IDB WORKING PAPER SERIES No. IDB-WP-588

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April 2015

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2015

Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library

Gandelman, Néstor.
Do the rich save more in Latin America? / Néstor Gandelman.
p. cm. — (IDB Working Paper Series ; 588)
Includes bibliographic references.
1. Saving and investment —Latin America. 2. Savings accounts— Latin America. 3. Rich people—Latin America. I. Inter-American Development Bank. Department of Research and Chief Economist. II. Title. III. Series.
IDB-WP-588

http://www.iadb.org

Abstract[1]

This paper follows two strategies to address whether the rich save more. First, the paper implements a two-stage procedure in which the household's lifetime income is instrumented with the education level of the household head and the education level of his/her partner. Second, using information on home assets, the paper constructs a wealth index. There is evidence that the richest households save more in Argentina, Bolivia, Brazil, Costa Rica, Ecuador, Honduras, Mexico, Panama, Paraguay and Peru. On the other hand, no differences are found in saving rates by lifetime income or wealth in Bahamas, Chile, Colombia and Uruguay.

JEL classifications: C81, D12, D14, E21
Keywords: Saving rates, Two-stage procedures, Median regressions, Latin America

[1] This paper benefited from comments from Eduardo Cavallo and Verónica Frisancho and from participants at internal seminars at the Central Bank of Uruguay, the Instituto de Economía of the Universidad de la República and the IDB-organized workshop "Domestic Savings in Latin America and the Caribbean." I wish to thank Braulio Britos for his excellent research assistance. I am indebted to Diether Beuermann, Javier Beverinotti, Carlos Gustavo Machicado, Marcelo Pérez, Eduardo Pontual Ribeiro, Rocío Portilla, José David Sierra and Jorge Tovar for their help in gaining access to the databases used in this paper. All errors and omissions remain my exclusive responsibility.

1. Introduction

The relation between saving rates and lifetime income is more controversial than it might seem at first glance. Since savings and consumption are two sides of the same coin, whether richer people save more than their poorer counterparts has welfare and policy implications. Assuming that they do, then, what is the impact of a progressive tax reform on national savings? Alternatively, does a government facing a recession and considering a fiscal stimulus has anything to gain from concentrating on the rich or on the poor? What is the impact of a tax cut on aggregate demand?

While non-economists may be prone to believe that the rich save more than the poor, economists are more skeptical. First of all, economists are more interested in lifetime income than in current income that is affected by temporary shocks and phases of the life cycle. A permanent policy change (e.g., a tax change) will have effects across different phases of individuals' life cycle. Therefore, it is better to consider lifetime income rather than current income when assessing the overall effect of a policy change.

Second, there are theoretical reasons to think that poorer individuals might actually save a larger share of their income. For instance, if individuals of lower socioeconomic experience greater financial restrictions, it is rational for the poor to have larger precautionary savings.

Third, from an empirical point of view, the relation between savings and current income is biased towards finding a positive link. If, as predicted by theory, people smooth consumption over their lifetime, a temporary negative income shock will reduce saving rates and at the same time will affect the classification of households within the country. This will produce a positive correlation between saving rates and income levels. In a regression of savings on current income, the income shock will appear on both the right and left-hand side, producing a spurious positive correlation. Measurement error in income operates in the same way as temporary shocks since any error in income directly translates into a mismeasurement of savings.

Several papers have reported descriptive statistics of the association between saving rates and current income (see, for instance Butelmann and Gallego, 2001, for Chile; Melo, Téllez and Zárate, 2006, and Tovar, 2008, for Colombia; Bebczuk and Gasparini, 2014, for several Latin American countries; and Gandelman, 2015, also for several Latin American countries, the United

States and Korea). Most of these papers present a monotonic relation between income deciles and saving rates but, as previously argued, the proper relation between these two concepts cannot be accounted for in purely descriptive exercises.

In this paper, to address the question whether the rich save more we follow two strategies. First, we implement a two-stage procedure proposed by Dynnan, Skinner and Zeldes (2004) and applied to U.S. data.[2] The first stage is based on a regression of current income on variables associated with permanent income. The predicted values of this estimation are used as a proxy for lifetime income. Second, we construct a wealth index based on home appliances and other assets owned by households. These analyses are performed for 14 Latin American and Caribbean (LAC) countries, and we additionally present various robustness exercises. We find that for 10 out of 14 countries the rich do save more than the poor. We fail to find this association in Bahamas, Chile, Colombia and Uruguay.

The paper follows with the methodology in Section 2, the data sources and variable definition in Section 3 and the results in Section 4. Conclusions are in Section 5.

2. Methodology

The basic model to be estimated takes the form:

$$\frac{y_i - c_i}{y_i} = f\left(\overline{y_i}\right) + x_i\beta + u_i \qquad (1)$$

where y_i and c_i represent current income and consumption, $\overline{y_i}$ stands for lifetime income or wealth, x_i is a vector of other observable controls, β is a vector of coefficients and u_i is an error term assumed to be well behaved. The index *i* refers to households.

A problem to be addressed is that lifetime income is not observed and, as explained above, current income (y_i) is a poor proxy for it. We follow two strategies.

First, following Dynan, Skinner and Zeldes (2004) we propose using a two-stage procedure. In the first stage, we regress the log of current income on adequate instruments (Z_i)

[2] This procedure has also been applied by Alan, Atalay and Crossley (2014) to Canadian data and by Chakrabarty, Katayama and Maslen (2008) to Australian data.

and age group dummies (x_i) and use the predicted values from this equation as the proxy for lifetime income.

$$\ln y_i = Z_i \alpha + x_i \gamma + v_i \qquad (2)$$

Then we divide the predicted values of lifetime income into quintiles to take the place of $f\left(\overline{y_i}\right)$ in equation (1). The use of dummies for quintiles allows for nonlinearities in the saving-lifetime income relationship. Since lifetime income is estimated in the first stage, to avoid the generated regressor problem (Pagan, 1984), a bootstrap procedure is implemented based on 500 replications to obtain the standard errors.

Finding adequate instruments is itself a difficult task. The right instrument should be correlated with lifetime income but not with transitory shocks on current income and should be uncorrelated with unobservable determinants of the saving equations. Dynan, Skinner and Zeldes (2004) use education, consumption of nondurables, and lagged and future earnings as their instruments. We do not have data on the latter two. Household head's education is likely to pass the first requirement for an ideal instrument but less likely to pass the second (for instance, more patient individuals will probably invest more in education and also save more). Nondurable consumption as an instrument has the problem that any measurement error will enter both the left and right-hand side of equation (1) through the predicted value of equation (2). Alan, Atalay and Crossley (2014) construct a set of dummies for different combinations of education among family members and restrict nondurable consumption to those items that are less likely to have measurement problems (e.g., food or expenses that are regularly billed such as telephone bills or electricity). In this paper, we use education of the household head partner and its square in the main regressions and present the results using the household head's education as a robustness exercise. We prefer the use of the household head partner's education over that of the household head since it is less likely to be correlated with unobservable determinants of savings that might be more influenced by the household head's time preferences.

For the second strategy, we construct a wealth index using information on households owned durable assets. This index is a weighted average of a series of dummies indicating the availability of assets as refrigerator, dishwasher, laundry machine, regular TV, flat screen TV, DVD player, internet connection, computer, car, and homeownership. For each asset, we include an indicator for availability of the item in the household. Each dummy is weighted by the scarcity of that item relative to that of other items in the full sample of households participating in the study: assets that are scarcer receive higher weights.

Formally, let D_{ji} be a dummy variable taking the value 1 if household *i* owns asset *j*. Let μ_j be the proportion of households that own asset *j* (μ_j is the sample average of D_{ji}). The wealth asset index is defined as:

$$WealthIndex_i = \sum_j \omega_j D_{ji} \qquad (3)$$

where the weight is defined as $\omega_j = \frac{1-\mu_j}{\sum_z 1-\mu_z}$. Note that $\sum_j \omega_j = 1$ and that the index ranges from 0 for an individual who does not own any asset (or owns assets that everybody else owns) to 1 for an individual who owns every single available asset. Similar to the first strategy, we divide the estimated wealth index into quintiles to take the place of $f\left(\overline{y_i}\right)$ in equation (1).

