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# THE LATIN AMERICAN MIDDLE CLASS: FRAGILE AFTER ALL? [1]

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This paper joins in the debate on the size of the middle class in Latin America, providing an analysis of its structure and characteristics. Using several measurements, it finds that 40-60 percent of Latin American households are middle class, a share which has consolidated over the past decade. The analysis reveals that gender, age, and education are associated with the likelihood of being middle class. The example of Colombia illustrates that, while growing in size, this income group still faces deficits in crucial dimensions of well-being, such as education, job formality, and health care, which are generally associated with being middle class. The analysis reveals the fragility of this emerging group in the region.

**Key words:** Middle class, Latin America, Multidimensional poverty
**JEL:** D3, I3, D6

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## 1. Introduction

Economic progress in Latin America over the last decade has been undeniable: solid growth rates, macroeconomic stability, and fiscal discipline were detained only temporarily by the international financial crisis that began in 2008. Thanks to favorable economic conditions and sound growth rates, the region has made significant progress on its poverty reduction strategy, with poverty rates decreasing from 48 percent to 29 percent between 1990 and 2011, and extreme poverty dropping from 23 percent to 11 percent (ECLAC, 2013). However, income inequality, although declining, remains high; the regional Gini coefficient is 0.48. Shrinking poverty rates have been paired with a booming middle class that has garnered the attention of policy making throughout the region.

This is no wonder when evidence suggests that the middle class tends to stimulate growth, promote political and economic stability, and favor the adoption of progressive political programs. Members of the middle class, it is hypothesized, exhibit a propensity for savings, investment, and entrepreneurship, and their consumption habits can be an engine of growth. As a result, a better understanding of the middle class is critical for designing policies to foster and promote their role in society.

This paper explores middle class size and characteristics, its determinants, and the possibility that this rising segment of the population in Latin America might still be constrained in terms of access to quality education, formal employment, and access to services. To do this it offers a statistical portrait of the Latin American middle class, with special emphasis on the economic behavior that sets it apart from its poorer and richer compatriots. This characterization and measurement is based on household surveys of living standards throughout the region. By using several standards, we show that income definitions to gauge the size of this rising segment of the population might conceal its fragility in terms of well-being. To address these challenges successfully, the new generation of social programs needs to focus on the quality and relevance of education, protect households against risks, effectively redistribute income, and at the same time promote productivity so as to ensure sustainable consolidation of the middle class. This discussion comes at a time of economic slowdown, in which attention should be focused on these policies.

The paper is structured as follows. Section 2 explains the importance of the middle class and the logic behind the choice of a relative threshold to identify it. Section 3 discusses the

evolution of the middle class over the past decade and its characteristics. Section 4 estimates the determinants of belonging to the middle class. Section 5 addresses the well-being of the middle class in the case of Colombia. Section 6 concludes.

## 2. The Importance of the Middle Class

The middle class is frequently considered an engine of socioeconomic development. Economic research suggests that broad-based income growth and development results from the strengthening of the middle class, as this group tends to favor greater social cohesion, provide skilled and productive labor, and demand goods and services, fostering the role of the domestic market as an engine of growth (Easterly, 2001). Thurow (1987) argues that a solid middle class is key for capitalism and democracy to thrive, and that the eventual shrinking of the middle class would have adverse consequences for social cohesion. These elements are reiterated in Barro (1999), Birdsall, Graham, and Pettinato (2000) and Easterly (2001). The middle class is generally associated with social cohesion, political stability, higher incomes, higher levels of education, better health outcomes, and greater intergenerational mobility. Therefore, understanding the nature of the middle class, and movements into and out of it, is essential for designing and implementing policies to reduce social inequalities. Solimano (2008) analyzes correlations between the size of the middle class and other variables like per capita income, state size, and democracy indicators, suggesting a relationship between them.

A solid middle class may be the cradle of entrepreneurship and, as such, encourage innovation and capital accumulation. This is the argument of Max Weber in his classic work, *The Protestant Ethic and the Spirit of Capitalism* (1905). The demand of the middle class for quality products encourages investment in production and marketing, with positive effects on income generation (Murphy, Schleifer, and Vishny, 1989). But the evidence is mixed. Banerjee and Duflo (2008), looking at the contemporary developing world, do not find that the middle class exhibits greater entrepreneurial propensity than other groups. Nevertheless, in a comparative study, Kantis, Ishida, and Komori (2002) find that nearly half of East Asian dynamic enterprises were founded by entrepreneurs from the lower and middle classes, while only 25 percent were in Latin America. This is consistent with the findings of an OECD survey of Latin America (2010) that generally demonstrates that business ownership is concentrated among the highest-income group. The analysis of attitudes toward entrepreneurship points to no significant

differences between social groups. Castellani and Lora (2013b) provide a detailed analysis of the linkages between the middle class and entrepreneurship in Latin America, finding that entrepreneurship can be a vehicle for upward social mobility, especially for the middle class, in the region.

Members of the middle class express values and exhibit qualities that might indirectly support policies that promote inclusive growth, encouraging savings and capital accumulation, as they tend to specialize in occupations that require skills and experience (Torche and López-Calva, 2011) and support values such as patience, effort, and a strong work ethic (Doepke and Zilibotti, 2008). In addition, the middle class supports political stability and social cohesion (Torche and López-Calva, 2011), which in turn promotes political rights (Barro, 1999) and long-term investment (Alesina and Perotti, 1996). Careful analysis of the nature and role of the middle class is all the more important in the case of Latin America, given the region's low social mobility and high inequality.

Despite recent developments in the literature, consensus on the definition of the middle class remains elusive. Though the reference to class stratification is grounded in conventional economics, it is nonetheless difficult to get away from social criteria, such as education, occupational status, and consumption patterns. Income-based definitions, in turn, are either absolute or relative. Absolute measures assume fixed income ranges, such as daily per capita incomes between $2 and $13, adjusted for purchasing power parity (PPP): that is, correcting for differences in purchasing power across countries. Relative measures consider the relative position in national income distributions (quintiles). Opinion surveys constitute yet another way to (self)-identify members of the middle classes.

Thurow (1987) defines the middle class as the group with incomes lying between 75 and 125 percent of the median income, as do Birdsall, Graham, and Pettinato (2000). Davies and Huston (1992) use the 50–150 percent thresholds, as do Castellani and Parent (2011) and OECD (2010b). Blackburn and Bloom (1985) adopt a range of 0.6 to 2.25. Easterly (2001) defines the middle class as those households in the second, third, and fourth quintiles (twentieth to eightieth deciles). Solimano (2008) adopts a definition of the middle class as encompassing the third to ninth deciles, distinguishing between a lower-middle class (third to sixth deciles) and an upper-middle class (seventh to ninth deciles).

Among recent studies of developing economies, Ravallion (2009) includes in the middle-income class households with daily per capita income between $2 and $13 (in 2005 US dollars at PPP);[2] Banerjee and Duflo (2008) use consumption ranges between $2 and $10 per day (roughly $800–$3,600 per year). The lower limit of $2 a day is a widely used international standard for the poverty line. While absolute measures are transparent, it might be challenging to apply them to countries with different levels of economic development. Fajardo and Lora (2013) argue that in Latin America, the perception of social class membership transcends mere financial considerations to include capabilities and personal relationships.

Kharas and Gertz (2010) focus on expenditure in the range of $10–$100 per day, as do Cárdenas, Henao, and Kharas. Birdsall (2010) uses a mixed definition of income from $10 per day up to the 90th percentile. More recently, Ferreira et al. (2013) propose daily income between $10 and $50 (PPP-2005 dollars), following López-Calva and Ortíz-Juárez (2014). Birdsall (2012) also uses this definition.

