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A Regional View Based on the Analysis of Selected Latin American Countries

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Inter-American Development Bank
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Abstract¹

Using household surveys from Argentina, Brazil, Peru, Ecuador, and El Salvador, this paper assesses the contribution of entrepreneurship to socioeconomic mobility and to understand the main variables associated with entrepreneurial propensity in selected Latin American countries. It is found that, at the aggregate regional level, income mobility is rather modest and that entrepreneurs do not outperform the rest of the population. However, entrepreneurs tend to perform as well as or better than non-entrepreneurs in countries where relative income mobility is moderate. In countries where relative income mobility is rather low, entrepreneurs tend to show less income mobility. Entrepreneurial propensity is rather modest, at 10 percent of the population. University graduates show the highest propensity in most of the countries studied, while women and young people were found to have the lowest entrepreneurial propensity.

JEL Classification: L26

Keywords: Entrepreneurship, Income mobility, Entrepreneurial propensity, Latin America, Pseudo-panels

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1. Introduction

The focus of this study is the relationship between entrepreneurship and economic mobility. Entrepreneurship, narrowly defined as the creation of new businesses, is considered a key factor influencing socioeconomic mobility. From a theoretical point of view, Robson and Davidsson (2004) argued that new business creation, innovation, and competition are the three main aspects through which entrepreneurship can contribute to economic development in terms of wealth distribution. Similarly, Spencer, Saemundsson, and Kirchhoff (2005) suggest that entrepreneurs may contribute to wealth democratization through creative destruction.

Amoros and Cristi (2010) affirm that new businesses have a positive effect on human development, reducing poverty. Quadrini (1999: 8) finds "... undertaking an entrepreneurial activity is an important way through which families switch to higher wealth classes." Saini (2001) and Christy and Dassie (2000) additionally show that entrepreneurship has a direct impact on poverty reduction.

As a vehicle of mobility, entrepreneurship could also contribute to the enlargement of the middle class. The importance of the middle class for economic development has already been analyzed by various authors. From a theoretical point of view, some authors affirm that the middle class constitutes an important engine for economic development. According to this view, the middle class is associated with values conducive to economic development, such as hard work and effort (Doepke and Zilibotti, 2007). Other authors maintain that the middle class fosters social cohesion and economic and political stability (Cruces, López-Calva and Battiston, 2011; Torche and López-Calva, 2010) and constitutes a vehicle for capital accumulation due to its higher savings propensity (Quadrini, 1999). Another characteristic of the middle class, according to Easterly (2000), is its importance in human capital accumulation. Finally, the growth of the middle class increases the number and sophistication of consumers' demands, thereby expanding the space for opportunity and the richness of domestic markets (Banerjee and Duflo, 2008; Murphy et al., 1989).

These expectations have already been empirically confirmed. There is evidence that a large middle class contributes decisively to economic development (e.g., Banerjee and Duflo, 2008; Birdsall, Graham and Pettinato, 2000; Easterly, 2001; 2002; Landes, 1998; Sokoloff and Engerman, 2000; Torche and López-Calva, 2010). In Latin America, this phenomenon has its own unique characteristics. Research published recently by the Economic Commission for Latin

America and the Caribbean (ECLAC) concludes that between 1990 and 2007, the number of middle-class households grew by about 56 million, reaching a total of 128 million. Although the increase in the size of the Latin American middle class is similar to that of other world regions, what is new is that the increase in the number of middle-class households was accompanied by a steady growth in average income for the entire population. According to the ECLAC study, three main factors contribute to this situation: a rise in GDP in most of the countries, a decrease in poverty, and a slight improvement in income distribution (Franco, Hopenhayn and León, 2011).

Overall, despite recognizable advances in recent years, Latin America is not a middle-class region (Cárdenas, Kharas and Henao, 2011; Gasparini, Horenstein, and Olivieri, 2006).² According to Cárdenas et al. (2011), only four Latin American countries have a large middle class: Argentina (52.9 percent of the population), Costa Rica (51.8 percent), Mexico (60.1 percent), and Uruguay (55.8 percent). Latin America is characterized by a high level of economic polarization compared to other regions. Thus, enlarging the middle class is important for reducing income and social inequality and for sustaining political stability. The middle class is perceived as fertile soil for entrepreneurs because of its higher entrepreneurial propensity (Solimano, 2008). There are potential links between these research results and the middle class.³

Empirical evidence on this subject, however, is rather mixed (Banerjee and Duflo, 2008). Despite the sound theoretical grounds underlying these expectations, there is no conclusive supporting evidence. Research on this topic is scarce for Latin American countries. Consequently, more research is needed on the effects of entrepreneurship on socioeconomic mobility. Thus, the overall objectives of this study are: i) to assess the contribution of entrepreneurship to socioeconomic mobility in Latin American countries, and ii) to understand the main determinants of entrepreneurial propensity in selected Latin American countries.

This research is based on secondary information. Household surveys from a sample of Latin American countries (Argentina, Brazil, Peru, Ecuador and El Salvador) are used to estimate the contribution of entrepreneurship to economic mobility and the entrepreneurial propensity of different population segments.

² Moreover, there is evidence about the higher vulnerability of the middle sectors (Torche and López-Calva, 2010).

³ Unfortunately, due to methodological constraints (endogeneity problems), it is not possible to estimate a more specific relationship between middle-class entrepreneurship and income mobility, or even to determine middle-class entrepreneurial propensity.

The remainder of this report is organized in three sections. Section 2 describes the main characteristics of the entrepreneurial population based on descriptive statistics from the studied sample. Section 3 reports results of the analysis of the influence of entrepreneurship on economic mobility and the entrepreneurial propensity of different segments of the population. Section 4 concludes with some remarks and policy implications.

2. Description of the Entrepreneurial Population

The description of the entrepreneurial population in this section is based on selected statistical data. The primary source of the information reported in this section is household surveys. These surveys collect information according to occupational categories, which include employee, employer, and self-employed. Entrepreneurs are defined as those individuals whose occupational category is “employers,” i.e., those who work independently and employ at least one additional person. This indicator describes what constitutes a business more accurately than “self-employed.” This definition also coincides with the OECD-Eurostat Manual on Business Demographics (OECD, 2007).

By excluding the self-employed, we omitted an important category, informal microenterprises, which are a significant phenomenon in Latin America but have different characteristics than what are commonly considered enterprises. This definition, however, refers mostly to business ownership. It does not coincide with the current trend observed in entrepreneurship studies, which focus on founders of start-ups and young ventures.

The empirical definition of the middle class has given rise to a huge debate in the literature. In general, different measures may be used to define what “middle class” means. First, there are measures based on quintiles of income distribution. Examples of such definitions may be found in Solimano (2008), who uses the deciles 3 through 10, Easterly (2001), who uses the three middle quintiles, and Alesina and Perotti (1996), who use the third and fourth quintile to define middle class. Although these measures are widely used, they have been criticized because they are arbitrary and also because they fix the size of the middle class, avoiding the issue of whether the size of the middle class increases or decreases over time.