We work with household heads age 20 and up. In the Appendix we present a robustness exercise where we restrict our sample to individuals 30 to 59 years old for comparability with Dynan, Skinner and Zeldes (2004) and Alan, Atalay and Crossley (2014). These authors do not consider households with income below 1,000 dollars (U.S. and Canadian, respectively). Given higher poverty rates in LAC countries, elimination of such observations will be problematic.[3] Finally, as in the papers previously mentioned, we report our estimations using median regressions since they are more robust to outliers than OLS.[4]

3. Data

The data for this paper are taken from income and expenditure surveys conducted in 14 LAC countries. The countries considered are the following: Argentina, Bahamas, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Honduras, Mexico, Panama, Paraguay, Peru and

[3] Our results are not altered after trimming the bottom and top 1 percent of the income distribution in each country. Estimations (not reported) are available upon request.
[4] The results using OLS are qualitatively similar. Estimations (not reported) are available upon request.

Uruguay. Most countries perform these surveys every decade or so as an input in the construction of the Consumer Price Index. Table A1 in the Appendix presents the data sources.

Saving rates can be computed at the individual or household level. Household surveys provide most income information disaggregated by income earner but consumption in general is aggregated at the household level. To obtain individual saving rates it is necessary to make specific assumptions on how consumption is allocated within the household. Gandelman (2015) presents saving rates at both individual and household levels. In this paper, we work only with saving rates defined at the household level.

There are some differences in the way data are gathered and reported in the surveys. To the best of our ability we tried to homogenize the definition of savings rates. Income is after tax in all cases but in Mexico, where it is reported before tax and there is no detailed information of paid taxes. In Bahamas, Bolivia, Brazil, Honduras and Paraguay the documentation does not report whether income is before or after tax. All forms of monetary and non-monetary income are computed. Capital gains are not computed as current income, but earned interest and dividends are.

The surveys request expenditures over various time frames (yearly, quarterly, monthly, weakly and daily). The National Institutes of Statistics of all countries but Mexico transform these totals into monthly figures; Mexico transforms them into quarterly data. Consumption of durable goods is also reported, but only the portion corresponding to the current period is imputed. Other forms of consumption and income are also imputed. The most important is the rent value of houses for homeowners, which appear as consumption and income in all cases but Argentina, where this information is not available. Home production for consumption is treated in the same way.

Survey coverage includes both urban and rural setting in most countries. In Bahamas, Chile, Panama and Uruguay coverage is restricted to urban settings.

The instrument (education) refers to years of formal education. In Chile and Paraguay this variable is already provided in the microdata. For other countries it was constructed using questions on the last completed year of schooling. For most countries primary education takes values 1 to 6, secondary takes 7 to 12, university 13 to 17 and 18 and more refer to postgraduate studies. In Argentina primary education is 7 years and secondary education is 5 years so that completed secondary accounts for 12 years like in other countries. In contrast, in Peru primary education is 5 years and secondary education is 6 years so completed secondary education implies 11 years of formal schooling. In our calculations for Peru we added one extra year for everyone who started tertiary schooling so that complete secondary accounts for 12 years.

Information on assets is not available in Bolivia, Brazil, Chile, Honduras and Panama. For other countries we present in Table A2 of the Appendix the detailed list of assets used in each country. Trying to be conservative, we included all assets gathered in the surveys and performed only three type of corrections:

1. We did not include assets whose ownership suggests poverty rather than wealth (e.g., black and white TV and vehicles pulled by animals in Mexico or non-automatic washing machine in Argentina.
2. We did not include assets related to work (e.g., car for work in Ecuador and Peru or truck in Paraguay).
3. When many varieties of the same asset were provided we aggregated them. For TVs some countries disaggregate regular and various forms of flat screen TV (plasma, LCD, LED). We define one basic asset “TV” if the house owns any type of TV and a more sophisticated asset “flat TV” if it owns one. Some countries disaggregate between refrigerator without freezer, refrigerator with freezer and freezers. In these cases we define two assets: a basic asset “refrigerator” if the house owned any form of refrigerator and a more sophisticated asset “freezer” if the house owned any form of freezer (including incorporated into a refrigerator). Some surveys also disaggregated heaters, water heaters, and ovens by the type of energy used (electric or gas mainly). They were aggregated into a generic asset reflecting their main use.

4. Results

In Table 1 we present summary statistics of the key variables that enter our estimation (households whose household head is 20 years or older).

In all cases the median saving rates are above the mean. This is due to the weight of some very negative household saving rates that are present in all countries. Looking at the means alone shows only three countries with an average positive saving rate (Ecuador, Panama and Uruguay),[5] while in medians there are only three countries with negative saving rates. The countries with the lowest median saving rates are Honduras (-16 percent), Paraguay (-7 percent) and Mexico (-2 percent). The highest median saving rates for an LAC country is Colombia (15 percent), followed by Bolivia (14 percent), Argentina (13 percent) and Uruguay (13 percent).

Table 1 also presents the average age of household heads, and Table 2 present five dummies for 10-year age brackets and a dummy for those 70 years old and more. The population distribution presents an inverse U shape, with fewer household heads at the extremes due to the time it takes for young individuals to start their own family and due to mortality at the other extreme. The average individual is in his/her mid to late forties or early fifties. Chile and Uruguay have the oldest household heads, with respective mean ages of 51.5 and 53.1 years. Bolivia and Honduras are the youngest, with averages of 44.5 and 44.9 years, respectively. Finally, we present data on education of the household head and partner and the wealth index for the countries where it could be constructed. The median of the wealth index is lower than the mean, consistent with expected wealth distribution. Figure A1 in the Appendix presents the distribution of the wealth index country by county.

[5] Dropping household at the bottom 1 percent of the income distribution eliminates some of the extreme negative saving rates and increases the country averages.

Table 1. Summary Statistics

	Median	Mean	s.d.	Min	Max	Observ.	Median	Mean	s.d.	Min	Max	Observ.	Median	Mean	s.d.	Min	Max	Observ.
	Argentina						**Bahamas**						**Bolivia**					
Savings rate (%)	13	-6	150	-14,583	802	28,961	-7	-110	649	-19,562	91	1,489	14	-6	172	-7,940	95	8,914
Education household head	6.0	8.8	4.6	0.0	22.0	27,846	12.0	11.4	3.7	0.0	22.0	1,492	8.0	8.5	5.4	0.0	20.0	8,942
Education partner	8.0	9.2	4.6	0.0	22.0	18,102	12.0	12.1	3.3	0.0	22.0	689	6.0	7.1	5.4	0.0	20.0	5,806
Age household head	48.0	49.8	16.1	20.0	98.0	29,006	49.0	49.9	15.1	20.0	95.0	1,530	42.0	44.5	15.1	20.0	98.0	8,942
Wealth index	0.17	0.22	0.18	0.00	1.00	29,006	0.33	0.34	0.21	0.00	1.00	1,530						
	Brazil						**Chile**						**Colombia**					
Savings rate (%)	11	-14	135	-10,966	99	55,702	4	-14	426	-42,742	172	10,490	15	-880	55,802	-588,4557	52,108	25,118
Education household head	5.0	6.7	7.9	0.0	88.0	55,715	12.0	11.4	4.2	0.0	22.0	10,478	5.0	6.3	4.9	0.0	22.0	25,168
Education partner	7.0	7.4	8.0	0.0	88.0	38,130	12.0	11.4	3.9	0.0	22.0	6,502	5.0	6.5	4.6	0.0	22.0	15,389
Age household head	46.0	47.4	15.7	20.0	99.0	55,715	51.0	51.5	15.6	20.0	99.0	104,90	47.0	48.4	15.7	20.0	99.0	25,168
Wealth index													0.16	0.20	0.16	0.00	1.00	25,131
	Costa Rica						**Ecuador**						**Honduras**					
Savings rate (%)	0	-145	9,191	-681,944	69,306	5,669	4	1	64	-3,682	8,897	39,364	-16	-77	326	-12,949	100	7,932
Education household head	6.0	7.6	4.4	0.0	21.0	5,656	6.0	8.3	4.9	0.0	21.0	39,364	6.0	5.7	4.8	0.0	21.0	7,932
Education partner	6.0	7.9	4.1	0.0	21.0	3,581	8.0	8.5	4.8	0.0	21.0	26,466	6.0	5.8	4.4	0.0	20.0	5,397
Age household head	46.0	47.2	15.3	20.0	99.0	5,669	46.0	48.0	16.0	20.0	98.0	39,364	43.0	44.9	15.5	20.0	96.0	7,932
Wealth index	0.22	0.27	0.18	0.00	1.00	5,669	0.15	0.17	0.12	0.00	0.95	39,364						
	Mexico						**Panama**						**Paraguay**					
Savings rate (%)	-2	-59	5,150	-740,657	94	20,691	8	3	38	-878	90	8,840	-7	-34	126	-3,093	98	5,353
Education household head	6.0	7.4	5.2	0.0	22.0	20,699	11.0	10.3	4.6	0.0	22.0	8,840	6.0	7.9	4.6	0.0	18.0	5,211
Education partner	6.0	7.2	4.7	0.0	22.0	14,388	12.0	10.8	4.5	0.0	21.0	5,254	6.0	7.8	4.5	0.0	18.0	3,363
Age household head	45.0	47.2	15.6	20.0	97.0	20,699	48.0	49.1	15.6	20.0	98.0	8,840	47.0	48.0	16.0	20.0	96.0	5,357
Wealth index	0.17	0.21	0.14	0.00	0.90	20,699							0.24	0.28	0.18	0.00	1.00	5,330
	Peru						**Uruguay**											
Savings rate (%)	8	-4	845	-152,846	95	34,865	13	4	152	-10,596	198	7,023						
Education household head	11.0	10.3	5.1	0.0	22.0	34,703	8.0	8.2	4.3	0.0	22.0	7,029						
Education partner	11.0	9.6	5.2	0.0	22.0	23,355	8.0	8.6	4.1	0.0	22.0	4,314						
Age household head	46.0	47.8	15.0	20.0	98.0	34,876	52.0	53.1	16.9	20.0	98.0	7,029						
Wealth index	0.08	0.16	0.16	0.00	1.00	34,198	0.25	0.29	0.19	0.00	1.00	7,029						