As one might expect, the size of the middle class varies according to the definition (relative and absolute) employed. In the case of Latin America, the literature provides estimates by countries as well as for the entire region. Cárdenas, Kharas and Henao (2011) estimate the Latin American middle class at 36 percent of all households (with daily expenditures between $10 and $100 per person in PPP terms). Castellani and Parent (2011), using national household data, find that the Latin American middle class ranges between 35 and 50 percent of all households, when a definition of per capita incomes between 50 percent and 150 percent of median income is used, and between 55 and 75 percent of all households when the definition of $2–20 PPP per day is employed. Fajardo and Lora (2013), using the Gallup 2007 World Gallup Poll, find that the size ranges between 40 and 60 percent ($2–10 per day PPP and $2–13 per day PPP). In the countries studied by Birdsall (2012), the middle class accounts for 15 to 35 percent of the population ($10 and $100 per person in PPP terms). According to Ferreira et al. (2013), and based on household surveys, using the $10–50 PPP per day definition, the middle class in Latin America and the Caribbean represents 152 million people, or 30 percent of the region's population.

[2] All dollar amounts are in US dollars.

This paper estimates the size of the middle class in selected countries and focuses on a relative definition, anchored around median income to characterize it.[3] This measurement allows the size across countries to be compared and its evolution to be monitored in countries over time.[4] It identifies the population in the middle of the income distribution and analyzes its characteristics.[5] In this paper, households are considered middle class if income per adult is equivalent to between 50 and 150 percent of the national median income, following the definition of Davies and Huston (1992). Empirical studies on poverty often use the 50 percent threshold as the poverty line.[6] The 50–150 percent range avoids including the poorest and the richest segments in the middle class.[7] Finally, this definition varies with income inequality, unlike other definitions. Households with income per adult equivalent below the 50 percent threshold will be identified as 'poor' and those with income above the 150 percent ceiling will be considered 'affluent.' Calculations are based on household and living standards surveys (LSS) released by national bureaus of statistics for selected years, using total income adjusted for household composition as a defining variable.[8]

## 3. The Middle Class in Latin America, 2000–11

This section considers the evolution of the size of the middle class from 2000 to 2011 in Argentina, Bolivia, Brazil, Chile, Colombia, Mexico, Peru, and Uruguay. According to the definition of 50–150 percent of median income, in 2011 around 50 percent of Latin American households were middle class (ranging from 45 to 55 percent in the countries studied). Between 16 and 23 percent belonged to the lower class and around 30 percent belong to the upper class (Table 1). Colombia and Bolivia have the smallest middle class (45–47 percent of households) in the region, while Argentina, Chile, Mexico, and Uruguay have middle classes that exceed 50 percent of households.

[3] The median household income is not subject to the same distortions as the average, which can be biased upward by a small number of households with very high incomes. The median is a relevant measure in case of high inequality as in Latin America, where income distribution is highly skewed and where there is a substantial gap between median and mean income.

[4] See Cruces, López-Calva and Battiston (2010).

[5] See Birdsall et al., 2000, for more details.

[6] OECD statistics tend to set the poverty line for member countries at 50 per cent of median income.

[7] See Torche and López-Calva (2011) for a complete description of all measurements.

[8] Importantly, the use of income variables discriminates between groups, and does not allow direct comparison with the official national poverty figures, which usually are based on consumption, and use an absolute poverty line based on the cost of a basket of goods covering basic needs.

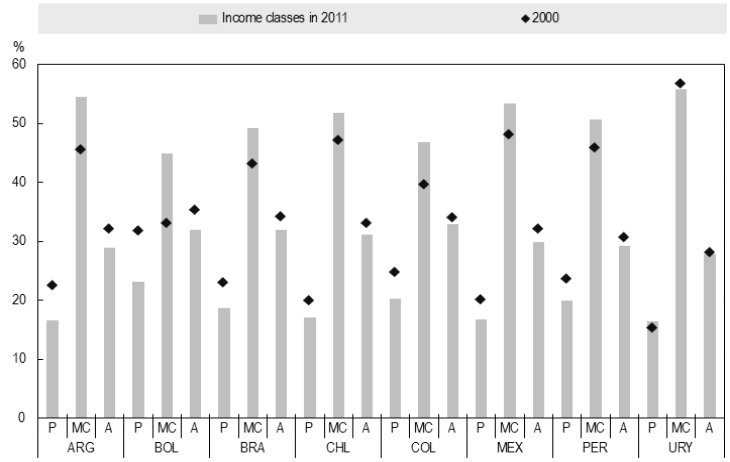
The evolution of indicators from 2000 to 2011 shows a consolidation of the middle class (Figure 1) across all countries sampled. On average, the middle class grew from 44 to 51 percent of total households. Bolivia, Argentina, and Colombia show the strongest consolidation over time, while no evolution is observed in Uruguay.

**Table 1. Size of the Middle Class in Latin America in or around 2011 (Percent of households)**

| | Argentina (urb) | Bolivia | Brazil | Chile | Colombia | Mexico | Peru | Uruguay *(urb)* |
|---|---|---|---|---|---|---|---|---|
| | *2012* | *2009* | *2011* | *2011* | *2010* | *2010* | *2010* | *2012* |
| Poor | 16.6 | 23.0 | 18.4 | 17.0 | 20.0 | 16.8 | 20.0 | 16.3 |
| *of which extremely poor* | *3.9* | *10.6* | *4.9* | *3.5* | *7.9* | *3.6* | *5.4* | *3.3* |
| **Middle class** | **54.5** | **44.6** | **48.6** | **51.4** | **46.1** | **53.4** | **50.7** | **55.4** |
| *of which lower middle class* | *17.9* | *13.7* | *16.5* | *18.2* | *15.4* | *17.5* | *15.4* | *17.7* |
| Upper class | 28.9 | 31.8 | 31.5 | 31.0 | 32.3 | 29.8 | 29.3 | 27.6 |
| Gini coefficient (2012) | 0.417 | 0.473 | 0.528 | 0.523 | 0.550 | 0.505 | 0.462 | 0.410 |
| Median household income (PPP conversion rates, 2005 $US) | 996.9 | 376.4 | 470.7 | 571.6 | 365.2 | 462.1 | 482.4 | 784.5 |

*Source*: Authors' calculations based on National Household Survey and Living Standard Surveys. *Note*: Estimations are based on household net incomes adjusted for family composition with OECD adult equivalent scale. Data are for 2009 for Bolivia; 2010 for Colombia, Mexico, and Peru; and 2012 for Argentina and Uruguay. Household surveys in Argentina and Uruguay include only urban areas. Extreme poverty is calculated as the percentage of households earning between 0–25% of median income. The lower middle class is the percentage of households between 50–75% of median income. PPP conversion rates (2005 $US): IMF data. Source for Gini coefficient: Branko Milanovic World Bank,. http://go.worldbank.org/9VCQW66LA0

**Figure 1. Evolution of the Size of the Middle Class, Selected Latin American Countries, 2000–11 (Percent of households)**




*Source*: Authors' calculations based on National Household Surveys and Living Standard Surveys. Note: P: poor, MC: middle class, A: affluent. Estimations are based on household net incomes adjusted for family composition with OECD adult equivalent scale. For the 2000 measure, data are for 2001 for Brazil and 2003 for Colombia. For the 2011 measure, data are for 2009 for Bolivia, 2010 for Colombia, Mexico, and Peru, and 2012 for Argentina and Uruguay.

