From the tax competition literature, we know that it will attract low income retirees from less generous neighboring countries. This will have the effect of pushing down these pensions and of resulting in what is often called a "race to the bottom." At the same time the insurance of obtaining a minimum pension regardless of one's career can induce mobility within a country.

Longevity. Dependency ratios are lower in developing countries because longevity is lower—which limits the fiscal cost of a minimum pension—but the trend in developing countries is toward an increase in dependency ratios as a result of increased longevity and declining fertility (Wolfensohn and Bourguignon 2004, p.26). The cost of minimum pension programs will thus increase. At the same time minimum pensions would, by themselves, induce an increase in longevity since they would provide the elderly with better food and health care. Even in societies where minimum pensions and other transfers are "confiscated" by other members of the extended family, there are incentives to keep the beneficiaries alive and well as long as possible.

Weakening Family Ties. In developing countries, elderly people often live in an extended family and, in the absence of pensions, rely on younger generations to provide them food and care. These types of arrangements have been studied by sociologists, anthropologists and more recently by economists (Barrientos, Gorman and Heslop 2003).   The

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[17] Along the same lines, it is worth pointing out that a minimum pension can affect financial risk taking. In countries with individualized accounts and retirement funds invested in the stock market, middle and low income workers may have a strong incentive to choose a portfolio with high risk and high return profiles as they can always be bailed out .

mechanisms underlying these family arrangements range from pure altruism to cooperative or strategic exchange, to social pressure. One hypothesis—known as the old age security hypothesis—linking social security with fertility and family solidarity goes as follows: in the absence of social security. parents depend on their children to give them care and attention in their old age and, thus, tend to have many children. As societies develop, social security institutions appear, and children are much less needed as sources of support in old age: fertility falls and family links distend (Bourguignon 2005).

Since we are interested to find out what impact a minimum pension would have on poverty in old age, the relevant question is how the additional resource represented by this transfer would be used by the elderly living in an extended household. The key issue is whether or not they will benefit, at least in part, from their pension. Some family structures in Africa and in Asia care for the elderly but restrict their needs to the minimum (see for instance Drèze and Srinavasan 1997 and Miguel 2003). In such situations. a minimum pension would *de facto* be confiscated away from the elderly and miss its intended objective.

Spillover Effects. In general one expects a more equitable allocation of resources within the extended family to result from transfers of this type with positive welfare consequences arising from minimum pensions. The case of South Africa is interesting in this regard. Women turning 60 and men turning 65 become eligible for a pension roughly equal to twice the per capita income of Black Africans in South Africa. The cash transfer had a double effect. First. it resulted in a drop in labor supply of prime-age individuals living with these elderly, particularly when the pensioner is a woman (Bertrand, Mullainathan and Miller 2003). Second it resulted in improved health of the

granddaughters when the grandmother is the beneficiary (Duflo 2003). These results show the type of 'arbitrage' that can be observed in an extended family. The role played by women is also striking. These minimum pensions have positive spillovers for other members of the extended family. Carvalho Filho (2008) has studied the effect on labor outcomes and school enrollment of children residing with the beneficiaries of the pensions awarded to rural workers in Brazil. These old age benefits foster school enrollment and decrease child labor participation, and the intensity of these effects depends on the gender of the beneficiaries and of the children concerned.

Simulation Results for 18 Latin American Countries

We now turn to the results of our "mechanical" (as opposed to behavioral) microsimulations using household survey data for 18 Latin America countries for the latest available year. The surveys give us the disposable income (resources) and the family structure for aged people. We use two alternatives definitions of old age: 60 and 65 (Results for the latter are reported in the appendix). The disposable income is the sum of all the resources available in the family unit to which the elderly person(s) belong(s) divided by the equivalence scale. The simulation consists in introducing a minimum pension equal to the poverty rate. This pension is given to all elderly provided they do not receive any other transfers from the government. If they do, the new pension is adjusted accordingly. We consider two scheme depending on whether or not the minimum pension is means tested, the means being the resources of the elderly concerned.

We use two specifications for the minimum pension US$2.5 a day or 50% of the median income. We are interested in measuring the impact on the poverty rate and the

fiscal cost of this minimum pension. Since the minimum pension is aimed at reaching the poverty line, if all elderly lived by themselves, poverty in old age would disappear. Poverty would thus only remain because a majority of elderly live with younger family members with whom they share all the available resources. Consequently, results will depend on the equivalence scale and on the structure of the family where the elderly people live.

The results are presented in figures 5 and 6 for the two levels of poverty. These figures show the decrease in poverty rates due to the two types of schemes. Not surprisingly the decline in poverty is higher when there is no means test. In that case, some elderly end up with an income higher than the poverty line and this can be shared among all the members of the households. Let us repeat that if all elderly were living on their own, poverty would disappear under the two schemes,

Cost of the Minimum Pension Schemes

It might be useful to relate the cost of our minimum pension scheme to the concept of poverty gap, that is the amount relative to the poverty line that has to be transferred to the poor families to bring their incomes up to the poverty threshold. In other words the poverty gap give the relative amount of resources that one needs to eradicate poverty. If we measure the poverty gap for the population of elderly and if we assume that all the elderly live alone, the poverty gap and the cost of a minimum pension with means testing would coincide.[18]

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[18] Table A3 in the Appendix presents the poverty gap index for the whole population and for the population of elderly. The poverty gap index is the ratio of the difference between the poverty level and the actual non pension income of the poor over the poverty line. The relative cost of the means test scheme is the ratio of the difference between the poverty line and the actual non pension income over the average income.

Figures 5a and b show the cost of the minimum pension expressed as a fraction of personal income.[19] The cost is high when the poverty line (and thus the minimum pension) is based on 50% of median income—which is the minimum pension scheme that is the most efficient at lowering poverty. The highest cost is for Ecuador and Mexico. It is naturally higher when there is no means test. The cost depends on the share of old persons in the total population; on the average income of old households relative to the median; and on the presence or not of transfers (the minimum pension policy will be more expensive if there are no transfers to start with).

Tables 3a and b summarize some of the key results. With half the median income the relative reduction ranges from 17% in Colombia to 75% in Costa Rica. The absolute reduction ranges from 2% in Brazil to 24% in Costa Rica. As to the relative cost, it ranges from 0.1% to 2.9% in Colombia. Colombia is a particular case. The minimum pension there costs a lot and yet it has a very small effect, both relative (0.168) and absolute (0.05). This puzzling result is due to the family structure: remember that if all elderly lived by themselves, old age poverty would be eradicated under this scheme. Poverty remains because the minimum pension is diluted among non-elderly household members.

Under the $2.5-a-day scheme, the absolute reduction in poverty ranges from a negligible amount in Chile and Uruguay to 11% in Colombia. The relative reduction ranges from 16% in Nicaragua to 80% in Argentina. Not surprisingly the cost is lower. It is negligible in Brazil and Chile and reaches a maximum of 1.5% in Colombia.

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[19] To express it as a GDP share, the figures would need to be multiplied by a factor of 0.5 to 0.7.

Final Comments

Poverty in old age is still prevalent in a large number of Latin American countries. Universal minimum pensions would be an effective and administratively simple way to substantially reduce poverty among the elder generation. The cost of such a scheme is far from negligible but it is reasonable. Both the effect and the cost of such a scheme drastically vary with the type of poverty threshold chosen. Relative to half the median income a US$2.5-a-day pension costs less. This is particularly true in richer countries since the half the median income approach is relative and a $2.5 a day pension seems negligible in those countries.