Source: Author's compilation based on income and household consumption surveys.

Table 2. Summary Statistics: Age Distribution

	Argentina	Bahamas	Bolivia	Brazil	Chile	Colombia	Costa Rica	Ecuador	Honduras	Mexico	Panama	Paraguay	Peru	Uruguay
Dummy 20-29 years old	11%	9%	18%	13%	8%	12%	13%	13%	18%	12%	10%	14%	10%	8%
Dummy 30-29 years old	20%	18%	25%	22%	17%	21%	22%	22%	24%	24%	20%	21%	22%	16%
Dummy 40-49 years old	22%	25%	23%	23%	22%	23%	25%	22%	23%	24%	23%	22%	25%	20%
Dummy 50-59 years old	19%	22%	17%	18%	22%	20%	19%	19%	17%	18%	21%	20%	20%	19%
Dummy 60-69 years old	14%	15%	10%	13%	16%	13%	12%	12%	11%	12%	14%	13%	13%	16%
Dummy 70 years old and up	14%	11%	7%	10%	14%	12%	9%	11%	8%	10%	11%	11%	10%	20%

Source: Author’s compilation based on income and household consumption surveys.

Tables 3 to 5 report the econometric estimations. In the estimations we include a dummy for age brackets omitting the 40-49 category. The estimations are carried out without the constant term so that the estimated coefficient can be interpreted as the saving rates of individuals 40-49 years old of this income quintile. As is traditional, we use stars (*) for statistical significance. We are interested in knowing whether the saving rate (coefficients) of richer households is larger than that of poorer households. Traditional significance shows if the coefficients are different from 0 but does not compare them. Therefore, we also report Wald tests of equality between the coefficients of each quintile and that of the quintile before. We use numerals (#) to show cases where the coefficient is statistically different than that of the previous quintile. At the bottom of the tables we also present Wald test of equality of coefficients of the third and the first quintile and of equality of the fifth and third quintile.

As a starting point, Table 3 shows that saving rates increase with current income. The estimated coefficients for quintiles 1 through 5 are monotonically increasing. Households in higher income quartiles have larger saving rates and the differences are statistically significant (see the #s) in almost all cases. In interpreting this finding it should be kept in mind that this result might be an artifact of measurement errors and temporary shocks in income. The lowest quintile in all cases, with the exception of Uruguay, has negative saving rates. The top quintile saving rates ranges from 13.1 percent for Chile and 15.7 percent for Panama to 39.4 percent for Costa Rica and 40.0 percent for Colombia. The age dummies are in general statistically significant, meaning that the saving rates of these groups are different from those 40-49 years old (the omitted category). Note, however, that they cannot be interpreted as in the life cycle model. The life cycle model predicts that the youngest and oldest should have lower saving rates than those at midlife. There are two problems in the interpretation of our coefficients. First, the theory is developed for individual decision-makers, and our saving rates are computed at the household level. There is age heterogeneity within households that is likely to affect household saving rates, e.g., the saving rate of a couple in their forties with no children is likely to be different than that of a family in their fifties and sixties with children already in the labor market but still living with them. Second, mortality rates are correlated with income and past savings. Individuals who were able to save more in their younger years have more means for a healthy life in their old age.

Table 4 presents the main estimations of this paper for all countries using the education of the household head's partner as instrument for lifetime income. The results are less clear than with current income, but nevertheless there are some relevant patterns. For this table and those that follow we classify countries into three groups:

1. Countries where we reject the null that the rich save more (no #s)
2. Countries where the very top of the income distribution save more but the rest of the population has about the same savings rate (only one # in the fifth or fourth quintile)
3. Countries where the rich save more along the income distribution, i.e., those where we find differences in more than one quintile with respect to the previous one (more than one #)

In Bahamas, Chile and Uruguay we find no differences in saving rates by income quintiles. In Colombia there are differences, but they present a non-monotonic pattern, with about the same saving rates in the top poor and the top rich. These four countries are in the first group of rich-do-not-save-more.

In Argentina, Bolivia, Panama, Paraguay and Peru we find that the top fifth quintile save more than the rest of the population, but we fail to find statistically significant differences among the other 80 percent of the population.

Finally, the evidence of rich-save-more is stronger in Brazil, Costa Rica, Ecuador, Honduras and Mexico. For instance, in Brazil and Mexico the fifth quintile's savings rate is above the fourth quintile's savings rate, which is above the third's quintile savings rate, which is not statistically significantly different than the savings rate of the second quintile, which is higher than the first quintile's savings rate.

Table 5 presents the estimations of saving rates on the wealth index for the nine countries where we could construct the index. We find no evidence of the rich saving more in Bahamas, Colombia and Uruguay. In Argentina the top fourth quintile saves more than poorer quintiles. In the last group, we have stronger evidence of the rich saving more in Costa Rica, Ecuador, Mexico, Paraguay and Peru.

In the Appendix we report robustness exercises. In Table A3 and A4 we restrict the sample to those 30 to 59 as in Dynan, Skinner and Zeldes (2004) and Alan, Atalay and Crossley (2014). The change in the sample is not trivial due to the restriction on household heads who are likely to be active in the labor market, as opposed to the main estimations where we also include retired household heads.

According to Table A3, where we implement the two-stage procedure, in the first group of countries (rich-do-not-save-more) we have Uruguay, Chile and Colombia. In the latter two the top quintile saves more than the fourth quintile, but at the same time we find that at least one poorer quintile saves more (and statistically significant) than a richer quintile. In the second group of countries we have Argentina, Bahamas, Bolivia, Costa Rica, Ecuador, Panama and Peru. In these countries the top quintile saves more than the rest, but there are no statistically significant differences among the first four income quintiles. Finally, in Brazil, Honduras, Mexico and Paraguay there is evidence that more than one income quintile saves above poorer quintiles. Similarly, in Table A4 the results of the regression on the wealth asset show almost the same results (qualitatively) as in Table 4 without the age restriction.

As a second type of robustness exercise we present in Table A5 the results of the two-stage procedure using as instruments, in addition to the education of household head's partner, the education of the household head and their squares. In the first group of countries we have Bahamas, Bolivia, Chile, Colombia and Uruguay. In the second group (only the top rich save more) we find Argentina and Peru. In the remaining countries (Brazil, Costa Rica, Ecuador, Honduras, Mexico, Panama and Paraguay) there is stronger evidence that the rich save more than the poor.