Alternatively, some authors use central tendency measures of income distribution. These definitions establish a range between a lower bound, defined as x percent of the mean or median income, and an upper bound defined the same way. Different authors have established various

values of x giving rise to several definitions. Birdsall et al. (2000) define the middle class as those households where per capita incomes are between 0.75 and 1.25 times the median income. Castellani and Parent (2010) use a broader definition, establishing the lower and upper bounds at 0.5 and 1.5 times the median income, respectively. This kind of measure solves the problem of fixing the middle class's size, but it is still arbitrary.

Finally, some authors define middle class based on absolute income/expenditure thresholds. Accordingly, they define middle class as those segments of the population that exceed certain income/expenditures levels. For instance, Banerjee and Duflo (2007) use two alternative absolute measures: those with daily per capita expenditures between US\$2 and US\$4 and those between US\$6 and US\$10 in purchasing power parity (PPP) terms. Similarly, Ravallion (2009) uses the U.S. poverty line (between US\$2 and US\$13 PPP per day) as a reference to establish absolute thresholds. These measures also solve the problem of fixing the middle class's size and are mostly used when international comparisons are made. However, they too are affected by arbitrariness and by the limitations of PPP adjustments. Recent detailed discussions of these and other alternative measures can be found in Cruces, López-Calva and Battiston (2011), and Cárdenas, Kharas and Henao (2011).

Summarizing, the empirical definition of middle class is still a matter of debate, with clear implications for the results. For empirical reasons and for consistency among the definitions assumed in this research, the following definition of middle class is adopted:⁴ middle-class households are those which have a daily per capita income of between US\$10 and US\$50 in PPP terms.

The general characteristics, i.e., gender, age, educational level, and social class of the entrepreneurial population, or employers, are presented next. Comparisons with other occupational categories, namely employees and the self-employed, are included. This section provides information about entrepreneurs and a general framework to be considered for analyzing the results reached in the following sections.⁵

⁴ Alternative measures such as those suggested by Castellani and Parent (2010) or Esteban and Ray (1994) were tested. Given the general increase in personal incomes in Latin American countries in recent years, this kind of measure left most of the population within the middle and upper classes. See Annex B for a complete description of the sample according to different middle class definitions.

⁵ A general description of the different pools of country data included in the sample regardless of the occupational category is presented in Annex A at the end of this study.

In general terms, the proportion of entrepreneurs, or employers, out of the total population is rather limited. For instance, in 2008—the last year in which there was complete information for all the countries—entrepreneurs make up only 6 percent of the sample for Brazil, Argentina, and El Salvador, and around 10 percent for Peru and Ecuador. The population’s composition according to occupational category remains relatively stable over time.⁶

Table 1. Sample Composition by Occupational Category

Year	Argentina			Brazil			Peru			Ecuador			El Salvador		
	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)
2004	4.1	20.3	75.6	6.0	24.5	69.5	10.1	50.4	39.4	11.5	42.1	46.4	5.3	26.1	68.6
2005	4.3	21.2	74.5	6.3	24.4	69.3	9.5	50.6	39.9	9.8	40.9	49.3	5.9	27.7	66.5
2006	4.4	20.7	74.9	6.5	24.0	69.5	6.6	44.5	48.9	11.0	41.5	47.5	7.2	32.7	60.0
2007	6.2	20.6	73.2	5.5	23.9	70.6	6.4	42.3	51.2	9.6	41.0	49.4	6.8	33.3	59.9
2008	6.3	20.6	73.0	6.4	22.9	70.7	9.7	44.6	45.6	9.6	41.5	48.8	6.9	33.9	59.2
2009	6.1	21.0	72.9	6.2	23.0	70.8	9.9	44.4	45.7	7.1	45.8	47.1	-	-	-
2010	5.8	21.1	73.1	-	-	-	-	-	-	-	-	-	-	-	-

Reference: (Ent) Entrepreneur; (Se) Self- Employed and (Emp) Employee.

Source: Authors’ compilation based on household surveys.

Although entrepreneurs constitute a small proportion of the total population in each country, this study asks whether there are differences among different occupational categories in terms of individual characteristics, such as gender, age, educational level, and social class.

The composition of the sample by gender shows that men are predominant in all occupational categories, but their predominance is even greater among entrepreneurs. On average, women represent slightly more than 10 percent of the total entrepreneurial population. Women have lower participation in Argentina and Peru, while in Brazil, Ecuador, and El Salvador, the presence of female entrepreneurs is greater.

⁶ Across countries, it is interesting to observe that although paid employment tends to dominate, self-employment constitutes a significant proportion of the population, especially in Peru and Ecuador. The importance of self-employment in these counties may be an indicator of the relevance of necessity-based subsistence entrepreneurship in these contexts.

Table 2. Sample Composition by Occupational Category and Gender

Year		Argentina			Brazil			Peru			Ecuador			El Salvador		
		(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)
2004	(M)	90.1	84.0	73.8	89.0	83.1	74.4	89.3	81.2	87.2	89.2	77.2	84.6	80.7	51.1	81.8
	(F)	9.9	16.0	26.2	11.0	16.9	25.6	10.7	18.8	12.8	10.8	22.8	15.4	19.3	48.9	18.2
2005	(M)	91.9	83.0	74.0	88.4	80.8	73.3	86.5	81.0	85.7	91.4	80.8	81.3	82.3	52.8	81.2
	(F)	8.1	17.0	26.0	11.6	19.2	26.7	13.5	19.0	14.3	8.6	19.2	18.7	17.7	47.2	18.8
2006	(M)	90.8	82.1	73.5	88.4	80.1	72.1	82.6	79.7	78.6	89.0	78.0	82.6	83.6	60.9	81.1
	(F)	9.2	17.9	26.5	11.6	19.9	27.9	17.4	20.3	21.4	11.0	22.0	17.4	16.4	39.1	18.9
2007	(M)	91.9	81.6	74.4	87.0	79.0	71.6	85.3	79.7	79.5	89.5	77.0	82.6	82.6	62.2	80.7
	(F)	8.1	18.4	25.6	13.0	21.0	28.4	14.7	20.3	20.5	10.5	23.0	17.4	17.4	37.8	19.3
2008	(M)	90.2	81.6	73.2	84.1	77.2	69.8	89.9	78.0	83.4	88.8	75.3	80.2	85.3	61.7	80.9
	(F)	9.8	18.4	26.8	15.9	22.8	30.2	10.1	22.0	16.6	11.2	24.7	19.8	14.7	38.3	19.1
2009	(M)	86.1	81.0	71.4	85.4	77.1	69.6	88.3	78.0	83.6	90.4	75.7	79.2	-	-	-
	(F)	13.9	19.0	28.6	14.6	22.9	30.4	11.7	22.0	16.4	9.6	24.3	20.8	-	-	-
2010	(M)	87.0	81.5	71.5	-	-	-	-	-	-	-	-	-	-	-	-
	(F)	13.0	18.5	28.5	-	-	-	-	-	-	-	-	-	-	-	-

Reference:

Rows: (M) Male, (F) Female.