The affordability of minimum pension schemes depends on the poverty threshold that is chosen ($2.5 a day or half the median income) and on the country's average income level. As a rule of thumb, we would say that countries with national income above the Latin American average could and should opt for a minimum pension equal to half the median income. For other countries, a $2.5 a day pension appears reasonable. It is interesting to consider the countries that are relatively richer than the other: Argentina, Brazil, Chile, Uruguay, Mexico and Venezuela. It is clear that a minimum pension equal to half the median income seems to be more desirable in the latter two countries where poverty is higher and its reduction substantial (12% in both countries) under this definition of the poverty threshold. If we turn to the poorest countries—Bolivia, Honduras, Nicaragua and Paraguay—a $2.5 minimum pension will have noticeable effects and a cost ranging from 1.1% to 0.3%, which seems affordable. It is worth noticing that Bolivia (in which a quasi universal pension scheme exists) continues to have quite a high poverty rate among elderly. This naturally comes from the fact that the

existing scheme provides benefits that are quite below the poverty line based on $2.5 a day.

How politically sustainable are such schemes? Even if such pension scheme is adopted there is always the risk to see it progressively eroded because of lack of political will. Elderly people particularly in developing countries do not have much political weight. Relative to OECD countries, their demographic importance is small. To the extent that the majority of elderly live with their children, they cannot express their concerns truly independently. For these reasons it is important to give the minimum pension scheme a constitutional status within a framework that takes into account socioeconomic parameters that change over time. For example, the age at which the pension is made available could vary with longevity, which generally improves over time as mortality rates decline in developing economies. Benefits should not be absolute but be linked to national income growth. As national income grows, a US$2.5-a-day pension quickly loses its attractiveness.

Table 3a. Summary Results: Poverty reduction among the elderly with means-tested minimum pensions

Poverty line = ½ of the national median per capita income

Country	Current poverty headcount ratio	Absolute reduction in poverty headcount ratio	Relative reduction in poverty headcount ratio	Relative cost of program, elderly >=60 years	Relative cost of program, elderly >=65 years
Argentina	0.13	0.09	0.685	0.019	0.012
Bolivia	0.29	0.17	0.597	0.012	0.007
Brazil	0.06	0.01	0.198	0.001	0
Chile	0.15	0.05	0.369	0.006	0.005
Colombia	0.31	0.15	0.48	0.029	0.02
Costa Rica	0.32	0.24	0.738	0.021	0.016
Domin Rep	0.22	0.13	0.621	0.019	0.014
Ecuador	0.25	0.1	0.402	0.009	0.007
El Salvador	0.17	0.11	0.656	0.024	0.018
Guatemala	0.24	0.08	0.347	0.007	0.005
Honduras	0.31	0.16	0.508	0.017	0.013
Mexico	0.28	0.12	0.405	0.009	0.007
Nicaragua	0.17	0.02	0.133	0.005	0.003
Panama	0.23	0.15	0.643	0.018	0.013
Paraguay	0.23	0.14	0.591	0.019	0.014
Peru	0.23	0.15	0.633	0.022	0.016
Uruguay	0.08	0.05	0.709	0.017	0.011
Venezuela	0.21	0.12	0.581	0.023	0.016

Source: Authors' calculations using data from the Socio-Economic Database for Latin America and the Caribbean (CEDLAS and The World Bank)

OECD adjusted HH sizes are used in calculating the poverty headcount ratios.

Table 3b. Summary Results: Poverty reduction among the elderly with means-tested minimum pensions
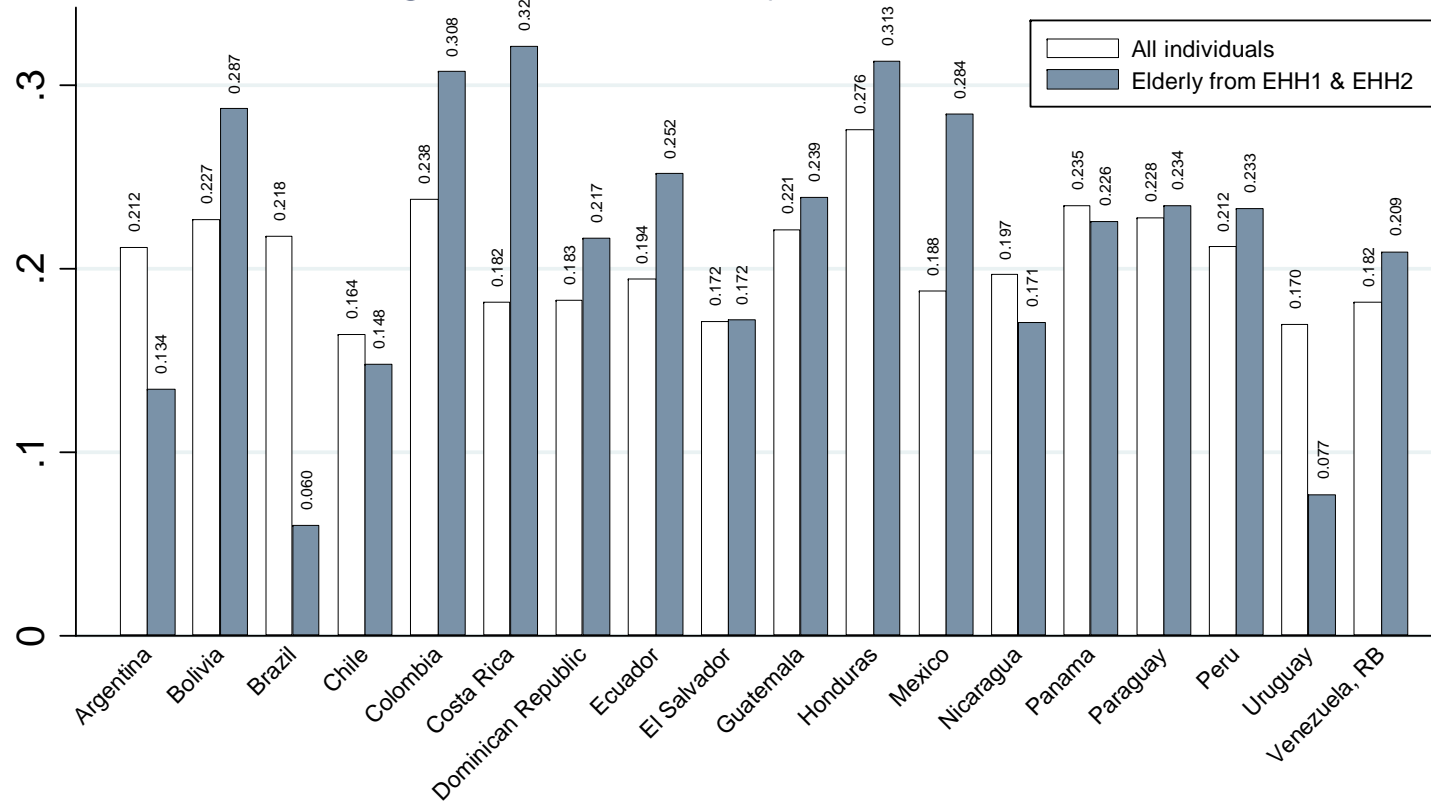
Poverty line = $2.5 a day