Summing up the evidence, we fail to find evidence that the rich save more in Bahamas, Chile, Colombia and Uruguay. For the other 10 countries we find that the rich save more. All the estimations show the same pattern in Argentina, Brazil, Honduras and Mexico. In Argentina we find that only the top rich save more. We find that richer households save more (and not only the top) in Brazil, Honduras and Mexico.

In Costa Rica, Ecuador, Panama and Paraguay we also find that the rich save more, but there are some differences in the estimations at which income/wealth quintile saving rates start to differ. This raises the question of whether only the top rich save more or if this pattern is present along the income distribution. In Bolivia we find that the top quintile saves more in all estimations but one (the robustness exercise using household head education and household head partners' education as instruments).

Table 3. Median Regressions of Saving Rates on Age and Current Income Quintile Dummies

	Argentina	Bahamas	Bolivia	Brazil	Chile	Colombia	Costa Rica
Quintile 1	-0.173 **	-1.506 **	-0.080 **	-0.341 **	-0.294 **	-0.451 **	-0.899 **
	(0.010)	(0.068)	(0.012)	(0.007)	(0.016)	(0.011)	(0.035)
Quintile 2	0.025 * ##	-0.252 ** ##	0.099 ** ##	0.002 ##	-0.095 ** ##	0.042 ** ##	-0.238 ** ##
	(0.010)	(0.065)	(0.012)	(0.007)	(0.016)	(0.011)	(0.035)
Quintile 3	0.103 ##	0.003 ##	0.191 ** ##	0.113 ** ##	-0.009 ##	0.184 ** ##	0.017 ##
	(0.010)	(0.065)	(0.012)	(0.007)	(0.016)	(0.011)	(0.035)
Quintile 4	0.185 ** ##	0.232 ** ##	0.252 ** ##	0.165 ** ##	0.031 * #	0.284 ** ##	0.196 ** ##
	(0.010)	(0.065)	(0.012)	(0.007)	(0.016)	(0.011)	(0.035)
Quintile 5	0.296 ** ##	0.368 **	0.366 ** ##	0.287 ** ##	0.131 ** ##	0.400 ** ##	0.394 ** ##
	(0.010)	(0.065)	(0.012)	(0.007)	(0.016)	(0.011)	(0.036)
Ages 20-29	-0.115 **	-0.122	-0.078 **	-0.108 **	-0.074 **	-0.111 **	-0.174 **
	(0.013)	(0.092)	(0.013)	(0.009)	(0.023)	(0.014)	(0.043)
Ages 30-39	-0.057 **	-0.008	-0.016	-0.034 **	0.005	-0.060 **	-0.037
	(0.011)	(0.072)	(0.012)	(0.008)	(0.017)	(0.012)	(0.037)
Ages 50-59	0.056 **	0.062	-0.027 *	0.038 **	0.086 **	0.056 **	-0.009
	(0.011)	(0.068)	(0.014)	(0.008)	(0.016)	(0.012)	(0.038)
Ages 60-69	0.091 **	-0.217 **	-0.023	0.107 **	0.165 **	0.038 **	-0.044
	(0.012)	(0.075)	(0.016)	(0.009)	(0.018)	(0.014)	(0.044)
Ages 70-99	0.101 **	-0.426 **	-0.034	0.150 **	0.188 **	0.009	-0.146 **
	(0.012)	(0.083)	(0.018)	(0.010)	(0.018)	(0.014)	(0.048)
Observ.	28,961	1,489	8,914	55,702	10,490	25,118	5,669
q3≠q1	##	##	##	##	##	##	##
q5≠q3	##	##	##	##	###	##	##

Table 3., continued

	Honduras		Mexico		Panama		Paraguay		Peru		Uruguay	
Quintile 1	-1.213 **		-0.452 ***		-0.077 **		-0.963 **		-0.056 **		0.022	
	(0.032)		(0.010)		(0.009)		(0.026)		(0.004)		(0.012)	
Quintile 2	-0.386 **	##	-0.079 ***	##	0.005	##	-0.302 **	##	0.020 **	##	0.076 **	##
	(0.032)		(0.010)		(0.009)		(0.026)		(0.004)		(0.012)	
Quintile 3	-0.136 **	##	0.029 ***	##	0.050 **	##	-0.084 **	##	0.074 **	##	0.131 **	##
	(0.032)		(0.010)		(0.009)		(0.026)		(0.004)		(0.012)	
Quintile 4	0.033	##	0.115 ***	##	0.094 **	##	0.056 *	##	0.106 **	##	0.149 **	
	(0.032)		(0.010)		(0.009)		(0.026)		(0.004)		(0.012)	
Quintile 5	0.263 **	##	0.209 ***	##	0.157 **	##	0.305 **	##	0.209 **	##	0.196 **	##
	(0.032)		(0.010)		(0.009)		(0.026)		(0.004)		(0.012)	
Ages 20-29	0.065		-0.051 ***		-0.061 **		-0.015		-0.017 **		-0.041 *	
	(0.034)		(0.013)		(0.012)		(0.030)		(0.005)		(0.016)	
Ages 30-39	-0.077 *		-0.050 ***		-0.016		-0.017		-0.007		-0.008	
	(0.032)		(0.010)		(0.010)		(0.027)		(0.004)		(0.013)	
Ages 50-59	0.074 *		0.018		0.066 **		0.073 **		0.037 **		0.025 *	
	(0.035)		(0.011)		(0.010)		(0.027)		(0.004)		(0.013)	
Ages 60-69	0.045		-0.030 **		0.097 **		0.050		0.033 **		0.012	
	(0.041)		(0.013)		(0.011)		(0.030)		(0.005)		(0.013)	
Ages 70-99	-0.065		-0.156 ***		0.071 **		0.009		0.018 **		0.045 **	
	(0.045)		(0.013)		(0.012)		(0.032)		(0.005)		(0.012)	
Observ.	7,932		2,0691		8,840		5,353		34,865		7,023	
q3≠q1		##		##		##		##		##		##
q5≠q3		##		##		##		##		##		##

Source: Author's compilation based on income and household consumption surveys.
Notes: Standardized errors in parenthesis
*significant at 5%, ** significant at 1%, #significantly different than previous quintile at 5%, ##significantly different than previous quintile at 1%.

Table 4. Median Regressions of Saving Rates on Age and Lifetime Income Quintile Dummies

	Argentina	Bahamas	Bolivia	Brazil	Chile	Colombia	Costa Rica
Quintile 1	0.108 **	-0.001	0.190 **	0.014	-0.013	0.260 **	-0.036
	(0.010)	(0.079)	(0.016)	(0.010)	(0.018)	(0.012)	(0.028)
Quintile 2	0.081 **	0.056	0.211 **	0.044 ** ##	-0.026	0.198 ** ##	-0.059
	(0.018)	(0.138)	(0.013)	(0.010)	(0.017)	(0.014)	(0.050)
Quintile 3	0.096 **	-0.350	0.187 **	0.057 **	-0.064 ** #	0.149 ** ##	-0.022
	(0.010)	(0.582)	(0.014)	(0.011)	(0.023)	(0.014)	(0.036)
Quintile 4	0.089 **	0.199 *	0.164 **	0.132 ** ##	-0.028	0.121 **	0.078 * #
	(0.015)	(0.079)	(0.014)	(0.009)	(0.024)	(0.012)	(0.038)
Quintile 5	0.154 ** ##	0.223 **	0.209 ** #	0.190 ** ##	-0.002	0.233 ** ##	0.192 ** ##
	(0.012)	(0.076)	(0.017)	(0.009)	(0.021)	(0.015)	(0.033)
Ages 20-29	-0.088 **	-0.122	-0.053 **	-0.093 **	-0.024	-0.097 **	-0.097 **
	(0.015)	(0.163)	(0.014)	(0.017)	(0.032)	(0.017)	(0.037)
Ages 30-39	-0.055 **	0.005	-0.025	-0.020 *	0.033	-0.060 **	0.013
	(0.014)	(0.081)	(0.014)	(0.009)	(0.021)	(0.015)	(0.035)
Ages 50-59	0.073 **	-0.044	-0.010	0.047 **	0.091 **	0.056 **	0.039
	(0.012)	(0.080)	(0.014)	(0.010)	(0.020)	(0.014)	(0.035)
Ages 60-69	0.095 **	-0.188	-0.007	0.093 **	0.172 **	0.033 *	0.019
	(0.016)	(0.115)	(0.022)	(0.010)	(0.021)	(0.016)	(0.050)
Ages 70-99	0.084 **	-0.332 *	-0.048	0.170 **	0.188 **	-0.004	-0.101 *
	(0.021)	(0.148)	(0.040)	(0.012)	(0.025)	(0.018)	(0.060)
Observ.	18,096	670	5,787	38,124	6,502	15,369	3,581
q3≠q1				##	#	##	
q5≠q3	##			##	#	##	##