We also estimate the size of the middle class according to several alternative measures summarized earlier in the paper. Table 2 shows the robustness of our results to alternative definitions: *i)* Banerjee and Duflo (2008) (consumption levels of $2–10 PPP per day); *ii)* Ravallion (2009) (per capita income of $2–13 PPP per day; and *iii)* López- Calva and Ortiz-Juarez (2014) (per capita income of $10–50 PPP per day).[9] The Banerjee/Duflo measure places a majority (60 percent) of households in the upper class, confirming the shortcomings of using these measures for middle-income countries. López-Calva and Ortiz-Juarez measure produces a middle class closer in size to ours above. However, its composition is substantially different: the absolute Banerjee/Duflo and Ravallion measurements assign more households in the upper class. Given the high degree of income inequality in these Latin American countries, these absolute measures have limited relevance.

**Table 2. Size of the Middle Class According to Relative and Absolute Measures in Selected Latin American Countries, in or around 2000 and 2011**
**(Percent of households)**

| | | Argentina | | Bolivia | | Brazil | | Chile | | Colombia | | Mexico | | Peru | | Uruguay | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Household level** | | **2000** | **2012** | **2000** | **2009** | **2001** | **2011** | **2000** | **2011** | **2003** | **2010** | **2000** | **2010** | **2000** | **2010** | **2000** | **2012** |
| **Median income- based** | Poor | 22.5 | 16.6 | 31.7 | 23.1 | 22.8 | 18.7 | 19.9 | 17.1 | 24.6 | 20.3 | 20.0 | 16.8 | 23.6 | 20.0 | 15.2 | 16.4 |
| (0.5 1.5*median income) | **MC** | 45.5 | 54.5 | 33.1 | 44.9 | 43.0 | 49.3 | 47.1 | 51.7 | 39.5 | 46.9 | 48.0 | 53.4 | 45.8 | 50.7 | 56.7 | 55.8 |
| | Upper class | 32.0 | 28.9 | 35.3 | 32.0 | 34.1 | 32.0 | 33.0 | 31.2 | 34.0 | 32.8 | 32.0 | 29.8 | 30.6 | 29.3 | 28.1 | 27.8 |
| **PPP-based** | Poor | 2.1 | 0.2 | 22.6 | 6.8 | 4.7 | 2.0 | 1.7 | 0.9 | 10.9 | 4.8 | 1.3 | 0.7 | 6.3 | 0.9 | 0.1 | 0.4 |
| (2–10 dollars per day) | **MC** | 35.8 | 5.7 | 42.8 | 33.5 | 48.1 | 27.7 | 28.6 | 18.4 | 46.7 | 36.0 | 35.4 | 27.3 | 49.6 | 27.1 | 13.9 | 9.1 |
| | Upper class | 62.2 | 94.1 | 34.6 | 59.7 | 47.2 | 70.3 | 69.7 | 80.6 | 42.4 | 59.2 | 63.3 | 72.0 | 44.1 | 72.0 | 86.0 | 90.5 |
| **PPP-based** | Poor | 2.1 | 0.2 | 22.6 | 6.8 | 4.7 | 2.0 | 1.7 | 0.9 | 10.9 | 4.8 | 1.3 | 0.7 | 6.3 | 0.9 | 0.1 | 0.4 |
| ($2–13 dollars per day) | **MC** | 47.8 | 10.1 | 52.3 | 45.1 | 58.9 | 38.0 | 41.0 | 30.3 | 56.3 | 48.9 | 47.5 | 40.8 | 61.1 | 38.7 | 24.2 | 16.3 |
| | Upper class | 50.1 | 89.7 | 25.1 | 48.1 | 36.4 | 60.0 | 57.3 | 68.8 | 32.8 | 46.3 | 51.2 | 58.5 | 32.6 | 60.3 | 75.7 | 83.3 |
| **PPP-based** | Poor | 37.8 | 5.9 | 65.4 | 40.3 | 52.8 | 29.7 | 30.3 | 19.4 | 57.6 | 40.8 | 36.7 | 28.0 | 55.9 | 28.0 | 14.0 | 9.5 |
| (10–50 dollars per day) | **MC** | 56.0 | 65.9 | 31.4 | 55.1 | 40.5 | 56.4 | 57.5 | 65.7 | 37.3 | 50.7 | 54.7 | 63.9 | 41.5 | 65.3 | 73.8 | 74.0 |
| | Upper class | 6.1 | 28.3 | 3.1 | 4.6 | 6.7 | 13.9 | 12.1 | 14.9 | 5.1 | 8.6 | 8.6 | 8.1 | 2.6 | 6.7 | 12.2 | 16.5 |

*Source:* Authors' calculations based on National Household Survey and Living Standard Surveys.
*Note:* Estimations are based on household net incomes adjusted for family composition with OECD adult equivalent scale. For the 2000 measure, data are for 2001 for Brazil and 2003 for Colombia. For the 2011 measure, data are for 2009 for Bolivia, 2010 for Colombia, Mexico, and Peru, and 2012 for Argentina and Uruguay.

[9] All these definitions are applied to adult equivalent daily income in 2005 dollars at PPP (using IMF's index of PPP).

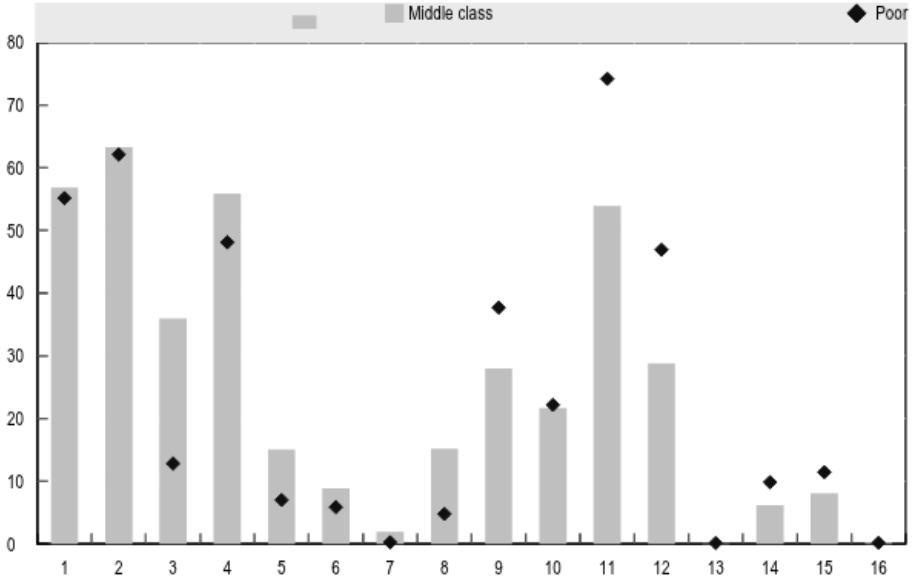
The surveys used to gauge the size of the middle class allow detection of age, occupation, and profession of the head of household and household structure.

**Gender.** The majority of Latin American middle-class households (more than 60 percent) are headed by men. By contrast, women more often than men head poor households, except in Bolivia and Mexico.

**Age.** Heads of household tend to be older in the middle class, except in Argentina. Adults aged 41–65 are more likely to be heads of a middle-class household than other age groups. This might be a result of the difficulty of finding a stable job at an earlier stage of life, and to the low level of pension payments, pushing many older households into poverty.

**Education.** Generally middle-class heads of household have completed secondary education. In the lower class, primary education prevails, while in the upper class, university education prevails. Education is thus highly correlated to income classes.

**Figure 2. Middle Class and Type of Employment, Selected Latin American Countries, 2011**




*Source:* Authors' calculations based on National Household Survey and Living Standard Surveys. *Note:* Share of employed heads of household working in the sectors indicated on the horizontal axis. Estimations are based on household net incomes adjusted for family composition with OECD adult equivalent scale. Data are for 2009 for Bolivia; 2010 for Colombia, Mexico, and Peru; and 2012 for Argentina and Uruguay.