Country	Current poverty headcount ratio	Absolute reduction in poverty headcount ratio	Relative reduction in poverty headcount ratio	Relative cost of program, elderly >=60 years	Relative cost of program, elderly >=65 years
Argentina	0.03	0.02	0.796	0.006	0.004
Bolivia	0.17	0.09	0.523	0.006	0.003
Brazil	0.01	0.01	0.526	0	0
Chile	0	0	0.348	0	0
Colombia	0.22	0.11	0.504	0.015	0.011
Costa Rica	0.07	0.05	0.72	0.004	0.003
Domin Rep	0.02	0.01	0.514	0.005	0.004
Ecuador	0.13	0.06	0.423	0.003	0.003
El Salvador	0.1	0.07	0.658	0.017	0.013
Guatemala	0.08	0.03	0.365	0.002	0.002
Honduras	0.21	0.11	0.5	0.011	0.008
Mexico	0.15	0.08	0.536	0.003	0.003
Nicaragua	0.12	0.02	0.16	0.003	0.002
Panama	0.06	0.05	0.722	0.005	0.003
Paraguay	0.1	0.07	0.661	0.01	0.008
Peru	0.12	0.08	0.648	0.011	0.008
Uruguay	0	0	0.679	0.003	0.002
Venezuela	0.1	0.05	0.51	0.011	0.008

Source: Authors' calculations using data from the Socio-Economic Database for Latin America and the Caribbean (CEDLAS and World Bank)

OECD adjusted HH sizes are used in calculating the poverty headcount OECD adjusted HH sizes are used in calculating the poverty headcount ratios.

Figure 1a. Poverty headcount ratio

Legend:
- All individuals
- Elderly from EHH1 & EHH2

Argentina: 0.212 / 0.134
Bolivia: 0.227 / 0.287
Brazil: 0.218 / 0.060
Chile: 0.164 / 0.148
Colombia: 0.238 / 0.308
Costa Rica: 0.182 / 0.322
Dominican Republic: 0.183 / 0.217
Ecuador: 0.194 / 0.252
El Salvador: 0.172 / 0.172
Guatemala: 0.221 / 0.239
Honduras: 0.276 / 0.313
Mexico: 0.188 / 0.284
Nicaragua: 0.197 / 0.171
Panama: 0.235 / 0.226
Paraguay: 0.228 / 0.234
Peru: 0.212 / 0.233
Uruguay: 0.170 / 0.077
Venezuela, RB: 0.182 / 0.209

Poverty line = 50% of median per capita income
Household incomes were equivalized using the OECD Equivalency Scale Adjusted household size [= 1+(# of adults-1)*0.5 + (# of children*0.3)]
An adult was a household member aged 18 years or more, & a child was a household member aged less than 18 years at the time of the survey
Elderly are household members aged 60 years or more
Households with >=1 elderly member are divided into 2 subsets: EHH1 (elderly living alone by themselves) & EHH2 (consisting of both elderly and non-elderly members)

Figure 1b. Poverty headcount ratio

Legend:
- □ All individuals
- ▩ Elderly from EHH1 & EHH2

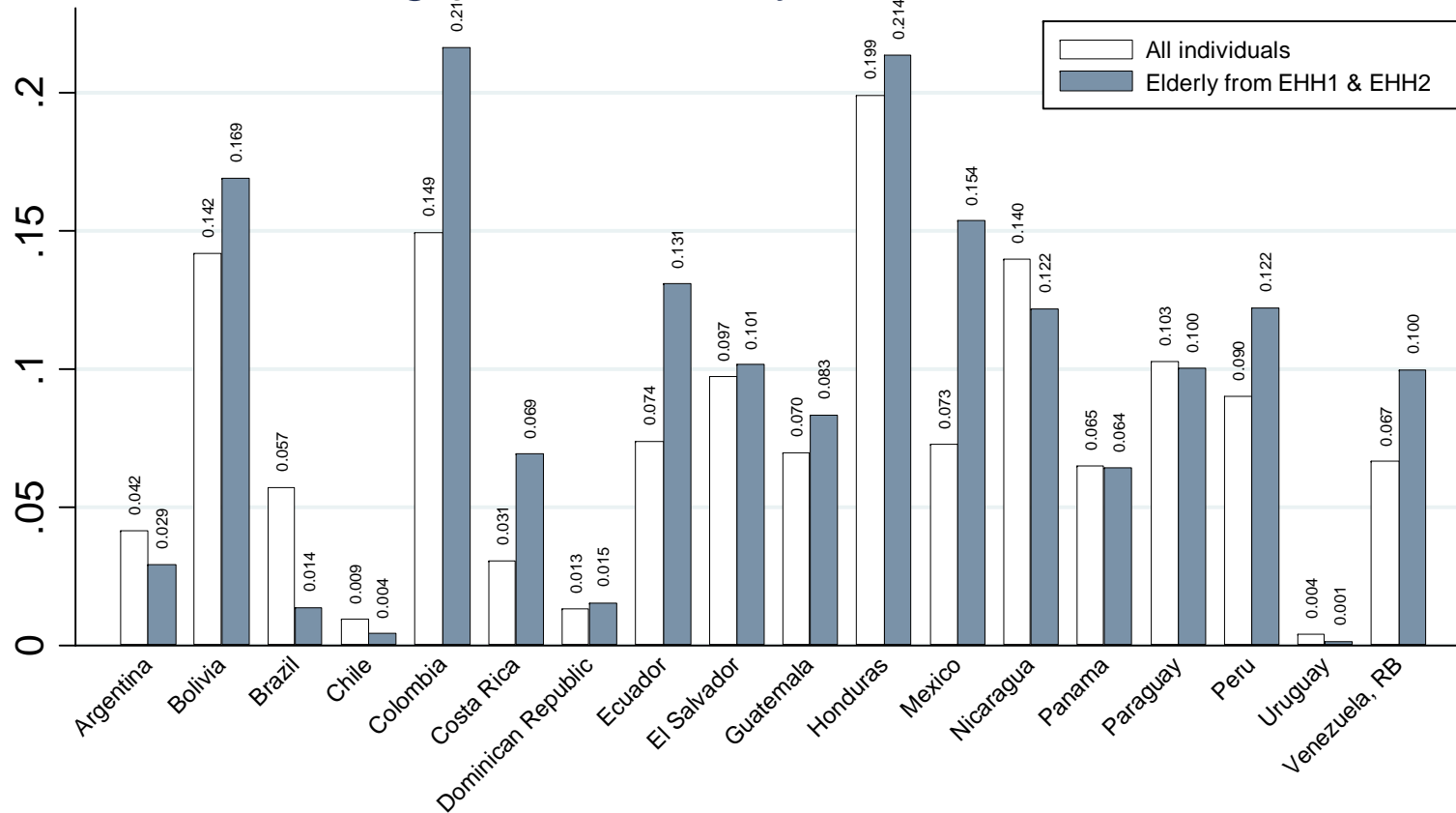| Country	All individuals	Elderly from EHH1 & EHH2
Argentina	0.042	0.029
Bolivia	0.142	0.169
Brazil	0.057	0.014
Chile	0.009	0.004
Colombia	0.149	0.216
Costa Rica	0.031	0.069
Dominican Republic	0.013	0.015
Ecuador	0.074	0.131
El Salvador	0.097	0.101
Guatemala	0.070	0.083
Honduras	0.199	0.214
Mexico	0.073	0.154
Nicaragua	0.140	0.122
Panama	0.065	0.064
Paraguay	0.103	0.100
Peru	0.090	0.122
Uruguay	0.004	0.001
Venezuela, RB	0.067	0.100