Columns: (Ent) Entrepreneur; (Se) Self- Employed and (Emp) Employee.

Source: Authors' compilation based on household surveys.

In terms of the entrepreneurial populations' age distribution, the following tables illustrate that most entrepreneurs, or employers, tend to be over 40 years old. Moreover, entrepreneurs tend to be older than employees and slightly older than the self-employed. Across countries no relevant differences are observed.

Table 3. Sample Composition by Occupational Category and Age Intervals

Year	Argentina			Brazil			Peru			Ecuador			El Salvador			
	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	
2004	21/30	10.1	11.5	20.0	9.6	15.4	26.8	10.0	10.7	16.5	7.8	8.8	18.1	13.8	13.3	29.5
	31/40	27.3	24.9	29.4	30.7	28.7	33.6	27.2	25.9	30.8	25.8	23.9	30.6	28.7	27.3	32.2
	41/50	27.4	27.9	26.7	32.8	29.6	25.4	27.1	29.0	32.7	32.2	29.5	29.7	32.3	28.5	22.4
	51/60	27.9	27.0	19.3	21.6	20.2	12.1	25.4	24.6	16.3	22.6	26.8	17.2	22.1	22.8	12.9
	61/65	7.3	8.6	4.7	5.3	6.1	2.1	10.3	9.8	3.7	11.7	11.0	4.3	3.1	8.1	3.0
2005	21/30	8.3	10.4	18.5	11.9	14.7	27.4	10.5	10.7	16.8	7.0	8.1	16.8	12.9	13.0	27.2
	31/40	26.5	22.0	29.9	29.9	27.2	32.8	26.1	25.4	30.3	27.9	22.0	32.4	30.7	27.7	33.9
	41/50	27.9	30.4	26.3	32.4	29.1	25.2	31.0	28.7	30.3	32.1	33.9	28.0	26.0	27.3	22.7
	51/60	27.6	28.5	19.8	20.0	22.1	12.4	24.1	25.1	18.3	24.3	27.4	18.8	24.6	23.5	12.8
	61/65	9.7	8.7	5.5	5.7	6.9	2.3	8.3	10.0	4.4	8.7	8.6	4.0	5.8	8.6	3.4
2006	21/30	10.7	9.9	19.3	10.3	14.7	26.1	9.9	12.6	13.2	8.0	8.0	17.8	12.9	11.3	28.2
	31/40	24.9	21.7	28.5	28.6	27.3	32.9	25.3	27.7	28.2	21.9	21.1	29.0	26.4	25.4	32.2
	41/50	26.9	30.1	26.5	33.4	28.8	25.9	26.9	25.8	29.5	33.2	31.7	29.7	24.8	28.8	23.7
	51/60	29.1	28.0	20.5	22.5	22.5	12.9	28.2	23.1	21.7	28.2	28.7	19.5	27.5	25.9	13.1
	61/65	8.4	10.4	5.2	5.2	6.8	2.2	9.7	10.9	7.3	8.7	10.5	4.0	8.5	8.6	2.9
2007	21/30	6.3	7.5	17.2	11.3	13.8	25.5	9.9	12.9	14.8	5.8	8.9	19.3	8.4	10.1	23.2
	31/40	27.9	23.6	29.0	29.1	26.7	32.7	32.4	28.9	28.4	29.4	23.1	30.0	23.7	23.3	32.5
	41/50	28.6	31.6	27.8	32.7	29.4	26.1	30.0	27.3	28.6	30.9	29.9	28.1	32.2	30.5	26.3
	51/60	27.6	27.5	20.5	22.2	23.5	13.3	21.3	21.7	21.3	25.2	27.4	18.2	27.1	27.3	15.1
	61/65	9.6	9.8	5.5	5.6	6.6	2.5	6.4	9.3	7.0	8.7	10.8	4.4	8.6	8.7	3.0
2008	21/30	6.1	7.8	16.7	10.3	13.3	25.0	9.6	9.8	15.4	3.9	7.6	16.5	10.3	12.2	25.0
	31/40	22.8	24.2	29.2	29.1	25.8	31.7	27.2	24.0	29.9	25.4	21.6	28.9	26.5	25.6	33.1
	41/50	32.3	28.6	28.4	32.7	29.9	26.5	33.2	30.4	32.3	33.7	31.2	30.7	34.0	28.5	25.2
	51/60	28.0	30.3	20.0	22.2	24.0	14.2	23.0	25.7	18.4	25.3	27.7	19.3	22.1	25.0	13.9
	61/65	10.9	9.1	5.7	5.6	7.0	2.6	7.0	10.1	4.0	11.6	11.9	4.6	7.1	8.8	2.7
2009	21/30	5.5	7.4	16.6	11.1	13.2	24.3	6.9	8.7	14.2	6.5	6.4	16.4	-	-	-
	31/40	24.0	23.6	29.8	26.6	25.8	32.5	27.1	23.0	29.4	18.8	21.4	28.1	-	-	-
	41/50	29.3	28.2	28.3	34.8	29.1	26.3	35.2	30.1	31.4	36.4	30.8	30.7	-	-	-
	51/60	30.6	29.6	19.6	21.6	24.4	14.4	22.7	26.9	20.2	28.8	27.9	19.2	-	-	-
	61/65	10.6	11.3	5.6	5.8	7.5	2.5	8.1	11.3	4.9	9.4	13.5	5.6	-	-	-
2010	21/30	6.7	8.4	15.7	-	-	-	-	-	-	-	-	-	-	-	-
	31/40	24.0	23.4	30.9	-	-	-	-	-	-	-	-	-	-	-	-
	41/50	30.7	28.8	27.4	-	-	-	-	-	-	-	-	-	-	-	-
	51/60	31.7	28.2	20.1	-	-	-	-	-	-	-	-	-	-	-	-
	61/65	6.9	11.2	5.9	-	-	-	-	-	-	-	-	-	-	-	-

Reference:

Rows: (21/30) 21 – 30 years old; (31/40) 31- 40 years old; (41/50) 41-50 years old; (51/60) 51-60 years old; and (61/65) 61-65 years old.

Columns: (Ent) Entrepreneur; (Se) Self- Employed and (Emp) Employee.

Source: Authors' compilation based on household surveys.