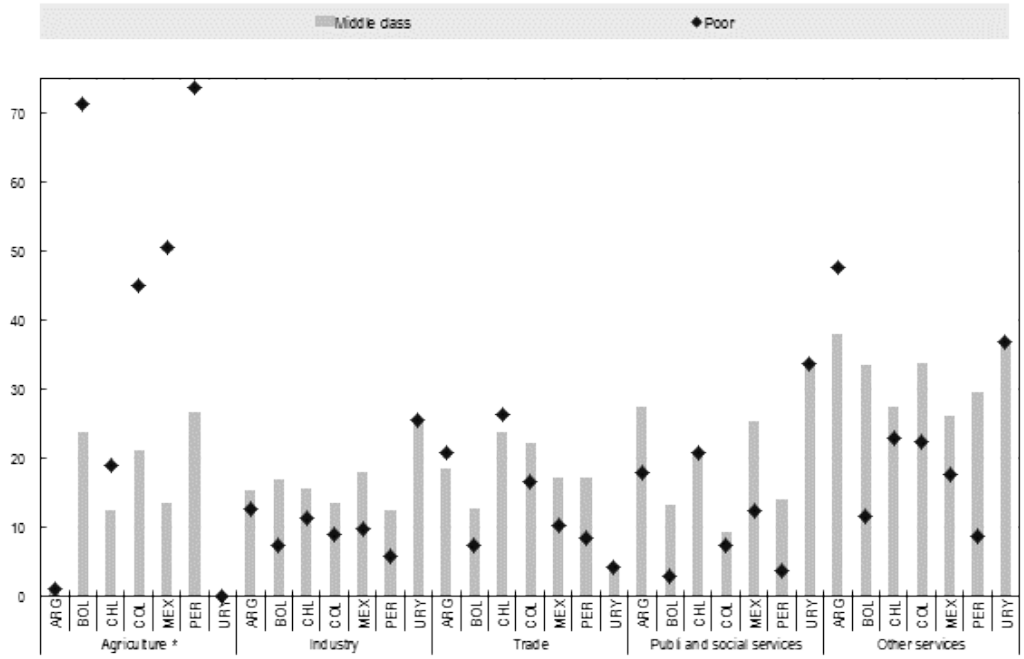
**Family structure.** Middle-class households have mostly nuclear families (parents with children). Couples without children or single heads of household prevail in the upper class, while

households with single parents are more often poor. Higher-income households are associated with smaller family size. Additionally, couples are more likely to be middle class than single heads of household.

**Employment**. The percentage of self-employed persons is higher in lower-income segments (except in Chile), probably hinting at the difficulty of finding employment for lower skill levels (Figure 2).

**Employment sector.** More than 40 percent of middle-class heads of household are employed in services, followed by trade and industry (17 percent). In Colombia, Peru, and Bolivia, around 20 percent of the middle class is employed in agriculture.[10] With the exception of Chile, lower-class heads of household are primarily employed in agriculture, while higher-class heads of household are employed in services (Figure 3).

**Figure 3. Middle Class and Activity Sector, 2011***




*Source:* Authors' calculations based on National Household Survey and Living Standard Surveys. *Note:* Data are only for active occupied heads of household. Data for Argentina and Uruguay are urban. Estimations are based on household net incomes adjusted for family composition with OECD adult equivalent scale. Data are for 2009 for Bolivia; 2010 for Colombia, Mexico, and Peru; and 2012 for Argentina and Uruguay.

[10] Because data for Argentina and Uruguay are for urban households only, these countries cannot be compared to the others with respect to sectors, especially agriculture.

## 4. Determinants of Belonging to an Income Class

Belonging to the middle class is the result of multiple variables. Therefore, the statistical analysis of middle-class membership is ideally multivariate. Accordingly, this section presents multinomial probit estimations based on the social class variable (income level) in order to identify, more systematically than the bivariate comparisons of the previous section, which characteristics distinguish income classes in Latin American societies. Like other statistical models, a probit model estimates the contribution of various household characteristics to its situation in the income distribution. The multinomial probit model is appropriate for categorical (that is, not continuous) dependent variables like social class, which takes one of three values: poor, middle class, and affluent. In all cases, the estimated parameters reflect the effect of a given characteristic—being a member of an ethnic minority, for example—relative to the so-called "reference population," defined as: male head of household, 41–64 years old, with only primary education, single, belonging to the majority ethnic group, employed in the service sector, not self-employed, living outside the capital region. Appendix A presents complete details on the empirical model used for these estimations and Table 3 presents empirical results.

Female-headed households are less likely to be affluent. All other things being equal, if the head of household is female, the household is more likely to be in the lower income classes: in 2010, being a female head of household increased the household's likelihood of being poor by 5–6 percentage points (in comparison with the middle class and affluent) except in Bolivia and Peru, and the likelihood of being middle class increased by 4 to 9 percentage points. Female heads are therefore less likely to be affluent (by 9 to 11 percentage points).

Age has a significant positive effect on income classes. Younger heads of household are more likely to be poor or to belong to the middle class, while the older they are, the more likely they are to be affluent. The likelihood of being poor decreases with age. Being less than 30 years old increases the chances of being poor by 5–15 percentage points compared to the reference population (41–64 years old).

The head of household's level of education—whether secondary or tertiary—has a strong positive effect on income classes in comparison with primary-level education only. As expected, the effect of secondary or tertiary education increases more the chances of being affluent than middle class or poor. Families whose head of household achieved secondary education are 10

percentage points and 8 percentage points less likely to be poor and middle class, respectively, on average, and are more than 18 percentage points more likely to be affluent. Tertiary education increases the chance of being middle class by 25 to 46 percentage points, depending on the country, in comparison to heads of household with primary education.

Being part of a couple increases the chances of being middle class (by 3–6 percentage points). Belonging to an ethnic minority group, meanwhile, increases the chances of being poor (4–8 percentage points) and reduces the probability of being affluent between 3 and 11 percentage points, depending on the country. Living in the capital city increases the chances of being affluent in all countries studied except Bolivia.

Working in agriculture has a significant negative impact on income class. It enhances the chances of being poor by 12–30 percentage points and decreases the chances of being middle class by 5–12 percentage points, except in Chile,[11] where agriculture does not seem to be an impediment to becoming middle class. Working in industry or trade sectors increases the chances of being middle class in Chile and Mexico. Unemployment and being out of the labor force are strongly linked to poverty.

Moreover, being self-employed is generally associated with poverty. It increases the chances of being poor by 7–19 percentage points, while decreasing the chances of being middle class. Chile has a very unusual pattern, as self-employment leads to affluence (an increase of 18 percentage points).

[11] This finding is likely linked to the presence of high value added and export-oriented agriculture in Chile.