Poverty line = $2.5 a day
Household incomes were equivalized using the OECD Equivalency Scale Adjusted household size [= 1+(# of adults-1)*0.5 + (# of children*0.3)]
An adult was a household member aged 18 years or more, & a child was a household member aged less than 18 years at the time of the survey
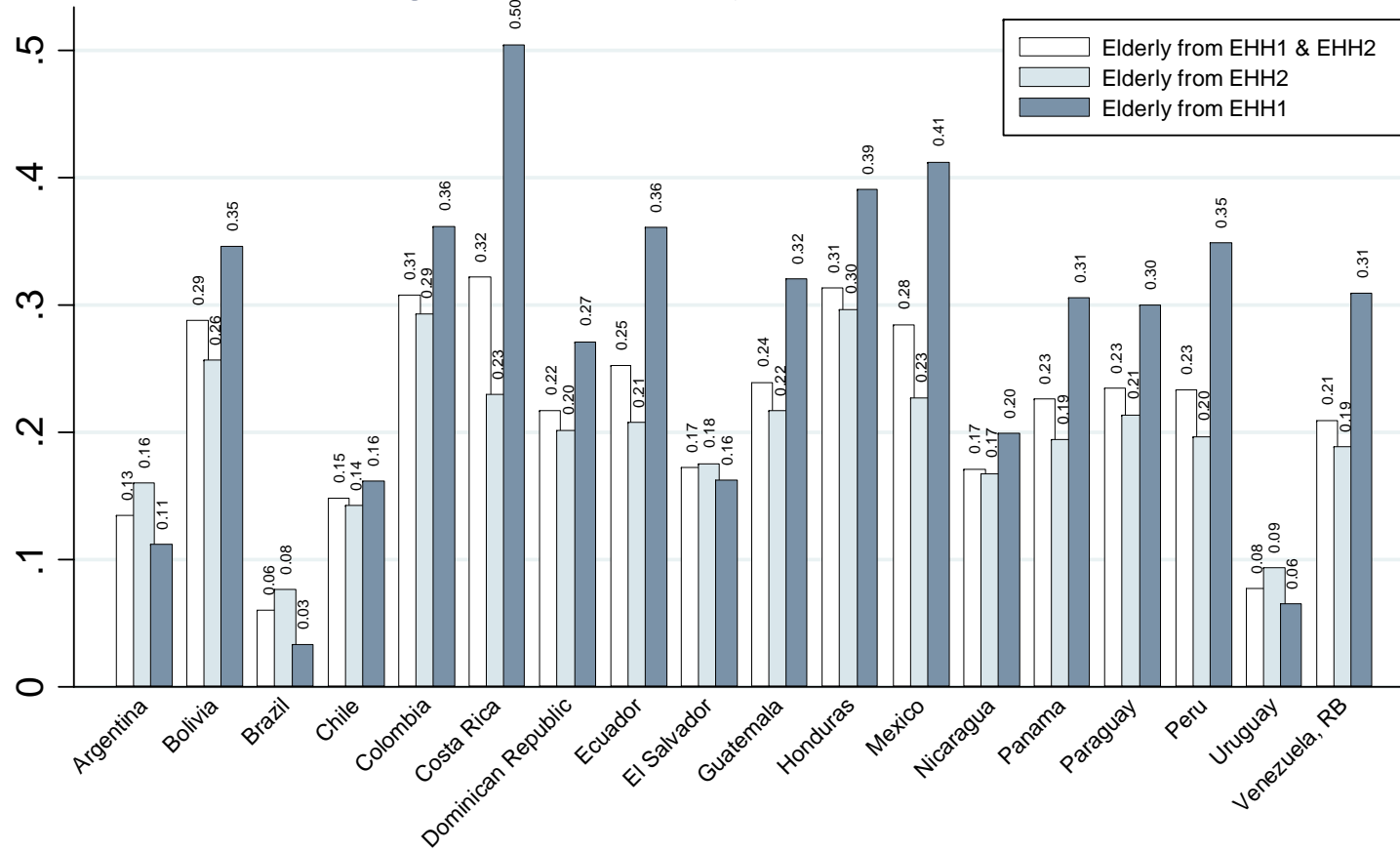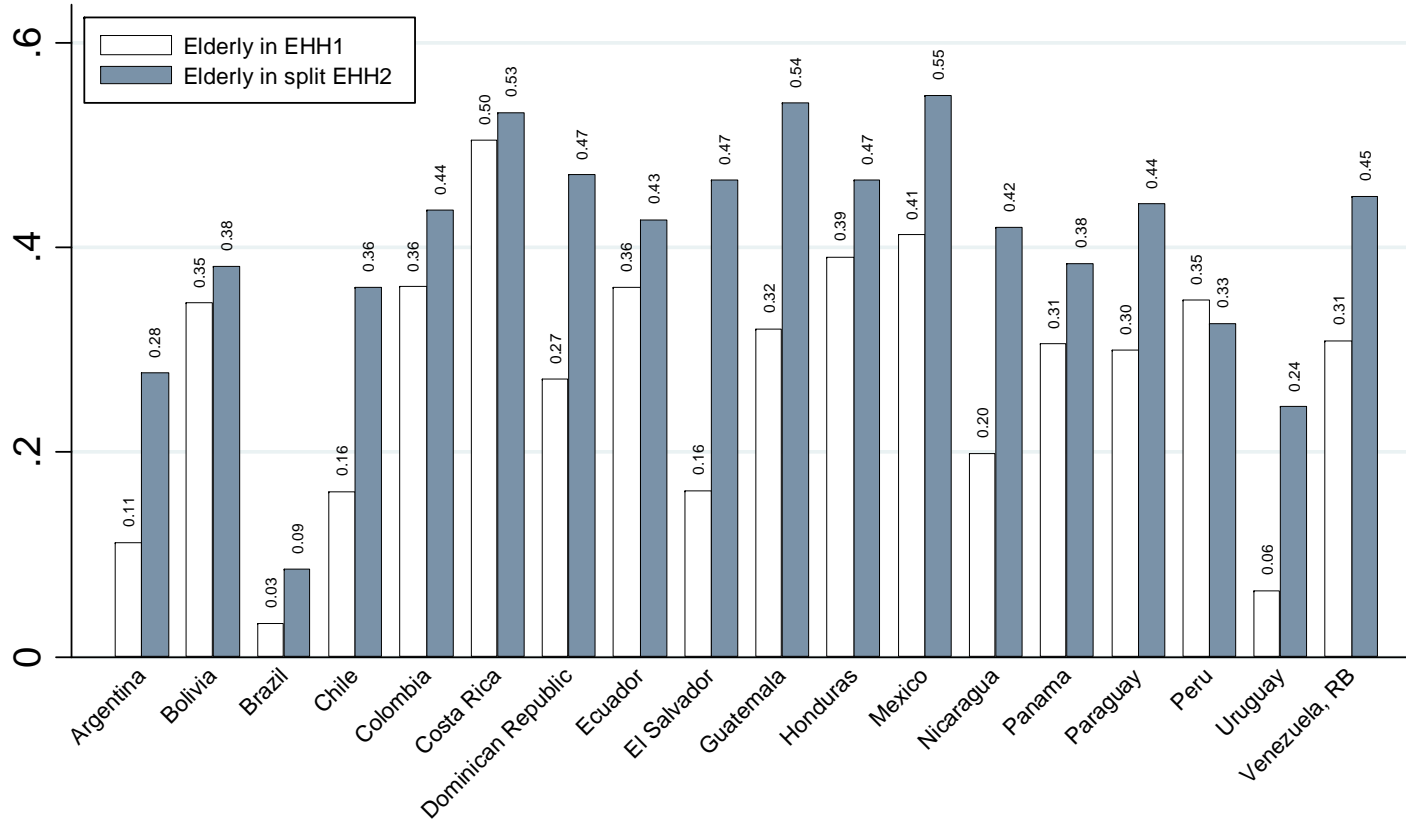Elderly are household members aged 60 years or more
Households with >=1 elderly member are divided into 2 subsets: EHH1 (elderly living alone by themselves) & EHH2 (consisting of both elderly and non-elderly members)