Entrepreneurs tend to be more educated, except in Peru. However, education levels are not homogeneous across countries. In Argentina, around 30 percent of entrepreneurs have a university degree, as opposed to 20 percent for employees, while in Brazil, less than 4 percent of entrepreneurs have university degrees.

Table 4. Sample Composition by Occupational Category and Educational Level

Year		Argentina			Brazil			Peru			Ecuador			El Salvador		
		(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)
2004	(U)	25.5	12.0	15.9	3.7	0.8	1.8	16.3	22.3	10.7	16.1	5.1	16.5	9.8	2.2	6.7
	(nU)	74.5	88.0	84.1	96.3	99.2	98.2	83.6	77.7	89.3	83.9	94.9	83.5	90.2	97.8	93.3
2005	(U)	29.5	14.4	15.9	3.3	0.9	1.8	16.6	21.3	10.0	18.5	9.0	14.8	11.0	2.6	7.9
	(nU)	70.5	85.6	84.1	96.7	99.1	98.2	83.4	78.7	90.0	81.5	91.0	85.2	89.0	97.4	92.1
2006	(U)	26.5	12.5	17.3	3.6	0.9	1.9	22.7	25.2	21.6	18.3	4.6	15.4	15.9	2.4	7.3
	(nU)	73.5	87.5	82.7	96.4	99.1	98.1	77.3	74.7	78.4	81.5	95.4	84.6	84.1	97.6	92.7
2007	(U)	28.4	14.8	20.0	3.3	0.9	1.9	20.6	25.2	22.4	19.4	4.5	15.7	14.9	2.1	7.6
	(nU)	71.6	85.2	80.0	96.7	99.1	98.1	79.4	75.8	77.6	80.6	95.5	84.3	85.1	97.9	92.4
2008	(U)	30.6	15.5	20.1	3.6	0.8	1.8	11.5	16.2	9.9	19.2	4.6	14.9	19.2	7.2	10.0
	(nU)	69.4	84.5	79.9	96.4	99.2	98.2	88.5	83.8	90.1	80.8	95.4	85.1	80.8	92.8	90.0
2009	(U)	30.6	16.4	21.5	3.5	0.9	1.9	11.8	16.6	11.1	14.0	4.1	14.6	-	-	-
	(nU)	69.4	83.6	78.5	96.5	99.1	98.1	88.2	83.4	88.9	86.0	95.9	85.4	-	-	-
2010	(U)	34.8	16.4	22.1	-	-	-	-	-	-	-	-	-	-	-	-
	(nU)	65.2	83.6	77.9	-	-	-	-	-	-	-	-	-	-	-	-

Reference:

Rows: (U) University Graduate, (nU) Non-University graduate.

Columns: (Ent) Entrepreneur; (Se) Self- Employed and (Emp) Employeee.

Source: Authors' compilation based on household surveys.

In terms of social composition, the middle class makes up an important and increasing part of the entrepreneurial population. This is especially true in Argentina and Brazil, where the middle class represents more than 60 percent of the entrepreneurial population. In Ecuador, Peru, and El Salvador, lower-class entrepreneurship is more widespread than it is in Argentina and Brazil.

**Table 5. Sample Composition by Occupational Category and Social Class
(based on daily income definition)**

Year		Argentina			Brazil			Peru			Ecuador			El Salvador		
		(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)	(Ent)	(Se)	(Emp)
2004	(L)	38.2	75.5	67.3	23.4	69.8	69.7	73.2	91.9	75.3	67.2	86.8	72.6	46.3	76.2	78.9
	(M)	54.1	23.2	31.0	60.6	27.6	27.5	24.1	7.9	22.0	31.8	12.7	26.6	46.2	23.6	20.4
	(H)	7.7	1.4	1.7	16.01	2.6	2.8	2.7	0.2	2.7	1.0	0.5	0.8	7.5	0.3	0.7
2005	(L)	30.5	70.2	64.5	23.0	67.7	67.1	73.9	93.4	75.1	66.8	86.3	69.7	49.5	84.4	76.7
	(M)	58.1	28.1	33.6	60.2	29.5	29.5	23.1	6.5	22.1	31.4	13.1	29.0	44.8	15.3	22.6
	(H)	11.4	1.7	1.9	16.7	2.8	3.4	3.0	0.1	2.9	1.8	0.6	1.3	5.7	0.3	0.8
2006	(L)	25.5	63.6	53.5	21.2	64.6	64.4	56.9	85.5	65.4	59.0	83.3	67.4	58.4	84.9	79.5
	(M)	62.7	35.0	44.1	59.6	32.1	31.9	39.5	14.0	31.3	39.1	16.5	31.4	37.9	14.4	19.5
	(H)	11.8	1.5	2.4	19.3	3.3	3.7	3.7	0.5	3.4	2.0	0.3	1.2	3.7	0.6	1.0
2007	(L)	19.9	54.3	44.9	21.3	61.7	62.9	51.3	84.3	62.2	29.7	69.6	63.3	49.8	84.9	77.9
	(M)	67.5	43.1	51.3	60.2	34.9	33.6	41.8	14.9	34.8	46.6	27.5	33.4	45.0	14.7	20.9
	(H)	12.6	2.6	3.8	18.5	3.4	3.6	6.8	0.8	2.9	23.8	2.8	3.3	5.2	0.4	1.2
2008	(L)	22.0	51.5	43.3	21.2	61.1	59.3	60.5	84.9	66.7	36.3	68.5	58.9	51.6	86.5	77.3
	(M)	68.3	45.9	53.4	59.9	35.6	36.7	34.9	14.6	30.8	53.5	29.6	38.9	44.2	13.1	22.0
	(H)	9.7	2.6	3.3	18.9	3.3	4.1	4.5	0.5	2.5	10.2	1.9	2.2	4.2	0.4	0.7
2009	(L)	23.3	48.1	38.0	19.8	59.3	58.6	62.0	83.9	63.9	42.3	73.9	64.4	-	-	-
	(M)	63.9	49.0	57.3	61.3	37.1	37.1	33.2	15.3	33.5	50.6	24.6	33.7	-	-	-
	(H)	12.8	2.9	4.7	18.9	3.7	4.3	4.8	0.7	2.6	7.0	1.4	1.9	-	-	-
2010	(L)	23.1	49.6	36.5	-	-	-	-	-	-	-	-	-	-	-	-
	(M)	65.6	47.9	58.7	-	-	-	-	-	-	-	-	-	-	-	-
	(H)	11.2	2.5	4.8	-	-	-	-	-	-	-	-	-	-	-	-

Reference:

Rows: (L) Low-class, (M) Middle-class; and (H) High-class.

Columns: (Ent) Entrepreneur; (Se) Self-Employed and (Emp) Employee.

Source: Authors' compilation based on household surveys.