# Table 3. Multinomial Probit Estimations around 2010

| | Argentina, 2010 | | | Bolivia, 2009 | | | Chile, 2009 | | | Colombia, 2010 | | | Mexico, 2010 | | | Peru, 2010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VARIABLES | P | MC | A | P | MC | A | P | MC | A | P | MC | A | P | MC | A | P | MC | A |
| Male | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Female | 0.060*** | 0.033*** | -0.093*** | -0.021 | 0.096*** | -0.075*** | 0.047*** | 0.040*** | -0.087*** | 0.060*** | 0.054*** | -0.114*** | 0.044*** | 0.006 | -0.050*** | 0.010 | 0.037** | -0.047*** |
| | (0.008) | (0.010) | (0.009) | (0.021) | (0.028) | (0.028) | (0.007) | (0.010) | (0.011) | (0.012) | (0.016) | (0.015) | (0.010) | (0.014) | (0.013) | (0.010) | (0.015) | (0.014) |
| up to 30 years old | 0.134*** | 0.016 | -0.150*** | 0.011 | 0.108*** | -0.119*** | 0.053*** | 0.038*** | -0.092*** | 0.054*** | 0.109*** | -0.163*** | 0.157*** | 0.029*** | -0.186*** | 0.070*** | 0.046*** | -0.116*** |
| | (0.013) | (0.013) | (0.009) | (0.024) | (0.028) | (0.025) | (0.010) | (0.014) | (0.013) | (0.015) | (0.017) | (0.014) | (0.014) | (0.014) | (0.009) | (0.015) | (0.017) | (0.014) |
| 31-40 years old | 0.102*** | -0.010 | -0.092*** | 0.003 | 0.085*** | -0.088*** | 0.037*** | 0.039*** | -0.076*** | 0.023*** | 0.110*** | -0.133*** | 0.097*** | 0.054*** | -0.151*** | 0.058*** | 0.084*** | -0.093*** |
| | (0.010) | (0.011) | (0.009) | (0.021) | (0.026) | (0.023) | (0.007) | (0.010) | (0.010) | (0.011) | (0.015) | (0.014) | (0.010) | (0.011) | (0.009) | (0.010) | (0.012) | (0.011) |
| 41-65 years old | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| more than 65 years old | -0.111*** | 0.037*** | 0.074*** | -0.056*** | -0.001 | 0.058 | -0.077*** | -0.027*** | 0.104*** | -0.040*** | -0.054*** | 0.094*** | -0.026*** | -0.033*** | 0.059*** | -0.031*** | -0.062*** | 0.093*** |
| | (0.006) | (0.013) | (0.014) | (0.020) | (0.035) | (0.035) | (0.004) | (0.013) | (0.015) | (0.011) | (0.020) | (0.021) | (0.008) | (0.014) | (0.014) | (0.008) | (0.015) | (0.016) |
| Primary education | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Secondary education | -0.094*** | -0.062*** | 0.156*** | -0.090*** | -0.039 | 0.129*** | -0.096*** | -0.120*** | 0.216*** | -0.128*** | -0.075*** | 0.203*** | -0.106*** | -0.119*** | 0.225*** | -0.086*** | -0.076*** | 0.162*** |
| | (0.006) | (0.010) | (0.010) | (0.016) | (0.026) | (0.026) | (0.004) | (0.009) | (0.010) | (0.008) | (0.014) | (0.015) | (0.005) | (0.012) | (0.012) | (0.006) | (0.013) | (0.013) |
| Technical education or University | -0.196*** | -0.243*** | 0.440*** | -0.144*** | -0.198*** | 0.342*** | -0.149*** | -0.466*** | 0.615*** | -0.181*** | -0.377*** | 0.559*** | -0.169*** | -0.357*** | 0.526*** | -0.155*** | -0.271*** | 0.427*** |
| | (0.005) | (0.011) | (0.010) | (0.018) | (0.028) | (0.028) | (0.004) | (0.010) | (0.010) | (0.007) | (0.016) | (0.016) | (0.005) | (0.011) | (0.011) | (0.006) | (0.015) | (0.015) |
| Single | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Couple | -0.041*** | 0.024*** | 0.017** | 0.031 | 0.064*** | -0.095*** | -0.029*** | 0.011 | 0.018** | -0.016 | 0.034*** | -0.017 | 0.023*** | 0.046*** | -0.069*** | 0.014 | 0.033** | -0.047*** |
| | (0.008) | (0.010) | (0.010) | (0.021) | (0.028) | (0.030) | (0.006) | (0.010) | (0.011) | (0.011) | (0.016) | (0.016) | (0.008) | (0.014) | (0.013) | (0.009) | (0.014) | (0.015) |
| Majority group | | | | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Ethnic group | N.A. | N.A. | N.A. | 0.076*** | 0.040** | -0.116*** | 0.048*** | -0.015 | -0.033*** | 0.041*** | -0.029** | -0.013 | 0.084*** | -0.014 | -0.071*** | 0.068*** | 0.011 | -0.079*** |
| | | | | (0.016) | (0.021) | (0.020) | (0.008) | (0.014) | (0.015) | (0.012) | (0.017) | (0.018) | (0.007) | (0.010) | (0.009) | (0.007) | (0.010) | (0.009) |
| Other provinces/regions | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Capital | -0.053*** | -0.021*** | 0.074*** | 0.103*** | 0.033 | -0.135*** | -0.031*** | -0.039*** | 0.070*** | -0.097*** | -0.046*** | 0.143*** | -0.045*** | 0.012 | 0.034*** | -0.113*** | -0.081*** | 0.193*** |
| | (0.005) | (0.007) | (0.007) | (0.020) | (0.022) | (0.020) | (0.005) | (0.008) | (0.009) | (0.011) | (0.018) | (0.018) | (0.006) | (0.009) | (0.009) | (0.008) | (0.012) | (0.012) |
| Number of other occupied household members | -0.065*** | -0.002 | 0.066*** | -0.049*** | -0.012 | 0.061*** | -0.136*** | 0.005 | 0.130*** | -0.092*** | -0.001 | 0.093*** | -0.044*** | 0.002 | 0.042*** | -0.036*** | -0.005 | 0.041*** |
| | (0.004) | (0.005) | (0.005) | (0.009) | (0.010) | (0.010) | (0.004) | (0.005) | (0.005) | (0.005) | (0.007) | (0.007) | (0.003) | (0.005) | (0.005) | (0.003) | (0.004) | (0.004) |
| Number of other unemployed household members | 0.094*** | 0.060*** | -0.154*** | 0.005 | 0.065*** | -0.070*** | 0.081*** | 0.050*** | -0.131*** | 0.057*** | 0.035** | -0.092*** | 0.059*** | 0.035*** | -0.093*** | 0.023*** | 0.051*** | -0.074*** |
| | (0.008) | (0.015) | (0.017) | (0.024) | (0.031) | (0.030) | (0.005) | (0.010) | (0.011) | (0.012) | (0.019) | (0.020) | (0.010) | (0.016) | (0.015) | (0.006) | (0.009) | (0.009) |
| Number of other inactive household members | 0.083*** | 0.068*** | -0.150*** | 0.024*** | 0.046*** | -0.070*** | 0.048*** | 0.046*** | -0.094*** | 0.029*** | 0.086*** | -0.115*** | 0.045*** | 0.045*** | -0.090*** | 0.024*** | 0.023*** | -0.046*** |
| | (0.003) | (0.005) | (0.006) | (0.010) | (0.013) | (0.012) | (0.002) | (0.004) | (0.005) | (0.005) | (0.008) | (0.008) | (0.003) | (0.005) | (0.005) | (0.005) | (0.007) | (0.007) |
| Active occupied, agriculture | 0.122*** | -0.096*** | -0.026 | 0.365*** | -0.121*** | -0.244*** | 0.068*** | 0.048*** | -0.117*** | 0.203*** | -0.050*** | -0.154*** | 0.233*** | -0.102*** | -0.131*** | 0.288*** | -0.119*** | -0.169*** |
| | (0.034) | (0.039) | (0.037) | (0.029) | (0.030) | (0.022) | (0.009) | (0.011) | (0.010) | (0.017) | (0.018) | (0.016) | (0.016) | (0.017) | (0.014) | (0.015) | (0.015) | (0.012) |
| Active occupied, industry | -0.016 | 0.020 | -0.004 | 0.039 | -0.007 | -0.032 | 0.013 | 0.067*** | -0.080*** | 0.009 | -0.022 | 0.013 | -0.020*** | 0.059*** | -0.038*** | 0.058*** | -0.036* | -0.022 |
| | (0.012) | (0.015) | (0.013) | (0.031) | (0.034) | (0.030) | (0.010) | (0.014) | (0.013) | (0.018) | (0.022) | (0.022) | (0.010) | (0.016) | (0.015) | (0.017) | (0.019) | (0.016) |
| Active occupied, trade | 0.085*** | 0.023 | -0.107*** | 0.014 | -0.072*** | 0.059** | 0.002 | 0.048*** | -0.050*** | -0.011 | -0.013 | 0.024 | -0.022*** | 0.040*** | -0.018 | 0.031*** | -0.014 | -0.017 |
| | (0.013) | (0.016) | (0.013) | (0.031) | (0.035) | (0.035) | (0.009) | (0.013) | (0.012) | (0.015) | (0.020) | (0.020) | (0.010) | (0.015) | (0.014) | (0.015) | (0.017) | (0.016) |
| Active occupied, public and social services | 0.022*** | -0.029*** | 0.006 | -0.005 | -0.012 | 0.018 | 0.015** | 0.028*** | -0.043*** | 0.013 | -0.106*** | 0.093*** | -0.033*** | -0.005 | 0.038*** | 0.046*** | -0.019 | -0.027* |
| | (0.010) | (0.012) | (0.011) | (0.036) | (0.037) | (0.033) | (0.008) | (0.012) | (0.011) | (0.020) | (0.023) | (0.024) | (0.009) | (0.014) | (0.013) | (0.019) | (0.019) | (0.015) |
| Active occupied, other services | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Active unemployed | 0.277*** | -0.149*** | -0.128*** | 0.475*** | -0.189*** | -0.286*** | 0.450*** | -0.194*** | -0.256*** | 0.305*** | -0.184*** | -0.121*** | 0.246*** | -0.089*** | -0.158*** | 0.302*** | -0.145*** | -0.157*** |
| | (0.027) | (0.025) | (0.020) | (0.067) | (0.065) | (0.016) | (0.021) | (0.021) | (0.010) | (0.031) | (0.028) | (0.022) | (0.030) | (0.029) | (0.019) | (0.029) | (0.027) | (0.015) |
| Inactive | 0.176*** | 0.013 | -0.189*** | 0.330*** | -0.142*** | -0.188*** | 0.220*** | -0.006 | -0.213*** | 0.272*** | -0.111*** | -0.161*** | 0.045*** | -0.058*** | 0.013 | 0.138*** | -0.095*** | -0.043** |
| | (0.012) | (0.013) | (0.010) | (0.048) | (0.043) | (0.027) | (0.012) | (0.013) | (0.012) | (0.023) | (0.022) | (0.018) | (0.013) | (0.016) | (0.015) | (0.024) | (0.023) | (0.019) |
| No self employed | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Selfemployed | 0.126*** | -0.017 | -0.110*** | 0.193*** | -0.047*** | -0.146*** | -0.040*** | -0.147*** | 0.187*** | 0.170*** | 0.003 | -0.173*** | 0.075*** | -0.068*** | -0.007 | 0.144*** | -0.028** | -0.116*** |
| | (0.011) | (0.012) | (0.009) | (0.020) | (0.024) | (0.021) | (0.005) | (0.010) | (0.011) | (0.011) | (0.014) | (0.013) | (0.008) | (0.011) | (0.011) | (0.008) | (0.011) | (0.011) |
| Observations | 43,609 | 43,609 | 43,609 | 4,006 | 4,006 | 4,006 | 70,702 | 70,702 | 70,702 | 14,531 | 14,531 | 14,531 | 27,652 | 27,652 | 27,652 | 21,495 | 21,495 | 21,495 |