Figure 2. Poverty headcount ratio

Poverty line = 50% of median per capita income, OECD equivalency scale adjusted household size
Poverty headcount ratios for the population & its subgroups estimated using the same poverty line
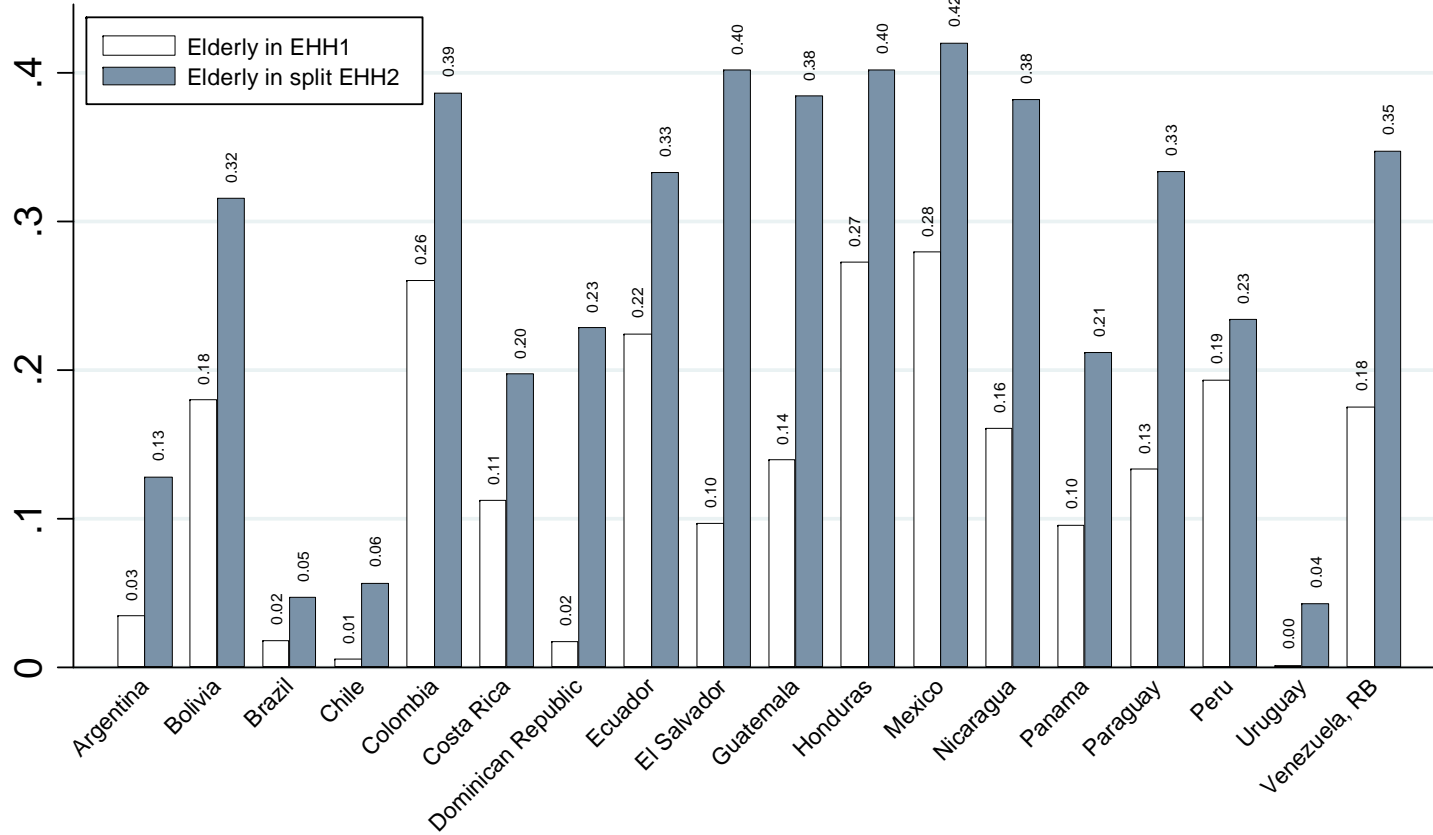Elderly are household members aged 60 years or more

Figure 3a. Poverty headcount ratio

Elderly living alone vs. elderly in artificially split households

Legend:
- Elderly in EHH1
- Elderly in split EHH2

Data by country (EHH1, EHH2):
- Argentina: 0.11, 0.28
- Bolivia: 0.35, 0.38
- Brazil: 0.03, 0.09
- Chile: 0.16, 0.36
- Colombia: 0.36, 0.44
- Costa Rica: 0.50, 0.53
- Dominican Republic: 0.27, 0.47
- Ecuador: 0.36, 0.43
- El Salvador: 0.16, 0.47
- Guatemala: 0.32, 0.54
- Honduras: 0.39, 0.47
- Mexico: 0.41, 0.55
- Nicaragua: 0.20, 0.42
- Panama: 0.31, 0.38
- Paraguay: 0.30, 0.44
- Peru: 0.35, 0.33
- Uruguay: 0.06, 0.24
- Venezuela, RB: 0.31, 0.45