The fact that the entrepreneurial population comes from the lowest segments of the population in Ecuador, Peru, and El Salvador may indicate that it comprises mainly microenterprises, or subsistence entrepreneurship. This analysis, if true, may affect the subsequent analyses. Caution is called for when interpreting the results, especially those concerning entrepreneurship as a vehicle for economic mobility.

Table 5 also shows that the proportion of middle-class entrepreneurs has tended to increase in recent years. Nonetheless, the size of the middle class has also grown in the other occupational categories because of a general increase in personal incomes in the region (ECLAC, 2010). In some countries, the middle class has increased more among employers and/or employees than among entrepreneurs. The importance of the middle classes among entrepreneurs is higher than among employees and the self-employed in all countries studied except Peru, where the proportions are similar.

In addition to Table 5, it is important to give some context for the discussion of the importance of middle class entrepreneurship by examining the importance of this social segment in the general population. Table 6 illustrates different country profiles by jointly analyzing the weight of the middle class among the population (rows), and their corresponding proportion among the entrepreneurial population (columns).

As Table 6 illustrates, only in Brazil and El Salvador is the proportion of middle-class entrepreneurs larger than expected according to the proportion of the middle class among the general population. As expected, Argentina is the most promising country for the promotion of middle-class entrepreneurship, given the higher importance of these segments both for the entrepreneurial population and the population as a whole. Peru is the least promising country for this kind of targeted intervention.

Table 6. Middle-Class Entrepreneurship (country profiles)⁷

		Proportion of entrepreneurs being middle class ⁸		
		Low	Medium	High
Proportion of middle-classes on the population ⁹	Low	PERU	EL SALVADOR	
	Medium		ECUADOR	BRAZIL
	High			ARGENTINA

Source: Authors' compilation.

In sum, the main result of this comparison between different characteristics based on occupational categories is that entrepreneurs tend to be older than the rest of the population, they are predominantly male, and they are better educated. Some contrasts in social origin are noted, in that Argentinean and Brazilian entrepreneurship is more typically dominated by the middle

⁷ Data on sample composition according to social class are included in Annex B.

⁸ The scale of this measure is based on the average value of the three last years observed in the descriptive data showed in Table 5. A “High” value indicates those above 60 percent, a “Medium” value those between 40 percent and 60 percent and a “Low” value those lower than 40 percent.

⁹ This scale is also based on an averaged value of the proportion of middle-classes among the general population in the last three years (see Annex B at the end). The boundaries to define the categories are the same as those used to calculate the columns.

class. Lower classes are more common in the rest of the countries, although the importance of the middle class among entrepreneurs has tended to increase, especially in Ecuador.

3. Entrepreneurship and Economic Mobility in Selected Latin American Countries

This section focuses on the main issue of this study, i.e., the relationship between entrepreneurship and economic mobility. The main research questions that will be addressed are i) to what extent is entrepreneurship (i.e., business ownership) constitutes a vehicle for economic mobility, and ii) to what extent economic mobility for entrepreneurs is greater than for the rest of the population, i.e., employees and the self-employed.

3.1. Model and Data Structure

Measurement of income mobility involves establishing a relationship between past and present income with additional controls, as follows:

$$Y_{it} = \alpha + \beta_1 Y_{it-1} + \beta_2 Y_{it-1} E_{it-1} + \beta_3 E_{it} + \delta X_{it} + \mu_{it} \quad (1)$$

where per capita household income, i.e., total labor plus non-labor divided by household size, is the response variable and the household head is the observational cross-sectional unit. In this context, income mobility is defined as the difference between past and present incomes. In other words, low mobility implies that present income is highly influenced by past income and vice versa.¹⁰

To account for the difference between the income mobility of entrepreneurs and that of the rest of the population, we include an interaction effect between the lagged income and a binary variable which assumes value 1 if the individual is an entrepreneur and 0 otherwise. The parameter $1 - \beta_1$ from the equation above represents income mobility for employees and the self-employed, and the parameter $1 - (\beta_1 + \beta_2)$ represents income mobility for entrepreneurs. Finally, we include a vector X of covariates, i.e., education, age, and gender. By adding these variables we can estimate not only unconditional mobility but also conditional mobility, that is, the

¹⁰ Indeed, a β closer to 0 implies high mobility, and a β closer to 1 means a low mobility. Put in these terms, economic mobility does not strictly refer to economic progress.

estimation of income mobility once other variables, such as education, age, and gender, have been taken into account.¹¹

Two measures of income mobility are estimated: (i) absolute mobility and (ii) relative mobility. For absolute mobility, we employ incomes in per capita terms deflated using the Consumer Price Index of each country and year and adjusted by PPP (2005 Base Year).¹² The relative mobility measure uses incomes in per capita terms normalized by the median of per capita income of each cohort in the current year. This second measure seems to be more accurate than the first one, especially during periods of general increases in personal income, as in this case, since it allows estimation of individuals' mobility in terms of the general upward movement of population incomes.

Ideally, this kind of model should be estimated using longitudinal data for the same individuals over time (panel data). These data, however, do not yet exist for Latin American countries. Therefore, we employ data from national household surveys to establish pseudo-panels.¹³

The development of pseudo-panels, initiated by Deaton (1985 and 1997), has been a useful approach to overcome data limitations. A pseudo-panel is formed by creating “synthetic” observations obtained from averaging “real” observations with similar characteristics, i.e., in this case, birth year, country of residence, and gender. Since we follow individuals who are the same age over time, these pseudo-panels are also called “cohort data.”¹⁴ Because these average, or synthetic, observations relate to the same group of people, they have many of the properties of panel data.¹⁵ Using cohort data instead of individual data creates the following modification in the estimated model:

¹¹ If time dummies were considered in the mobility equation, estimates of the conditional mobility indicator would show different levels of income mobility, since time-specific macro effects would be also considered in the estimation.

¹² This is the criterion used by World Development Indicators supplied by the Research Department of the IDB.

¹³ As mentioned before, the data sets for this study come from national household surveys of Argentina (2004-2010), Brazil (2004-2009), Ecuador (2004-2009), Peru (2004-2009), and El Salvador (2004-2008). Although household surveys are not uniform, the Research Department of the IDB has harmonized them, using similar definitions of variables in each country and year, and by applying consistent methods for data processing.

¹⁴ More technical details about the construction of the cohorts and the pseudo-panel are in Annex C at the end of this paper.

¹⁵ Cohorts are frequently interesting in their own right, and questions about social mobility can be addressed by following these groups over time. Cohort data also have a number of advantages over panel data. Many panels suffer from attrition, especially in the early years, and so run the risk of becoming increasingly unrepresentative over time. Because the cohort data are constructed from samples every year, there is no attrition. Working with aggregated data

$$\overline{Y_{C(t),t}} = \alpha + \beta_1 \overline{Y_{C(t-1),t-1}} + \beta_2 \overline{Y_{C(t-1),t-1} E_{C(t-1),t-1}} + \beta_3 \overline{E_{C(t),t}} + \delta \overline{X_{C(t),t}} + \mu_{C(t),t} \quad (2)$$

where the individual sub-index i has been replaced by a cohort index, $C(t)$, which is time dependent. Analogous to the initial model specification, β_1 and β_2 are the parameters of interest.