Table 4., continued

	Ecuador	Honduras	Mexico	Panama	Paraguay	Peru	Uruguay
Quintile 1	0.044 **	-0.270 **	-0.027 *	0.014	-0.240 **	0.078 **	0.136 **
	(0.004)	(0.041)	(0.011)	(0.011)	(0.038)	(0.005)	(0.015)
Quintile 2	0.038 **	-0.221 **	0.010 #	0.023 *	-0.169 **	0.081 **	0.106 **
	(0.006)	(0.035)	(0.014)	(0.010)	(0.029)	(0.004)	(0.020)
Quintile 3	0.048 **	-0.193 **	0.012	0.038 *	-0.080	0.074 **	0.128 **
	(0.005)	(0.038)	(0.010)	(0.015)	(0.044)	(0.006)	(0.020)
Quintile 4	0.063 ** #	-0.034 ##	0.050 ** ##	0.050 **	0.004	0.084 **	0.078 ** #
	(0.008)	(0.046)	(0.012)	(0.015)	(0.030)	(0.006)	(0.017)
Quintile 5	0.106 ** ##	0.083 * #	0.112 ** ##	0.098 ** ##	0.096 ** ##	0.119 ** ##	0.098 **
	(0.006)	(0.034)	(0.012)	(0.011)	(0.031)	(0.005)	(0.017)
Ages 20-29	-0.020 **	0.102 *	0.007	-0.047 **	-0.024	-0.012	-0.031
	(0.006)	(0.042)	(0.014)	(0.016)	(0.037)	(0.008)	(0.021)
Ages 30-39	-0.017 **	-0.093 *	-0.033 **	-0.008	-0.022	-0.012 *	-0.005
	(0.005)	(0.042)	(0.011)	(0.012)	(0.037)	(0.005)	(0.019)
Ages 50-59	0.015 *	0.083 *	0.013	0.079 **	0.118 **	0.035 **	0.031 *
	(0.006)	(0.038)	(0.011)	(0.013)	(0.035)	(0.005)	(0.015)
Ages 60-69	0.007	-0.008	-0.015	0.102 **	0.060	0.035 **	0.024
	(0.006)	(0.047)	(0.015)	(0.015)	(0.047)	(0.007)	(0.022)
Ages 70-99	-0.013	-0.055	-0.105 **	0.084 **	0.049	0.019 **	0.059 **
	(0.007)	(0.073)	(0.021)	(0.014)	(0.050)	(0.006)	(0.018)
Observ.	26,466	5,397	14,383	5,254	3,361	23,348	4,314
q3≠q1			##		##		
q5≠q3	##	##	##	##	##	##	

Source: Author's compilation based on income and household consumption surveys.
Notes: Standardized errors in parenthesis based on 500 bootstrap repetitions.
*significant at 5%, ** significant at 1%, #significantly different than previous quintile at 5%, ##significantly different than previous quintile at 1%.
The instruments for lifetime income are education of the partners' household head and its square

Table 5. Median Regressions of Saving Rates on Age and Wealth Index Quintile Dummies

	Argentina	Bahamas	Colombia	Costa Rica	Ecuador	Mexico	Paraguay	Peru	Uruguay
Quintile 1	0.126 **	0.020	0.222 **	-0.138 **	0.029 **	-0.123 **	-0.288 **	0.065 **	0.132 ***
	(0.010)	(0.063)	(0.011)	(0.026)	(0.004)	(0.011)	(0.027)	(0.003)	(0.012)
Quintile 2	0.097 * ##	-0.004	0.145 ** ##	-0.061 * ##	0.034 **	-0.021 ##	-0.216 ** #	0.056 **	0.124 ***
	(0.010)	(0.063)	(0.011)	(0.027)	(0.004)	(0.011)	(0.027)	(0.008)	(0.012)
Quintile 3	0.086 **	-0.032	0.137 **	-0.014	0.048 ** ##	0.008 #	-0.089 ** ##	0.078 ** ##	0.121 ***
	(0.010)	(0.063)	(0.011)	(0.028)	(0.004)	(0.011)	(0.027)	(0.005)	(0.012)
Quintile 4	0.115 ** ##	0.081	0.133 **	0.074 ** ##	0.054 **	0.040 ** ##	-0.034	0.079 **	0.105 ***
	(0.010)	(0.062)	(0.011)	(0.027)	(0.004)	(0.011)	(0.027)	(0.004)	(0.012)
Quintile 5	0.114 **	-0.085 #	0.149 **	0.188 ** ##	0.086 ** ##	0.083 ** ##	0.088 ** ##	0.097 ** ##	0.107 ***
	(0.010)	(0.063)	(0.011)	(0.027)	(0.004)	(0.011)	(0.027)	(0.004)	(0.012)
Ages 20-29	-0.114 **	-0.132	-0.104 **	-0.129 **	-0.025 **	-0.040 **	-0.031	-0.018 **	-0.041 **
	(0.013)	(0.088)	(0.014)	(0.033)	(0.004)	(0.013)	(0.032)	(0.005)	(0.017)
Ages 30-39	-0.062 **	0.033	-0.064 **	-0.017	-0.022 **	-0.042 **	0.005	-0.006	-0.015
	(0.011)	(0.069)	(0.012)	(0.028)	(0.004)	(0.011)	(0.028)	(0.005)	(0.014)
Ages 50-59	0.068 **	0.049	0.056 **	0.010	0.014 **	0.019	0.094 **	0.033 **	0.023 *
	(0.011)	(0.065)	(0.012)	(0.029)	(0.004)	(0.012)	(0.028)	(0.004)	(0.013)
Ages 60-69	0.096 **	-0.162 *	0.050 **	0.028	0.000	-0.022	0.037	0.031 **	0.007
	(0.012)	(0.072)	(0.014)	(0.034)	(0.004)	(0.013)	(0.032)	(0.005)	(0.014)
Ages 70-99	0.111 **	-0.560 **	0.027	-0.056	-0.010 *	-0.134 **	-0.014	0.016 **	0.033 **
	(0.012)	(0.079)	(0.014)	(0.037)	(0.004)	(0.014)	(0.034)	(0.006)	(0.013)
Observ.	28961	1489	25081	5669	39364	20691	5326	34189	7023
q3≠q1	##		##	##	##	##	##	##	
q5≠q3	#			##	##	##	##	##	

Source: Authors' compilation based on income and household consumption surveys.
Notes: Standardized errors in parenthesis.
*significant at 5%, ** significant at 1%, #significantly different than previous quintile at 5%, ##significantly different than previous quintile at 1%.
Household wealth index is a weighted average of available home appliances and other durable assets (car, homeownership, etc.).

5. Conclusions

In this paper we followed two empirical strategies to address whether the rich save more in LAC. First, we implemented a two-stage procedure to estimate the effects of lifetime income on saving rates. To proxy for lifetime income we use information on the education of the household head's partner. Second, we constructed a wealth index based on home assets (car, homeownership, TV, PC, etc). We worked with household heads above 20 years old. We present robustness exercises of restricting the sample to those aged 30 to 59 and of using the household head's education as an alternative instrument.