Standard errors in parentheses

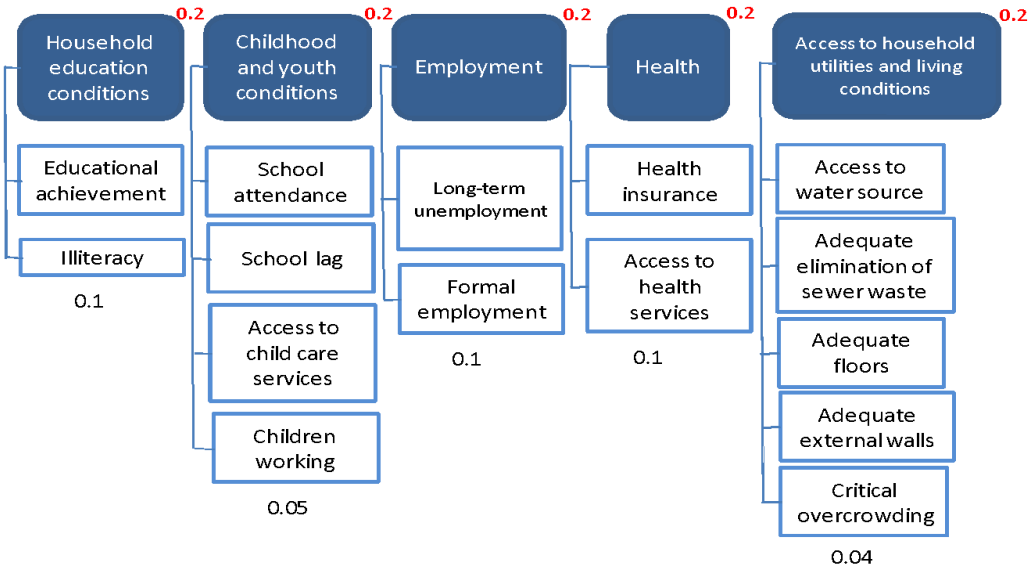
*Source:* Authors' calculations based on household surveys. *Note:* Marginal effects are presented, in comparison with the reference population: Male, 41–64 years old, primary education, single, belonging to the majority ethnic group, active employed in the service sector, not self-employed, living outside the capital region. Standard errors in parenthesis * significant at 10%; ** significant at 5%; *** significant at 1%.

## 5. Middle Class beyond Income

This section analyzes the relationship between our income-based estimations and other parameters often associated with the perception of a sound middle class, such as access to education, access to health care, and stable employment.[12]

To do so, we use the case of Colombia. The Colombian government has developed the Multidimensional Poverty Index (MPI)[13] to measure multiple deprivations in key aspects of human development (Figure 4). Appendix B explains the definitions and measurements in detail. According to the MPI, a household is in multidimensional poverty if it experiences deprivation in at least 5 of the 15 dimensions. In 2010, 30.7 percent of Colombians lived in multidimensional poverty (Table 4).

**Figure 4. Dimensions of the Multidimensional Poverty Index (MPI)***




*Source*: DNP (2011). * Numbers show the weight given to each dimension.

[12] Sociologists argue that income cannot predict other relevant variables such as employment, education or occupation. See Hout (2008), Torche and Lopez-Calva (2011), and Fajardo and Lora (2013) for details.

[13] Colombian National Planning Department (DNP, 2011)

**Table 4. Multidimensional Poverty Rates for Different Numbers of Deprivations in Colombia (Percentages)**

| Number of deprivations | Percentage of poor households | | | | 1997–2010 (percentage point change) |
|---|---|---|---|---|---|
| | 1997 | 2003 | 2008 | 2010 | |
| 4 | 71.6 | 62.5 | 49.1 | 45.7 | 25.9 |
| 5 | 60.5 | 49.3 | 35 | 30.7 | 29.8 |
| 6 | 44.7 | 34.5 | 21.7 | 17.7 | 27.0 |

*Source:* Authors' calculations based on DNP (2011).

The MPI assesses well-being in five dimensions—education, childhood and youth conditions, employment, health, and access to household utilities and living conditions—to identify multidimensional poor and non-poor. The most substantial gaps arise in education and health care. In 2010, in multidimensionally poor households, 44.4 percent had at least one person 15 years old and over who could not read or write (Table 5). Among non-multidimensionally poor households, this figure was 3.5 percent. Twenty-one percent of poor households had at least one child between 6 and 16 years not attending an educational institution, vis-à-vis 1 percent in non-poor households. Seven percent of poor and 14 percent of non-poor households had no health insurance.