One methodological limitation should be mentioned. The pseudo-panel approach is based on “synthetic” observations created by averaging individuals’ values. Therefore, the approach may underestimate income mobility, since by eliminating individual disturbances it overestimates the correlation between past and present incomes. In addition, the pseudo-panel technique does not allow tracing individual trajectories, so it is impossible to determine whether personal income mobility is an upward or downward trend.¹⁶

3.2. Empirical Results and Discussion

This section presents and discusses the empirical results of the estimated model. First, Table 7 shows the results for the model, which includes all the countries studied. The purpose of this analysis is to offer a general and summarized picture of income mobility for entrepreneurs, taking into account country-specific fixed-effects, including other macroeconomic controls, such as the unemployment rate, and individual characteristics, such as age, gender, and educational level, reducing the effect of unobservable heterogeneity on income mobility. Thereafter, we will present the estimations for each country.

at a level that is intermediate between micro and macro brings out the relationship between household behavior and the national aggregates and helps to bridge the gap between them.

¹⁶ So far, we only could determine whether current income is determined by its past realization.

Table 7. Results for the General Model (dependent variable: Y_t)

Variables	Unconditional model		Conditional model	
	Absolute	Relative	Absolute	Relative
Y_{t-1} (β_1)	0.795***	0.761***	0.773***	0.755***
$Y_{t-1} \times E_{t-1}$ (β_2)	0.025	0.041*	0.004	0.042*
E_{t-1}	0.332	0.062	0.835	0.976
BRA	-0.104***	0.051**	0.005	0.116***
ECU	-0.176***	0.087***	-0.162**	0.095***
PER	-0.219***	0.043**	-0.270***	0.015
SLV	-0.225***	0.027	-0.163***	0.084**
Unemployment rate	-0.068	0.005	-0.006	0.008
Age			-0.014**	-0.017***
Age sq			0.002***	0.002***
Female			0.023	0.043
University			0.574***	0.382*
Constant	1.242***	0.014	1.663***	0.227*
Number of cohorts	399	399	399	399
R^2	0.87	0.68	0.87	0.69

References: ARGENTINA is the reference category for country dummies.

* significant at 10%; ** significant at 5%; *** significant at 1%

Source: Authors' calculations based on household surveys.

The estimation results for the previous model confirm two empirical facts: i) there is a low degree of income mobility at the aggregate regional level, and ii) entrepreneurs do not exhibit higher income mobility than employees and the self-employed.¹⁷ These results are statistically significant at 1 percent and hold for all specifications of the model, including absolute, relative, conditional, and unconditional. In other words, despite the generally increasing personal incomes verified in Latin America during 2003-2009 (see ECLAC, 2010), income mobility was limited. Moreover, entrepreneurship, or being an employer, did not constitute a singular vehicle for income mobility, at least not at the aggregate regional level.

Pooling all the data in a single aggregate estimation may average out different country-specific patterns of mobility (Cuesta, Ñopo and Pozzolitto, 2011). At the country level the situation is somewhat different, as shown in Table 8, which summarizes estimation results of the conditional income mobility equation for each country.¹⁸

¹⁷ Income mobility for employees and the self-employed is defined as $1 - \beta_1$, whereas income mobility for entrepreneurs is $1 - (\beta_1 + \beta_2)$.

¹⁸ Outputs from the estimations of the conditional and unconditional specifications are presented in Annex D at the end of this paper.

Table 8. Summary Results for the Conditional Income Mobility Regressions (by country)
Cells report the estimated regression coefficients (β_1 and β_2)¹⁹

	Argentina		Brazil		Ecuador		Peru		El Salvador	
	Absolute	Relative	Absolute	Relative	Absolute	Relative	Absolute	Relative	Absolute	Relative
Entrepreneurs	0.80	0.57	0.76	0.60	0.59	0.90	0.62	0.77	0.84	0.72
Others	0.78	0.58	0.84	0.65	0.68	0.73	0.63	0.66	0.80	0.65
N° of cohorts	96	96	80	80	80	80	80	80	63	63
R ²	0.89	0.54	0.96	0.71	0.57	0.62	0.80	0.79	0.69	0.74

All the reported cells are statistically significant at 1% of confidence.
Source: Authors' calculations based on household surveys.

Generally absolute mobility tends to be low, although it is higher in Ecuador and Peru than in the remaining countries. In Ecuador and Brazil, absolute mobility is more pronounced for entrepreneurs, but this difference is statistically significant in Brazil.

The picture is mixed when relative mobility is considered.²⁰ Argentina and Brazil have a moderate level of relative income mobility. In Brazil, entrepreneurs have higher income mobility than the rest of the population, although this difference is not statistically significant. Argentinean entrepreneurs show a level of mobility similar to the others. Ecuador, Peru, and El Salvador show lower levels of relative income mobility, which are even lower for entrepreneurs, although this is not statistically significant.

The results of our descriptive data may shed some light on the analysis of these results. Argentina and Brazil, where entrepreneurs show similar or even higher relative income mobility levels, are also the countries where entrepreneurship tends to be dominated by the middle class by more than 60 percent. In the remaining countries, where middle-class entrepreneurship is not predominant, entrepreneurs show rather low mobility compared to other occupational categories. Thus, we could hypothesize that middle-class entrepreneurship could be a more valuable vehicle for relative income mobility than entrepreneurship in general. This could be related to the availability of resources and skills needed to take higher risks, which leads to higher mobility in

¹⁹ The reader should remember that income mobility for employees and self-employees is defined as $1 - \beta_1$ whereas income mobility for entrepreneurs is $1 - (\beta_1 + \beta_2)$.

²⁰ Here it is important to recall the differences between absolute and relative mobility. Since the relative mobility measure allows consideration of the general upward movement in individuals' incomes in recent years, it seems to be a more accurate measure of the income mobility. Mobility is per se a relative concept. In fact, in Argentina, Brazil, and El Salvador, the relative measure indicates a higher level of relative mobility than the absolute measure.

income in relatively more sophisticated enterprises. Those resources and skills are usually much more abundant among the middle class than among lower-class entrepreneurs, who often lead low-risk microenterprises. Both conclusions, however, deserve more in-depth analysis and testing through further research.