The main result is that the rich save more in 10 out of 14 LAC countries considered. Households in the fifth quintile of lifetime income have a statistically larger saving rate than poorer households in all cases but in Bahamas, Chile, Colombia and Uruguay. In Argentina there are no differences in the saving rates of the first four lifetime income quintiles and only the top rich save more. In Brazil, Honduras and Mexico we find that the top quintile saves more than the rest but there is at least one other income/wealth quintile that saves more than the previous ones. For the other countries the rich save more, but in some estimations we find that only the top rich save more, while in other estimations we find that the rich save more along the income/wealth distribution.

Our results, therefore, are closer to Dynan, Skinner and Zeldes (2004) and Chakrabarty, Katayama and Maslen (2008), who find that the rich save more in the United States and Australia, than to Alan, Atalay and Crossley (2014), who find that this does not happen in Canada.

In terms of theory, our results suggest that models that predict saving rates proportional to lifetime income (life-cycle models as in Aando and Modigliani, 1963, and Modigliani and Brumberg, 1954, or the permanent income hypothesis of Friedman, 1957) are not adequate to capture behavior at the top of the income distribution for most LAC countries. They will perform reasonably well for a certain percentage of the population (e.g., in Argentina 80 percent, corresponding to the first four quintiles) but will not capture some important differences for the top income earners. Higher saving rates for the rich might be explained with models with bequest motives, as in Becker and Tomes (1986), or in models that include wealth in the utility function, as in Carroll (2000).

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Appendix

Table A1. Data

	Years	Survey	Source	Households
Argentina	2004-2005	Encuesta Nacional de Gastos de los Hogares	Instituto Nacional de Estadística y Censos	29,138
Bahamas	2013	Bahamas Household Expenditure Survey	Department of Statistics, Ministry of Finance	1,544
Bolivia	2003-2004	Encuesta Continua de los Hogares	Instituto Nacional de Estadística	9,149
Brazil	2008-2009	Pesquisa de Orçamentos Familiares	Instituto Brasileiro de Geografia e Estatística	55,702
Chile	2011-2012	VII Encuesta de Presupuestos Familiares	Instituto Nacional de Estadísticas	10,518
Colombia	2011	Encuesta Nacional de Calidad de Vida	Departamento Administrativo Nacional de Estadística	25,364
Costa Rica	2013	Encuescuesta Nacional de Ingresos y Gastos de los Hogares	Instituto Nacional de Estadística y Censos	5,705
Ecuador	2004	Encuesta Nacional de Ingresos y Gastos de los Hogares Urbanos	Instituto Nacional de Estadística y Censos	39,617
Honduras	2004	Encuesta Nacional de Condiciones de Vida	Instituto Nacional de Estadística	8,175
Mexico	2005	Encuesta Nacional de Ingresos y Gastos de los Hogares	Instituto Nacional de Estadística y Geografía	20,875
Panama	2007-2008	Encuesta de Ingresos y Gastos de los Hogares	Instituto Nacional de Estadística y Censo	8,895
Paraguay	2011-2012	Encuesta de Ingresos y Gastos y de Condiciones de Vida	Dirección General de Estadísticas, Encuestas y Censos	5,417
Peru	2008-2009	Encuesta Nacional de Presupuestos Familiares	Instituto Nacional de Estadística e Informática	35,161
Uruguay	2005-2006	Encuesta Nacional de Gastos e Ingresos de los Hogares	Instituto Nacional de Estadística	7,043

Note: The Bolivian survey is part of the continuous household surveys that introduced a module in 2003-2004 to capture detailed data on income and expenses.

Table A2. Assets Used in the Construction of the Wealth Index

Argentina
Cooking stove (hobs &ovens); Microwave; Refrigerator ; Home Freezer; Dishwasher; Multiprocessor; Digital camera; Internet; Personal Computer; DVD; Television; Digital movie camera; Video cassette player; Vacuum cleaner; Gas heater; Purified air extractor; Washing machines; Cellular phone; Wireless phone; Water Heater; Car; Van; Bicycle; Homeowner.
Bahamas
Refrigerator; Home Freezer; Gas/ Electric cooking stoves (hobs & ovens); Microwave; Other kitchen appliances; Washing machine; Clothing Dryer; Other major laundry equipment; Air Conditioner; Water Heater; Vacuum cleaner; Lawn Mowers; Other motorized equipment, e.g., electric drills, saw and hedge cutters; Television; Video /CD Player; Movie Cameras/ Camera; Personal Computer; Homeowner.
Colombia
Washing machine; Refrigerator; Blender; Iron; Gas/ Electric heater; Gas/ Electric cooking stoves; Microwave; Gas/ Electric water heater or electric shower; Television; Video player (DVD, blue-ray, others); Stereo; Personal Computer; Vacuum cleaner / polisher; Air conditioner; Fan; Digital music, video & pictures player (mp3, mp4, iPod); Game consoles: play station, X-box, Wii, Psp, Nintendo, game; Movie camera; Personal Car; Motorcycle or scooter; House, apartment or country house; Digital camera; Homeowner.
Costa Rica
Cellular phone; Phone; Refrigerator; Water heater; Water storage tank; Laptop computer; Desktop computer; Tablet; Radio or Stereo; Plasma, LCD or LED television ; Television; Homeowner.
Ecuador
Air conditioner; Bicycle; Movie camera; Cooking Stoves with or without oven or kitchenette; Desktop computer; Laptop computer; DVD, VCD; Stereo; Exhaust fan; Game console, Play station; Washing machine; Washing & dryer machine; Dishwasher; Blender; Sewing machine; Fitness machine; Microwave; Motorcycle; Refrigerator; flat TV; Television; Vehicle for home use; Land not for agricultural use; Business premises; Homeowner.
Mexico
Car, van, or pickup; Motorcycle or scooter for home use; Bicycle; Boat or other maritime vehicle; Stereo micro components or console; CD player; Radio recorder with CD player; Radio recorder without CD player; Radio; Color Television; Video cassette player; DVD; Blender; Juicer; Electric juice extractor; Toaster; Coffee machine; Sandwich toaster; Electric juice squeezer; Electric can opener; Electric oven; Microwave; Refrigerator; Gas/ Electric Stove; Hand mill; Washing machine; Iron; Sewing machine; Fan; Air conditioner; Water Heater; Vacuum cleaner; Computer; Printer; Scanner, burner, modem & other devices; Video games: Nintendo, Play station, Sega or others; Homeowner.
Paraguay
Air conditioner; Vacuum Cleaner; Car; Bicycle; Van; Gas cooking stoves with oven or Electric cooking stoves; Computer; DVD; Refrigerator; Electric oven; Washing machine; Blender; Microwave; Motorcycle; Notebook; DVD; Iron; Radio; Dryer; Color television; Homeowner.
Peru
Sewing machine; Knitting machine; Car or Van for private use; Motorcycle for private use; Computer; Homeowner.
Uruguay
Water heater; Refrigerator; Freezer or Refrigerator with freezer; Television; Video cassette player; DVD; Washing machine; Dishwasher; Microwave; Electric stove; Air Conditioner; Central home heating; Computer; Phone; Cellular phone; Car for private use; Motorcycle for private use; Homeowner.

Source: Author's compilation based on income and household consumption surveys.