**Table 5. Deprivations of Poor and Non-poor Families according to MPI**

**(Percent of households)**

| Deprivations | Poor | | | | Non-poor | | | |
|---|---|---|---|---|---|---|---|---|
| | 1997 | 2003 | 2008 | 2010 | 1997 | 2003 | 2008 | 2010 |
| Educational achievement | 94.4 | 93.3 | 95.8 | 94.0 | 40.1 | 38.5 | 44.9 | 43.0 |
| Illiteracy | 36.5 | 36.8 | 42.9 | 44.4 | 1.9 | 1.9 | 3.7 | 3.5 |
| School attendance | 23.7 | 18.9 | 20.5 | 20.8 | 1.2 | 1.4 | 1.3 | 1.0 |
| School lag | 69.3 | 63.9 | 71.4 | 72.8 | 31.9 | 22.9 | 31 | 35.6 |
| Access to child care services | 47.5 | 43.7 | 26.6 | 24.6 | 18.5 | 17.1 | 9.6 | 10.4 |
| Children working | 24.6 | 25.0 | 25.8 | 25.0 | 4.3 | 4.6 | 3.9 | 3.1 |
| Long-term unemployment | 19.2 | 12.6 | 10.2 | 10.5 | 7.6 | 7.2 | 4.8 | 4.9 |
| Formal employment | 98.2 | 98.6 | 98.9 | 99.1 | 70.1 | 76.7 | 75.5 | 76.7 |
| Health insurance | 86.0 | 82.3 | 52.8 | 47.5 | 36.7 | 31.2 | 14.2 | 14.1 |
| Access to health services | 22.4 | 20.9 | 23.6 | 17.2 | 4.1 | 4.4 | 4.5 | 4.1 |
| Access to water source | 22.8 | 23.1 | 29.9 | 27.3 | 3.0 | 3.2 | 6.3 | 6.4 |
| Adequate elimination of sewer waste | 31.7 | 31.9 | 31.8 | 29.1 | 7.1 | 6.7 | 7.0 | 6.4 |
| Adequate floors | 16.1 | 17.0 | 23.0 | 20.6 | 0.8 | 1.8 | 1.8 | 2.0 |
| Adequate exterior walls | 4.4 | 5.3 | 7.8 | 7.6 | 1.0 | 0.8 | 1.1 | 1.3 |
| Critical overcrowding | 42.8 | 40.4 | 39.8 | 38.1 | 13.4 | 13.9 | 12.7 | 13.1 |

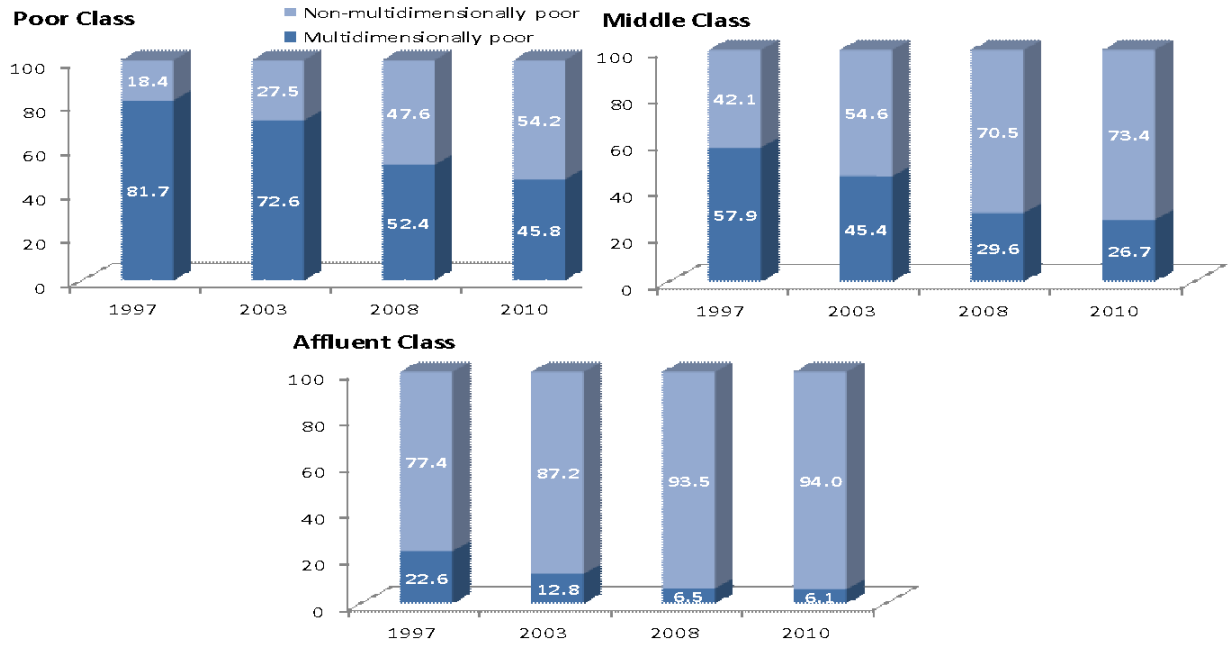
*Source:* Authors' calculations based on DNP (2011).

Differences in standards of living are also noticeable: 27.3 percent of poor households lacked access to a public water system, compared to 6.4 percent among non-poor.

Inspired by Colombia's MPI, we consider how our income classes, as previously defined in this paper, fare in these dimensions. Figure 6 shows the relationship between poor, middle-class, and affluent households and the MPI. Eighty-two percent of poor households were multidimensionally poor in 1997.[14] This figure decreased to 46 percent in 2010. These results are consistent with those reported in Table 5.

**Figure 6. Deprivations by Income Classes**

**(Percent of households)**




*Source*: Authors' calculations based on DNP (2011) and LSS 1997, 2003, 2008, and 2010.

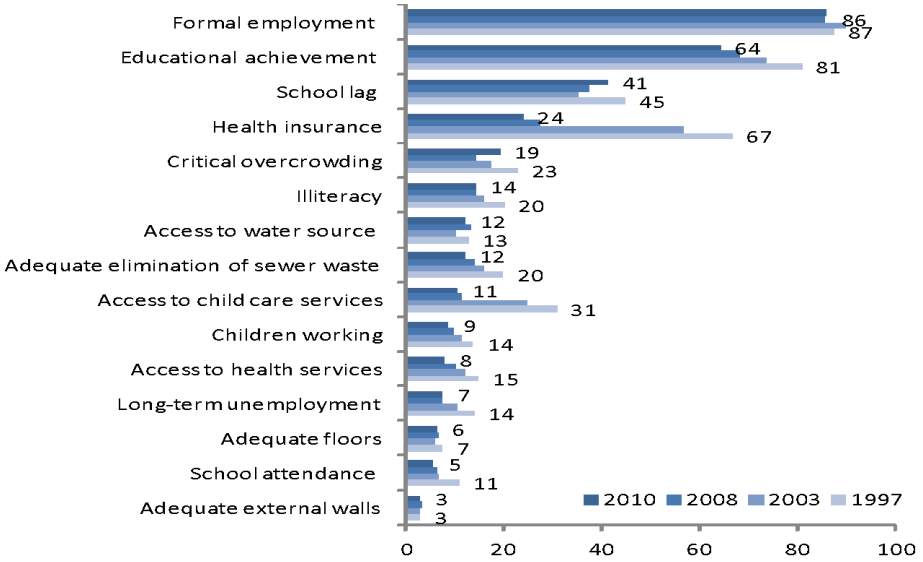
Middle-class households suffer deficits in education, access to health services, and informality. In 1997, 58 percent of middle-class families had at least five deprivations. By 2010, this figure had fallen to 27 percent (Figure 6).