Poverty line = 50% of median per capita income, OECD equivalency scale adjusted household size
The poverty line in both cases is the same as that in the original population without the artificial splits
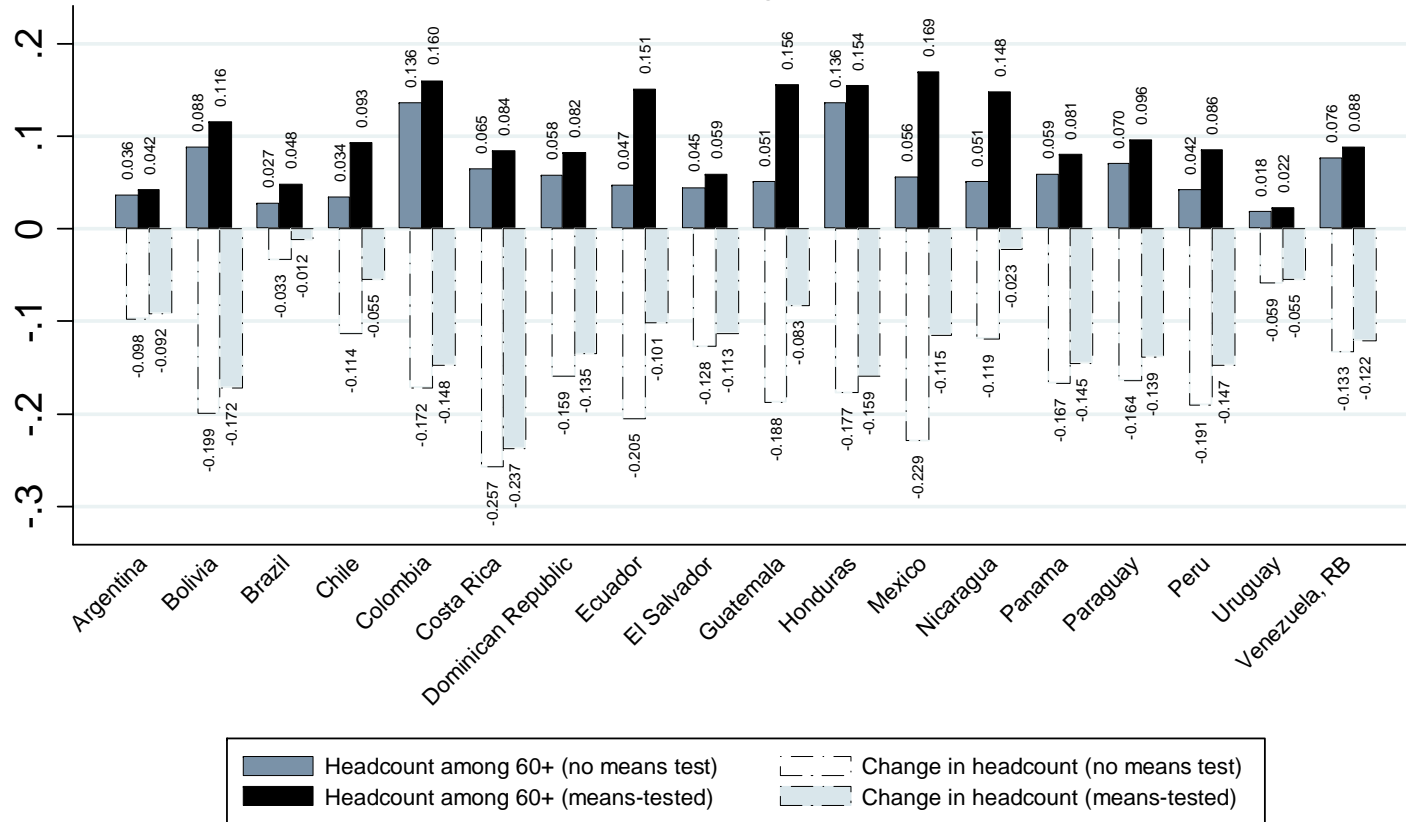
Figure 3b. Poverty headcount ratio
Elderly living alone vs. elderly in artificially split households

Legend:
- Elderly in EHH1
- Elderly in split EHH2

Argentina: 0.03, 0.13
Bolivia: 0.18, 0.32
Brazil: 0.02, 0.05
Chile: 0.01, 0.06
Colombia: 0.26, 0.39
Costa Rica: 0.11, 0.20
Dominican Republic: 0.02, 0.23
Ecuador: 0.22, 0.33
El Salvador: 0.10, 0.40
Guatemala: 0.14, 0.38
Honduras: 0.27, 0.40
Mexico: 0.28, 0.42
Nicaragua: 0.16, 0.38
Panama: 0.10, 0.21
Paraguay: 0.13, 0.33
Peru: 0.19, 0.23
Uruguay: 0.00, 0.04
Venezuela, RB: 0.18, 0.35

Poverty line = $2.5 a day, OECD equivalency scale adjusted household size
The poverty line in both cases is the same as that in the original population without the artificial splits

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Figure 4a. Poverty headcount ratio

After top-up transfer (with change in poverty headcount ratio)

Poverty line = 50% of median per capita income, OECD equivalency scale adjusted household size
The poverty profiles after top-up transfers were estimated using the pre-transfer poverty line
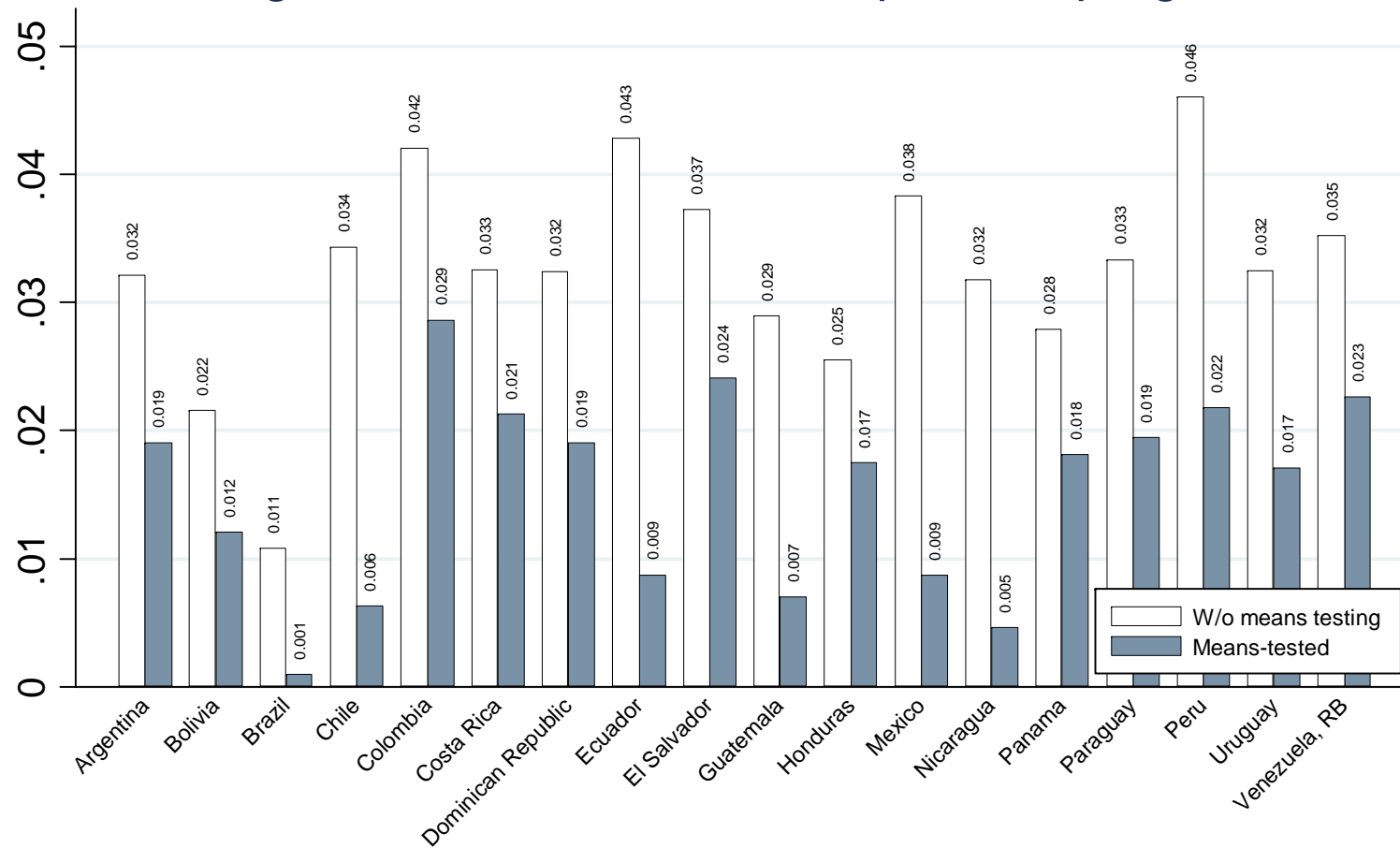
Figure 4b. Poverty headcount ratio
After top-up transfer (with change in poverty headcount ratio)
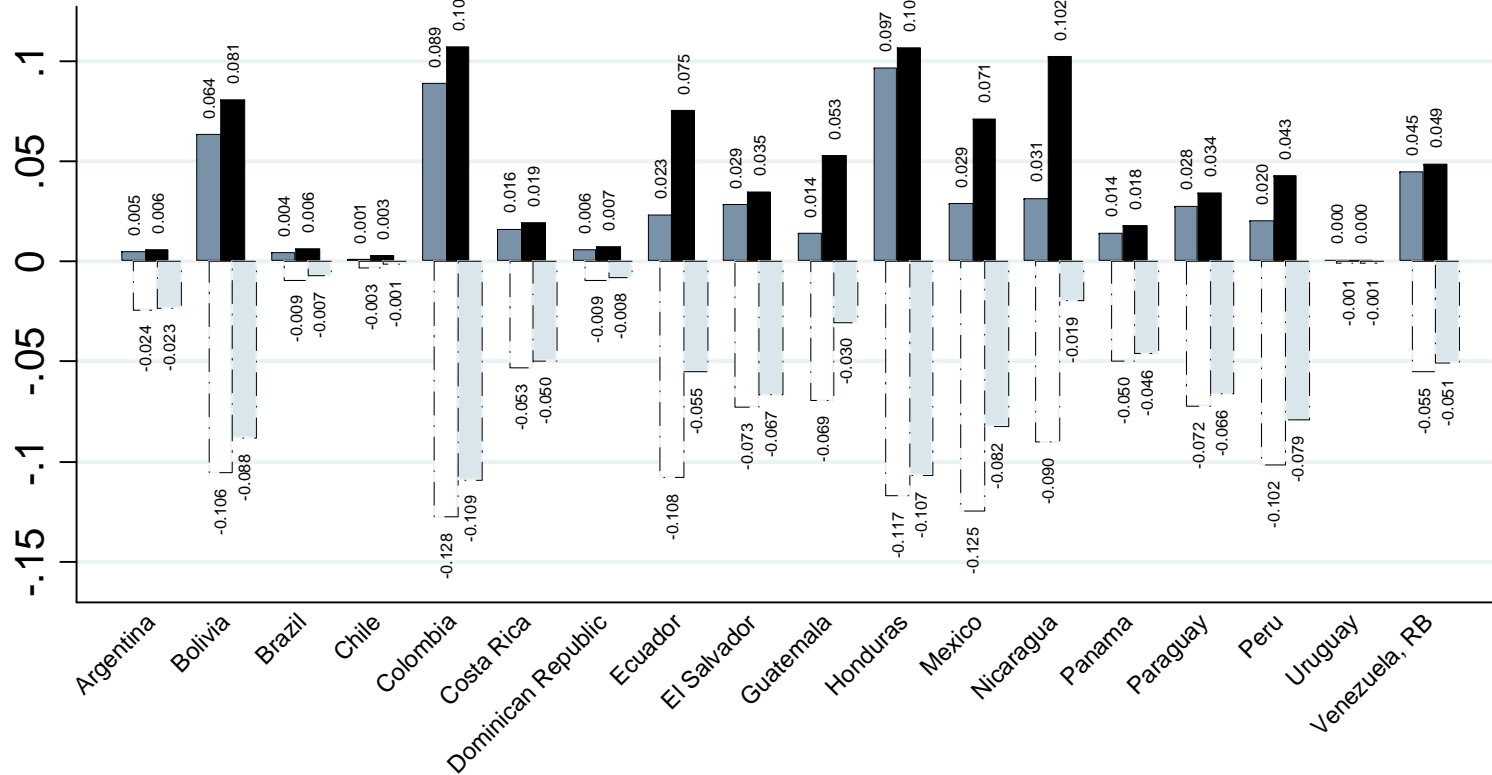
Poverty line = $2.5 a day, OECD equivalency scale adjusted household size