Table A3. Median Regressions of Saving Rates on Age and Lifetime Income Quintile Dummies, Sample Restricted to Workers Age 30-59

	Argentina	Bahamas	Bolivia	Brazil	Chile	Colombia	Costa Rica
Quintile 1	0.111 **	0.007	0.185 **	-0.013	-0.030	0.270 **	-0.040
	(0.012)	(0.082)	(0.018)	(0.010)	(0.019)	(0.014)	(0.027)
Quintile 2	0.051	0.055	0.215 **	0.038 ** ##	-0.026	0.209 ** ##	-0.061
	(0.032)	(0.097)	(0.014)	(0.011)	(0.019)	(0.015)	(0.058)
Quintile 3	0.096 **	0.007	0.192 **	0.074 ** ##	-0.106 ** ##	0.139 ** ##	-0.001
	(0.010)	(0.082)	(0.015)	(0.011)	(0.031)	(0.016)	(0.044)
Quintile 4	0.073 **	0.182 *	0.163 **	0.134 ** ##	-0.019 ##	0.105 **	0.076 *
	(0.020)	(0.088)	(0.015)	(0.009)	(0.025)	(0.014)	(0.038)
Quintile 5	0.152 ** ##	0.235 **	0.204 ** #	0.217 ** ##	0.032 #	0.244 ** ##	0.204 ** ##
	(0.013)	(0.073)	(0.018)	(0.011)	(0.019)	(0.019)	(0.038)
Ages 30-39	-0.051 **	-0.002	-0.027	-0.019 *	0.028	-0.055 **	0.009
	(0.014)	(0.083)	(0.015)	(0.009)	(0.020)	(0.015)	(0.035)
Ages 50-59	0.075 **	-0.047	-0.009	0.046 **	0.096 **	0.055 **	0.000
	(0.013)	(0.080)	(0.014)	(0.010)	(0.021)	(0.014)	(0.040)
Observ.	12,318	437	3,992	25,586	4,392	10,347	2,470
q3≠q1				##	#	##	
q5≠q3	##	##		##	##	##	##

Table A3., continued

	Ecuador	Honduras	Mexico	Panama	Paraguay	Peru	Uruguay
Quintile 1	0.041 **	-0.321 **	-0.026 *	0.015	-0.211 **	0.079 **	0.131 **
	(0.005)	(0.046)	(0.013)	(0.013)	(0.039)	(0.005)	(0.017)
Quintile 2	0.033 **	-0.216 ** #	0.014 #	0.025 *	-0.163 **	0.081 **	0.104 **
	(0.009)	(0.040)	(0.015)	(0.012)	(0.036)	(0.005)	(0.032)
Quintile 3	0.047 **	-0.206 **	0.011	0.038 *	-0.164 **	0.074 **	0.132 **
	(0.005)	(0.042)	(0.011)	(0.017)	(0.051)	(0.007)	(0.022)
Quintile 4	0.062 **	-0.029 ##	0.044 ** #	0.035 *	-0.004 ##	0.083 **	0.087 **
	(0.010)	(0.058)	(0.012)	(0.017)	(0.034)	(0.007)	(0.020)
Quintile 5	0.113 ** ##	0.131 ** ##	0.106 ** ##	0.103 ** ##	0.109 ** ##	0.120 ** ##	0.091 **
	(0.006)	(0.037)	(0.012)	(0.012)	(0.033)	(0.006)	(0.018)
Ages 30-39	-0.016 **	-0.110 *	-0.032 **	-0.009	-0.010	-0.012 *	-0.005
	(0.005)	(0.043)	(0.012)	(0.013)	(0.036)	(0.005)	(0.019)
Ages 50-59	0.017 **	0.096 *	0.015	0.078 **	0.109 **	0.035 **	0.031
	(0.006)	(0.038)	(0.011)	(0.014)	(0.035)	(0.006)	(0.018)
Observ.	17,774	3,506	10,077	3,606	2,269	16,819	2,728
q3≠q1		#	##				
q5≠q3	##	##	##	##	##	##	

Source: Authors' compilation based on income and household consumption surveys.
Standardized errors in parenthesis based on 500 bootstrap repetitions.
*significant at 5%, ** significant at 1%, #significantly different than previous quintile at 5%, ##significantly different than previous quintile at 1%.
The instruments for lifetime income are education of the partners' household head and its square.

Table A4. Median Regressions of Saving Rates on Age and Wealth Index Quintile Dummies, Sample Restricted to Workers Age 30-59

	Argentina	Bahamas	Colombia	Costa Rica	Ecuador	Mexico	Paraguay	Peru	Uruguay
Quintile 1	0.124 **	0.010	0.246 **	-0.155 **	0.027 **	-0.084 **	-0.279 **	0.067 **	0.124 **
	(0.012)	(0.064)	(0.013)	(0.028)	(0.004)	(0.011)	(0.031)	(0.003)	(0.015)
Quintile 2	0.094 ** #	0.034	0.152 ** ##	-0.053 ##	0.031 **	-0.010 ##	-0.213 **	0.056 **	0.121 **
	(0.012)	(0.064)	(0.013)	(0.030)	(0.004)	(0.011)	(0.031)	(0.007)	(0.015)
Quintile 3	0.073 **	-0.041	0.131 **	-0.004	0.052 ** ##	0.008	-0.094 ** ##	0.078 ** #	0.138 **
	(0.012)	(0.063)	(0.013)	(0.029)	(0.004)	(0.011)	(0.031)	(0.007)	(0.015)
Quintile 4	0.131 ** ##	-0.010	0.131 **	0.076 ** #	0.060 **	0.028 *	-0.022	0.078 **	0.092 ** #
	(0.012)	(0.063)	(0.013)	(0.029)	(0.004)	(0.011)	(0.031)	(0.005)	(0.015)
Quintile 5	0.120 **	-0.071	0.137 **	0.183 ** ##	0.087 ** ##	0.076 ** ##	0.085 ** ##	0.095 ** ##	0.101 **
	(0.012)	(0.064)	(0.013)	(0.029)	(0.004)	(0.011)	(0.031)	(0.005)	(0.015)
Ages 20-29	-0.062 **	0.042	-0.065 **	-0.018	-0.022 **	-0.049 **	0.008	-0.006	-0.011
	(0.011)	(0.061)	(0.012)	(0.027)	(0.004)	(0.010)	(0.029)	(0.005)	(0.014)
Ages 30-39	0.065 **	0.079	0.052 **	0.015	0.013 **	0.017	0.090 **	0.033 **	0.023
	(0.011)	(0.058)	(0.012)	(0.028)	(0.004)	(0.011)	(0.029)	(0.004)	(0.014)
Ages 50-59	17,744	964	15,909	3739	25009	13585	3308	23134	3871
	##		##	##	##	##	##		
Ages 60-69	##			##	##	##	##	#	#
	0.124 **	0.010	0.246 **	-0.155 **	0.027 **	-0.084 **	-0.279 **	0.067 **	0.124 **
Ages 70-99	(0.012)	(0.064)	(0.013)	(0.028)	(0.004)	(0.011)	(0.031)	(0.003)	(0.015)
	0.094 ** #	0.034	0.152 ** ##	-0.053 ##	0.031 **	-0.010 ##	-0.213 **	0.056 **	0.121 **
Observ.	(0.012)	(0.064)	(0.013)	(0.030)	(0.004)	(0.011)	(0.031)	(0.007)	(0.015)
q3≠q1	0.073 **	-0.041	0.131 **	-0.004	0.052 ** ##	0.008	-0.094 ** ##	0.078 ** #	0.138 **
q5≠q3	(0.012)	(0.063)	(0.013)	(0.029)	(0.004)	(0.011)	(0.031)	(0.007)	(0.015)

Source: Author's compilation based on income and household consumption surveys.
Standardized errors in parenthesis
*significant at 5%, ** significant at 1%, #significantly different than previous quintile at 5%, ##significantly different than previous quintile at 1%.
Household wealth index is a weighted average of available home appliances and other durable assets (car, homeownership, etc.).

Table A5. Median Regressions of Saving Rates on Age and Lifetime Income Quintile Dummies, Alternative Instruments