The main deprivations affecting the Colombian middle class were: lack of formal employment, low educational achievement, a high rate of illiteracy for those over 15 years old, school lag, and lack of health insurance. Between 1997 and 2010, the most significant advances occurred in access to health insurance, early childhood care, health care access, and school

[14] They experienced deprivation in at least 5 of the 15 dimensions.

attendance (Figure 7). These results show that, over the past decade, the Colombian middle class has fared better, not only in monetary terms, but it is still fragile as it faces deficits in several areas.

**Figure 7. Deprivations and Middle Class in Colombia**
**(Percent of middle-class households deprived)**




*Source:* Authors' calculations based on DNP (2011) and LSS 1997, 2003, 2008 and 2010.

## 6. Concluding Remarks

Our analysis shows that the Latin American middle class has experienced solid growth over the past decade. Gender, education, and employment in the service sector are factors associated with belonging to the middle class. While illustrating that this growth has been paired with progress towards well-being, the case of Colombia also points to key deficits in terms of formal employment, education, and health. These missing factors by themselves can ensure that this emerging group thrives. While research is pending on the links between multidimensional variables of well-being and income in other countries, findings from the Colombian case can most likely be extrapolated to the rest of the region, where job formality, access to quality education (especially secondary and tertiary), and health care still elude a large segment of the population.

## Appendix A. Multinomial Probit Estimations

Multinomial probit estimations enable researchers to identify which characteristics determine the likelihood of being poor, middle class, or affluent (each class is compared with the other two). In this study, multinomial or ordered logit were not adequate solutions.[15] In general, the multinomial probit has been preferred to the ordered probit, as it enables different vectors of coefficients for all variables in each class estimation. By contrast, the ordered probit considers a unique vector of coefficients, assuming a linear effect between each category. The results presented in our estimations verify nonlinear effects for some variables with quadratic effects, justifying the selected model of multinomial probit.

The social class variable can take the following values: 0 if poor (households with total income adjusted for family composition below 50 percent of the median household income); 1 if middle class (households with income between 50 and 150 percent of the median household income); and 2 if affluent (households with more than 150 percent of median income).[16] Total income is adjusted for family composition, that is, "equivalized" to enable comparison between households with distinct sizes and compositions. Household size is adjusted as follows: head of household has a weight of 1, each additional adult (over 14 years old) has a weight of 0.5, and each additional child below 14 years old has a weight of 0.3.

The multinomial probit model includes a multivariate analysis of household determinants for each income class in comparison with the two other ones. Data sources are the

[15] Ordered logit models are used in cases where the dependent variable consists of a set of categories (more than two) that can be ordered in a meaningful way. This would be the case with the income classes studied here, but the ordered logit model can be applied to data that meet the proportional odds assumption, meaning that the relationship between any two pairs of outcome groups is statistically the same. There is then only one set of coefficients, implying that the relationship between the poor and middle classes would be the same as the relationship between the middle and affluent classes, which is not likely to be the case. The multinomial probit estimations presented in this chapter confirm that the coefficients differ between different categories of the outcome variable. Multinomial logit models assume the independence of irrelevant alternatives (IIA) assumption. This is due to the fact that the ε's are assumed to be independent distributed from each other: that is, the covariance matrix E (ε ε') is restricted to be a diagonal matrix. Although this independence has the advantage that the likelihood function is quite easy to compute, in most of the cases the IIA assumption leads to unrealistic predictions. One alternative to breaking down the IIA assumption therefore consists in allowing the ε's to be correlated with each other—and that is exactly what the multinomial probit model does. Technically, these models are very similar: they differ only in the distribution of the error terms.

[16] This variable is built on total household income adjusted for family composition, with the OECD's equivalent scale that has been used by the European Commission, among others. Other scales used in international comparisons include household size squared (used in many OECD studies since the 1990s). The difference between the scales does not change our results. See Castellani and Parent (2011) for more details.

Living Standards Measurement Study Survey (2010) for Colombia and the national household surveys (2009–10) for the other countries.

The model can be specified as follows:

$$Class_i = \alpha_i X_i + \beta_i H_i + \varepsilon_i \quad (1)$$

where:

$Class_i$ = Income class of household *i* (either poor, middle class, or affluent),

$X_i$ = Vector of exogenous individual characteristics of the head of household *i*,

$H_i$ = Vector of employment, occupational, and economic characteristics of the head of household *i*.

Individual characteristics of heads of household $X_i$ include: age categories, gender, level of education (primary, secondary, and university or technical education), matrimonial status, and ethnic group.

Employment, occupational and economic characteristics $H_i$ include: region of residence, an independent worker dummy, and a variable gathering occupation status and sector of activity—an individual can be either active occupied in agriculture, in industry, in trade, in public or social services, in other services, active unemployed, or inactive.

The reference population considers a man between 41 and 64 years old, with primary education (completed or not), who is single, belongs to the majority ethnic group, is active and works in services sector, is not an independent worker, and lives outside the capital region.

# Appendix B. Multidimensional Poverty Index for Colombia (MPI)

| **MPI Dimension** (weight in brackets) | **MPI Variable** (weight in brackets) | **MPI Indicator** |
|---|---|---|
| **Educational conditions** (for households) (0.2) | **Educational achievement** (0.1) | Percentage of household with any members aged 15 or older who has less than an average of 9 years of schooling |
| | **Illiteracy** (0.1) | Percentage of household members 15 years old and older who cannot read and write. |
| **Childhood and youth conditions** (0.2) | **School attendance** (0.05) | Percentage of children between the ages of 6 and 16 who do not attend school. |
| | **School lag** (0.05) | percentage of children and youths (7–17 years old) within the household subject to school lag (according to the national norm) |
| | **Access to child care services** (0.05) | Percentage of children between the ages of 0 and 5 who simultaneously do not have access to health, nutrition and education. |
| | **Children working** (0.05) | Percentage of children working (engaged in child labor). |
| **Employment** (0.2) | **Long- term unemployment** (0.1) | Percentage of household members from the economically active population (EAP) who face long-term unemployment (more than 12 months). |
| | **Formal employment** (0.1) | Percentage of household members from the economically active population (EAP) not employed or affiliated with a pension fund (this indicator is used as a proxy for whether people are formally or informally employed) |
| **Health** (0.2) | **Health insurance** (0.1) | Percentage of household members over the age of 5 who are not insured by the Social Security Health System |
| | **Access to health services** (0.1) | Percentage of people within the household that do not have access to a health institution in case of need |
| **Access to public utilities and housing conditions** (0.2) | **Access to water source** (0.04) | Urban household: considered deprived if lacking public water system.<br>Rural household: considered deprived when the water used for the preparation of food is obtained from wells, rainwater, springs, water tank, water carrier, or other sources. |
| | **Adequate elimination of sewer waste** (0.04) | Urban household: considered deprived if lacking public sewer system.<br>Rural household: considered deprived if uses a toilet without a sewer connection, a latrine, or simply does not have a sewage system. |
| | **Adequate floors** (0.04) | Lacking materials (dirt floors) |
| | **Adequate exterior walls** (0.04) | Urban household: considered deprived when the exterior walls are built of untreated wood, boards, planks, guadua, or other vegetable matter, zinc, cloth, cardboard, waste material, or when no exterior walls exist.<br>Rural household: considered deprived when exterior walls are built of guadua or another vegetable material, zinc, cloth, cardboard, waste materials, or if no exterior walls exist. |
| | **Critical overcrowding** (0.04) | Urban household: 3 or more individuals per room.<br>Rural household: more than 3 individuals per room. |

*Source:* DNP (2011).

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