33

Figure 5a. Cost of minimum pension program

Poverty line = 50% of median per capita income
Cost is expressed as top-up pensions summed across HH's as a %age of incomes summed across all HH's in the country
Elderly are household members aged >=60 years

Figure 5b. Cost of minimum pension program
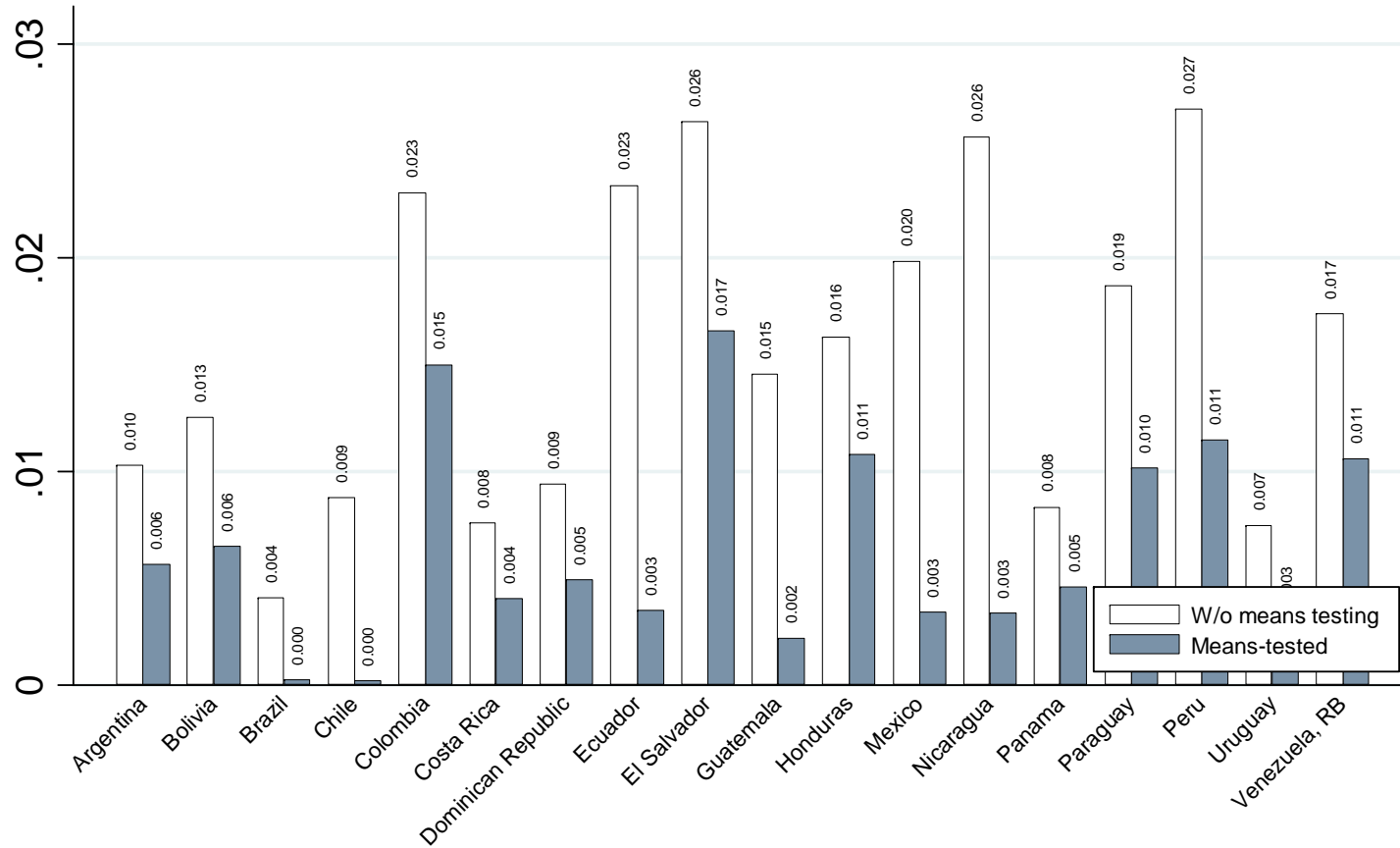
Poverty line = $2.5 a day
Cost is expressed as top-up pensions summed across HH's as a %age of incomes summed across all HH's in the country
Elderly are household members aged >=60 years