In sum, the result of the pseudo-panel study shows that at the aggregate regional level, income mobility was rather modest, and entrepreneurs did not outperform the rest of the population. In other words, it seems that entrepreneurship as a vehicle for income mobility did not differ from what occurred at the aggregate level. Thus, in countries with moderate levels of relative income mobility, entrepreneurs would tend to perform similarly or better than the rest of the population. In cases where relative income mobility is rather low, entrepreneurs tend to show lower levels of income mobility. We propose that middle class entrepreneurship could be a better vehicle for income mobility than lower class entrepreneurship, to the extent that it can be proved that entrepreneurs' income mobility is positively related to the importance of the middle class among entrepreneurs in a given country.

Finally, the definition of entrepreneurship adopted in this study must be stated. As we mentioned previously, the category "employer" drawn from household surveys is more an indicator of business ownership than entrepreneurship, i.e., the creation of new businesses. This broad definition may lump together heterogeneous profiles of entrepreneurs, e.g., mature micro-entrepreneurs and lifestyle businesses, young growth-oriented businesses, and their contribution to economic mobility could also be quite different. Considering this methodological issue and the proposed relationship between middle class entrepreneurship and income mobility, an interesting conceptual research question remains: do all kinds of entrepreneurship contribute similarly to economic mobility?

Previous literature on entrepreneurship answers this question in the negative (Baumol, 1990). In his argument, Baumol distinguishes between three kinds of entrepreneurs, i.e., those whose contribution is positive, or productive; those whose contribution is rather modest or non-existent, or unproductive; and those whose contribution is negative, or destructive. An additional question that arises is: to what extent are those businesses created by middle class entrepreneurs different from those created by lower class entrepreneurs? And, in this case, to what extent does their contribution to income mobility differ?

Our results suggest a positive relationship between middle-class entrepreneurship and income mobility. In the Latin American context, previous studies show that middle and upper-middle-class entrepreneurs create fertile soil for dynamic entrepreneurship, which means growth and social mobility (Kantis et al., 2004). These entrepreneurs and their businesses are analyzed in detail in the study “Latin-American Middle-class entrepreneurs and their Firms,” which is the second research study in this project. One important conclusion is that more precise definitions of different types of entrepreneurship would be a plus in analyzing the effects of entrepreneurship on income mobility, rather than using a generic and broader definition, which includes heterogeneous economic behaviors.

4. Entrepreneurial Propensity among Different Segments of the Population

Having analyzed the potential contribution of entrepreneurship to economic mobility, a follow-on issue is the entrepreneurial propensity of different segments of the population. In particular, from a public policy perspective, it is important to identify not only the different entrepreneurial propensities of different segments of the population, but also the main determinants of the decision to become an entrepreneur.²¹

Identification of those segments of the population that exhibit different entrepreneurial propensity may provide relevant inputs for policy making. For instance, those segments with a higher entrepreneurial propensity reflect the type of people who have succeeded in creating and making a business survive. Therefore, directing resources to those segments could be an efficient way of increasing the number of entrepreneurial businesses in the short run. Conversely, identifying segments with a lower entrepreneurial propensity could provide inputs to identify structural barriers that may explain those segments’ lower entrepreneurial propensity.

The basic research questions to be answered are: (i) to what extent does entrepreneurial propensity differ among different segments of the population, and (ii) what are the main determinants of entrepreneurial propensity.

4.1. Model and Data Structure

The analysis of entrepreneurial propensity, i.e., the likelihood of becoming an entrepreneur, is similar to the individual decision-making process by occupational category. The multinomial

²¹ However, in light of previous comments about using the “employer” category as a proxy for entrepreneur, this measure of entrepreneurial propensity refers to a greater extent to business ownership propensity.

logit model (MNL) for occupational choice is the most frequently used nominal regression model.²² In this model, the effects of the independent variables are allowed to differ for each outcome, or choice. The possible outcomes for the occupational categories are: entrepreneur, or employer, employee, and self-employed, and they are taken equally as an approximation of individual occupational choice.²³ In addition, the parameters of the model and the individual characteristics are both used to predict which choice the individual will make. The MNL is a generalization of the binary response model. Although we could make it simple using a binary response model for entrepreneurs and others, it is much more appropriate to consider the three different outcomes as representing determinants of the decision-making process for the occupational category. The estimated model is the following:

$$Y_i = \beta_0 + \beta_1 Age_i + \beta_2 Fem_i + \beta_3 Scho_i + \sum \beta_i Year_i + \mu_i$$

where the dependent variable refers to each occupational category and the explanatory variables consist of individuals' age by range, gender, (1=female), and years of schooling. Additionally, time dummies are included as control variables. Data from this analysis are drawn from the national household surveys coordinated by the IDB. From this data a pooling of cross-sections across years was constructed for Argentina, Brazil, El Salvador, Ecuador, and Peru. For Argentina, the pool includes information for 2005-2010; for Brazil, Ecuador, and Peru, the pool includes information for 2004-2009; and for El Salvador the pool includes information for 2004-2008.

4.2. Empirical Results and Discussion

Table 9 shows the predicted probabilities for each country and for different segments of the population. The first result is that in general the average propensity is rather low, i.e., lower than 10 percent. Ecuador and Peru exhibit higher propensities, and Brazil and Argentina show lower propensities.

²² More details about the MNL are described in the Annex E at the end of this study.

²³ However, since the household surveys do not ask about the age of the businesses owned by entrepreneurs, it is not possible to divide entrepreneurs between those who chose this occupational category a long time ago and those who have decided to become entrepreneurs recently. Hence, this entrepreneurial propensity should be understood as the observed result of individual choices taken at different times. As a result, it does not represent the individual intention to create a new business rather than the observed proportion of business owners.

Table 9. Summary of Predicted Probabilities (by country)

Segment	Argentina	Brazil	Ecuador	Peru	El Salvador
Average propensity	4.81%	5.08%	10.12%	10.01%	6.02%
Female	2.07%	2.53%	5.48%	6.70%	4.31%
Male	6.26%	6.52%	11.64%	10.87%	6.48%
Age [21;30]	2.31%	2.54%	5.49%	7.59%	3.20%
Age [31;40]	3.98%	4.85%	9.04%	9.78%	5.34%
Age [41;50]	5.23%	6.56%	10.88%	10.66%	7.30%
Age [51;60]	7.13%	7.97%	11.37%	10.87%	9.23%
Age [61;65]	8.25%	10.23%	14.62%	11.77%	9.69%
Primary	2.92%	3.13%	8.48%	8.94%	4.79%
Secondary	5.08%	6.14%	10.93%	10.14%	7.53%
University	7.88%	10.41%	11.47%	8.68%	9.60%

Source: Authors' calculations based on household surveys.

Men have a greater probability of becoming entrepreneurs than women do. In almost all of the countries studied, male propensity was double that of female. Entrepreneurial propensity also increases with age. This result holds true for all of the countries studied and coincides with the empirical literature on entrepreneurship, which establishes a positive relationship between age (as a proxy of experience) and the accumulation of entrepreneurial human capital (i.e., motivations, skills, and capabilities), which are linked to entrepreneurial propensity (Colombo and Grilli, 2005; Gimeno et al., 1997).