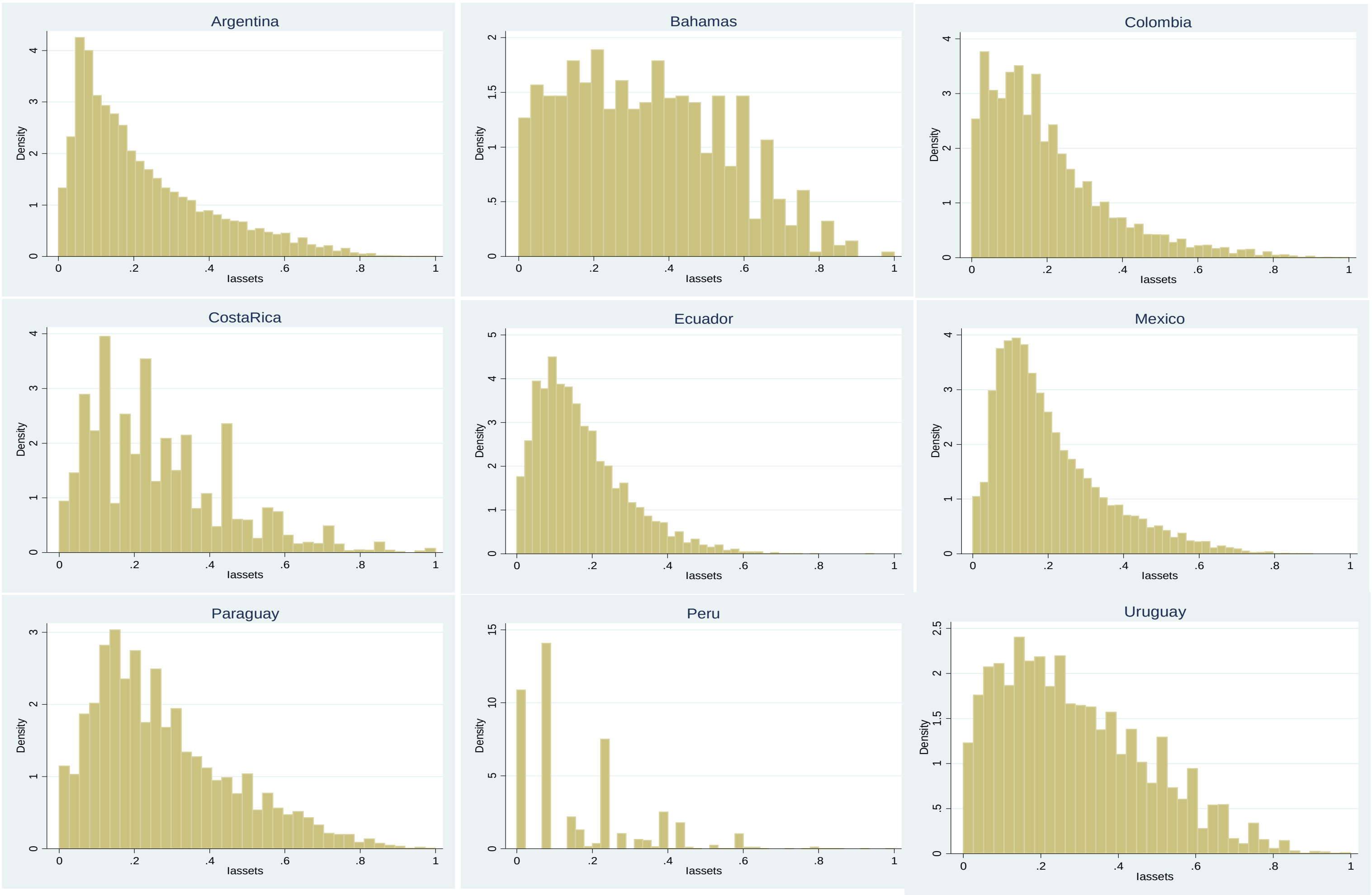
	Argentina	Bahamas	Bolivia	Brazil	Chile	Colombia	Costa Rica
Quintile 1	0.119 **	0.021	0.187 **	0.001	0.007	0.264 **	-0.044
	(0.012)	(0.089)	(0.017)	(0.009)	(0.018)	(0.013)	(0.031)
Quintile 2	0.095 **	0.082	0.200 **	0.037 ** ##	-0.021	0.209 ** ##	-0.053
	(0.013)	(0.063)	(0.015)	(0.009)	(0.018)	(0.014)	(0.039)
Quintile 3	0.090 **	-0.155	0.199 **	0.066 ** ##	-0.058 **	0.149 ** ##	-0.018
	(0.011)	(0.257)	(0.014)	(0.009)	(0.020)	(0.014)	(0.032)
Quintile 4	0.107 **	0.172 *	0.174 **	0.105 ** ##	-0.028	0.100 ** ##	0.093 * ##
	(0.013)	(0.076)	(0.014)	(0.008)	(0.021)	(0.014)	(0.037)
Quintile 5	0.146 ** #	0.223 **	0.193 **	0.197 ** ##	0.009	0.202 ** ##	0.228 ** ##
	(0.013)	(0.068)	(0.015)	(0.009)	(0.020)	(0.018)	(0.033)
Ages 20-29	-0.089 **	-0.161	-0.050 **	-0.083 **	-0.027	-0.088 **	-0.106 **
	(0.016)	(0.168)	(0.016)	(0.012)	(0.030)	(0.018)	(0.039)
Ages 30-39	-0.058 **	-0.016	-0.024	-0.019 **	0.017	-0.054 **	0.001
	(0.014)	(0.082)	(0.014)	(0.009)	(0.020)	(0.015)	(0.034)
Ages 50-59	0.076 **	-0.068	-0.006	0.044 **	0.082 **	0.057 **	0.021
	(0.012)	(0.068)	(0.016)	(0.009)	(0.019)	(0.015)	(0.035)
Ages 60-69	0.081 **	-0.201 *	0.001	0.101 **	0.156 **	0.046 **	0.002
	(0.014)	(0.100)	(0.020)	(0.009)	(0.019)	(0.015)	(0.041)
Ages 70-99	0.059 **	-0.326 *	-0.033	0.158 **	0.166 **	0.002	-0.133 *
	(0.019)	(0.157)	(0.039)	(0.013)	(0.023)	(0.019)	(0.056)
Observ.	17,647	655	5,787	38,124	6,497	15,369	3,573
q3≠q1	#			##	##	##	
q5≠q3	##			##	##	##	##

Table A5., continued

	Ecuador	Honduras	Mexico	Panama	Paraguay	Peru	Uruguay
Quintile 1	0.043 **	-0.347 **	-0.051 **	0.010	-0.236 **	0.076 **	0.140 **
	(0.004)	(0.040)	(0.014)	(0.012)	(0.043)	(0.004)	(0.017)
Quintile 2	0.035 **	-0.222 ** ##	0.001 ##	0.018	-0.224 **	0.080 **	0.119 **
	(0.005)	(0.038)	(0.012)	(0.012)	(0.041)	(0.005)	(0.021)
Quintile 3	0.041 **	-0.177 **	0.007	0.026 *	-0.137 **	0.078 **	0.099 **
	(0.005)	(0.035)	(0.012)	(0.013)	(0.040)	(0.005)	(0.018)
Quintile 4	0.054 ** #	-0.070 * ##	0.034 ** #	0.062 ** #	0.002 ##	0.076 **	0.092 **
	(0.005)	(0.033)	(0.012)	(0.013)	(0.033)	(0.005)	(0.019)
Quintile 5	0.107 ** ##	0.115 ** ##	0.110 ** ##	0.094 ** #	0.085 * ##	0.123 ** ##	0.097 **
	(0.005)	(0.031)	(0.010)	(0.012)	(0.034)	(0.005)	(0.016)
Ages 20-29	-0.020 **	0.080 *	0.002	-0.042 **	-0.003	-0.014	-0.021
	(0.005)	(0.037)	(0.014)	(0.016)	(0.041)	(0.007)	(0.022)
Ages 30-39	-0.015 **	-0.108 **	-0.036 **	-0.006	-0.005	-0.011 *	-0.002
	(0.005)	(0.038)	(0.011)	(0.012)	(0.034)	(0.005)	(0.019)
Ages 50-59	0.017 **	0.069	0.021	0.079 **	0.112 **	0.033 **	0.034 *
	(0.005)	(0.039)	(0.013)	(0.013)	(0.037)	(0.005)	(0.017)
Ages 60-69	0.009	-0.002	-0.016	0.100 **	0.062	0.038 **	0.018
	(0.007)	(0.044)	(0.016)	(0.014)	(0.047)	(0.006)	(0.021)
Ages 70-99	-0.010	-0.068	-0.102 **	0.082 **	0.046	0.016 *	0.054 **
	(0.006)	(0.061)	(0.022)	(0.017)	(0.045)	(0.007)	(0.017)
Observ.	26,466	5,397	14,383	5,254	3,317	23,276	4,314
q3≠q1		##	##		#		#
q5≠q3	##	##	##	##	##	##	

Source: Author's compilation based on income and household consumption surveys.
Notes: Standardized errors in parenthesis based on 500 bootstrap repetitions.
*significant at 5%. ** significant at 1%. #significantly different than previous quintile at 5%. ##significantly different than previous quintile at 1%.
The instruments for lifetime income are education of the household head, the household head partner's education and their square

Figure A1. Density Function of Wealth Index



Source: Author's compilation based on income and household consumption surveys.