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APPENDIX

Table A1. Income & Poverty Levels

Country	Survey year	Yearly GDP per capita (PPP adjusted 2005 \$)[*]	Monthly Average per capita income (PPP adjusted, 2005 \$)[†]	Monthly Median per capita income (PPP adjusted 2005 \$)[†]	Life expectancy at birth (years)[‡]	Poverty headcount (All households)[§]
Argentina	2006	10,815	333	222	75	0.21
Bolivia	2007	3,758	225	124	66	0.23
Brazil	2006	8,505	326	180	72	0.22
Chile	2006	12,173	450	263	78	0.16
Colombia	2004	7,231	161	88	72	0.24
Costa Rica	2006	9,004	329	209	79	0.18
Domin Rep	2006	6,242	269	160	72	0.18
Ecuador	2006	6,737	255	149	75	0.19
El Salvador	2006	5,687	24	17	71	0.17
Guatemala	2006	4,064	200	119	70	0.22
Honduras	2007	3,298	165	91	70	0.28
Mexico	2002	12,563	262	163	74	0.19
Nicaragua	2005	2,311	151	92	72	0.20
Panama	2006	9,186	294	169	75	0.23
Paraguay	2005	3,900	253	148	71	0.23
Peru	2006	6,323	215	140	73	0.21
Uruguay	2007	9,683	386	260	76	0.17
Venezuela	2006	9,924	232	167	73	0.18

[*]Source: World Bank, International Comparison Program database. GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any

subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current international dollars.

[†]Average and median monthly per capita incomes were reported in SEDLAC in Local Currency Units (LCU's). These were converted to 2005 LCU's using annual CPI data for each country from IMF's International Financial Statistics Tables. Finally, these were converted to 2005 international dollars using PPP's from the World Bank's International Comparison Program database. As some of the countries in the sample experienced annual inflation rates exceeding 10%, conversions using monthly (rather than annual) data would have yielded more accurate estimates of per capita incomes than those reported above. However, since survey dates were not available for two-thirds of the countries in our sample, we were only able to report the estimates using yearly data.
The correlation between the per capita GDP and average per capita income reported from the surveys is 0.66, and that between the per capita GDP and median per capita income is 0.70.

[‡]Source: World Bank staff estimates from various sources including census reports, the United Nations Population Division's World Population Prospects, national statistical offices, household surveys conducted by national agencies, and Macro International. Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.

[§]Source: Authors' calculations using data from the Socio-Economic Database for Latin America and the Caribbean (CEDLAS and The World Bank). OECD adjusted HH sizes are used in calculating the poverty headcount ratios. The poverty line is ½ of the national median per capita income.

Table A2. Household Size & Structure

Country	Mean no. of HH members	Fraction of HH's with at least one elderly person in HH	HH consisting of elderly living alone (as a fraction of elderly households)
Argentina	3.4	0.32	0.46
Bolivia	4.05	0.24	0.31
Brazil	3.18	0.23	0.32
Chile	3.65	0.39	0.3
Colombia	4.04	0.3	0.17
Costa Rica	3.74	0.25	0.31
Domin Rep	3.74	0.27	0.21
Ecuador	4.22	0.33	0.29
El Salvador	4.18	0.31	0.21
Guatemala	5.02	0.25	0.19
Honduras	4.62	0.27	0.15
Mexico	4.2	0.25	0.27
Nicaragua	5.32	0.28	0.1
Panama	3.79	0.3	0.29
Paraguay	4.3	0.29	0.24
Peru	4.5	0.32	0.24
Uruguay	2.91	0.41	0.54
Venezuela	4.3	0.26	0.17

Source: Authors' calculations using data from the Socio-Economic Database for Latin America and the Caribbean (CEDLAS and The World Bank)

Elderly are HH members aged >=60 years. Column 1 reports the mean number of HH members in all households. Column 2 reports the fraction (# of HH's with at least one elderly member HH) / (total # of HH's in the country) i.e. #EHH/#AHH. Column 3 reports the fraction (# of HH's with elderly living by themselves) / (# of HH's with at least one elderly member) i.e. #EHH1/#EHH.

Table A3. Poverty Headcount Ratios
with unadjusted household size, for elderly aged 65 years & older

Country	All HH's, OECD adjusted	All HH's, unadjusted	Among elderly aged >=60 years, OECD adjusted	Among the elderly aged >=60 years, unadjusted	Among elderly aged >=65 years, OECD adjusted
Argentina	0.21	0.24	0.13	0.11	0.12
Bolivia	0.23	0.24	0.29	0.19	0.26
Brazil	0.22	0.25	0.06	0.06	0.05
Chile	0.16	0.18	0.15	0.11	0.15
Colombia	0.24	0.24	0.31	0.29	0.33
Costa Rica	0.18	0.2	0.32	0.25	0.36
Domin Rep	0.18	0.2	0.22	0.17	0.22
Ecuador	0.19	0.21	0.25	0.21	0.27
El Salvador	0.17	0.19	0.17	0.14	0.19
Guatemala	0.22	0.24	0.24	0.19	0.26
Honduras	0.28	0.28	0.31	0.26	0.32
Mexico	0.19	0.21	0.28	0.25	0.3
Nicaragua	0.2	0.22	0.17	0.15	0.17
Panama	0.23	0.25	0.23	0.19	0.24
Paraguay	0.23	0.24	0.23	0.17	0.26
Peru	0.21	0.22	0.23	0.17	0.25
Uruguay	0.17	0.21	0.08	0.05	0.07
Venezuela	0.18	0.2	0.21	0.18	0.23

Source: Authors' calculations using data from the Socio-Economic Database for Latin America and the Caribbean (CEDLAS and The World Bank)

For estimates using the OECD adjusted HH size as well as those using unadjusted HH sizes, the poverty line is ½ of the national median per capita OECD adjusted income in the surveys.

Table A4. Average Normalized Poverty Gap

Country	All individuals	Elderly individuals
Argentina	0.09	0.06
Bolivia	0.1	0.12
Brazil	0.09	0.02
Chile	0.05	0.04
Colombia	0.14	0.21
Costa Rica	0.07	0.15
Domin Rep	0.06	0.07
Ecuador	0.07	0.12
El Salvador	0.06	0.06
Guatemala	0.08	0.09
Honduras	0.15	0.16
Mexico	0.08	0.15
Nicaragua	0.07	0.05
Panama	0.11	0.11
Paraguay	0.09	0.09
Peru	0.08	0.1
Uruguay	0.05	0.02
Venezuela	0.08	0.11

Source: Authors' calculations using data from the Socio-Economic Database for Latin America and the Caribbean (CEDLAS and The World Bank)
OECD adjusted HH sizes with a poverty line of ½ of the national median per capita OECD adjusted income in the surveys. Elderly are HH members aged >=60 years.