University graduates show a higher entrepreneurial propensity than the average in all of the countries studied, except Peru. In Brazil especially, and, to a lesser extent, in Argentina, entrepreneurial propensity for university graduates almost is double the average for each country. This result is important since the middle class tends to be over-represented among university graduates. In fact, from the descriptive data, we found that 72 percent of the university population belongs to the middle class in Argentina, 62 percent in Brazil and El Salvador, and 50 percent in Ecuador. Hence, we could speculate that there is a positive relationship between university graduates' entrepreneurial propensity and the preponderance of the middle class in the university population. This may also indicate that the middle class has a higher entrepreneurial propensity.²⁴ Our data suggest a positive contribution of the middle classes on entrepreneurship because of their importance among Latin American university graduates.

²⁴ Due to the existence of endogeneity effects, entrepreneurship propensity cannot be estimated by class to identify differences among middle and lower classes.

Additionally, results of the multinomial logit regressions (Table 10) show that university education is one of the main determinants of the choice between paid employment and business ownership in Argentina, Brazil, and El Salvador. Notably, in these three countries the middle class accounts for a greater proportion of the university population (over 60 percent), reinforcing the previous concept about the link between the middle class and entrepreneurial propensity.

Table 10. Summary of Regression Results (by country)²⁵

Status	Variable	Argentina	Brazil	Ecuador	Peru	El Salvador
Employer	Age [31;40]	+	+	+	+	+
	Age [41;50]	+	+	+	+	+
	Age [51;60]	+	+	+	+	+
	Age [61;65]	+	+	+	+	+
	Secondary	+	+	-	-	+
	University	+	+	-	-	+
	Female	-	-	-	-	-
	Constant	-	-	-	-	-
Self-employee	Age [31;40]	+	+	+	+	+
	Age [41;50]	+	+	+	+	+
	Age [51;60]	+	+	+	+	+
	Age [61;65]	+	+	+	+	+
	Secondary	-	-	-	-	-
	University	-	-	-	-	-
	Female	-	-	+	+	+
	Constant	-	-	-	+	-

Base category: Employee.

For simplicity time dummies are not reported. Only statistically significant cells are reported.

Source: Authors' calculations based on household surveys.

Consistent with the predicted probabilities, regression results show that age contributes positively to the choice of business ownership, whereas female gender negatively influences the choice.

Overall, the above-described results about entrepreneurial propensity allow us to conclude that university graduates are key policy targets since they exhibited higher entrepreneurial propensity in most of the studied countries. This conclusion does not necessarily mean that universities are currently contributing to entrepreneurship development, but rather, that more educated people coming from middle class segments have a sounder platform upon which to create sustainable businesses, and they are also better able to remain as employers in the long run. Considering this, university entrepreneurship programs are desirable since more educated middle-class entrepreneurs are relatively better able to face higher risks and, in so

²⁵ All the regressions' outputs are included in Annex F at the end of this study.

doing, contribute to income mobility. What challenges those segments of entrepreneurs face is the key question when designing these kinds of programs. The second paper prepared for this project provides some inputs on this subject.²⁶

As the abovementioned second paper found, experience appears to be a key factor since those with a previous background in industry as an employee have savings to finance the pre-startup and the very early stages of the project and relevant contacts, or networks. This result has clear policy implications for targeting, since people with experience have more chances of success than young people do. For entrepreneurship policy, the most desired scenario is one in which having a professional career is a matter of personal decision and a sound platform for creating a competitive business. Entrepreneurship is therefore more related to education policy (Llisterri, Kantis, Angelelli and Tejerina, 2006). The issues for women deserve further exploration; there is a vast literature on barriers related to gender. This issue, however, exceeds the scope of this paper.

Finally, entrepreneurial propensity is estimated on the basis of current industry structure. In some new sectors, such as those related to IT, i.e., Internet, videogames, and software, the presence of young people is currently a more common feature. A methodological limitation is that propensity estimates relate to the past and the present rather than the future, while entrepreneurship policies are more about change and the future than about the past and current structure.

5. Conclusions and Policy Implications

The overall objective of this paper was to assess the contribution of entrepreneurship to economic mobility and to understand the main determinants of the entrepreneurial propensity. The results show that despite the general increase in GDP observed in the region during recent years, income mobility at the aggregate regional level has been rather low, both in absolute and relative terms. Entrepreneurs do not outperform the general population in terms of economic mobility. By moving to the individual country level, however, the picture is mixed. Brazil, and to a lesser extent Argentina, show moderate income mobility, with entrepreneurs having similar

²⁶ The vast set of program experiences aimed at fostering entrepreneurship for university graduates at the international level could also be an important input.

mobility as other occupational categories. Conversely, Peru, Ecuador, and El Salvador show lower income mobility, being it even lower for entrepreneurs.

For entrepreneurial propensity, we found that entrepreneurship, defined as being an employer, is characteristic of only a small segment of the population, i.e., less than 10 percent with some variance among the countries studied. University graduates show the highest propensity in most of the countries studied, while women and young people have the lowest entrepreneurial propensity. Education and age appear to be positively correlated with making the choice to move from paid employment to entrepreneurship. Female gender contributes negatively to such choice.

In both analyses we found interesting potential links with middle-class entrepreneurship. First, we postulate that the more dominant the middle class segments are among the entrepreneurial population, the greater the income mobility that entrepreneurs will have. In other words, middle-class entrepreneurship represents a better vehicle for income mobility. Second, we found evidence that in countries where the middle class represents an important proportion of the university population, the entrepreneurial propensity of university graduates is higher. Both arguments may justify a strategic orientation toward fostering and supporting middle-class entrepreneurship throughout university-based programs that include graduates as targets, especially in public universities where most of middle class tends to study. Education, therefore, is an important area of focus since it has proved to positively influence income mobility and entrepreneurial propensity.

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Annex A. General Description of Country Data

In general terms, males comprise an overwhelming proportion of the sample. In each country, the proportion of males is around 75 percent, and it remains stable over time. Some minor differences are observed across countries. The highest proportion of males is observed in Ecuador and Peru, while the percentage of males is similar for the remaining three countries.

Table 11. Sample composition by Gender

Year	Argentina		Brazil		Peru		Ecuador		El Salvador	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
2004	76.5	23.5	77.4	22.6	84.4	15.6	82.0	18.0	73.8	26.2
2005	76.6	23.4	76.0	24.0	83.4	16.6	82.1	17.9	73.4	26.6
2006	76.1	23.9	75.1	24.9	79.4	20.6	81.4	18.6	74.7	25.3
2007	77.0	23.0	74.2	25.8	80.0	20.0	81.0	19.0	74.7	25.3
2008	76.1	23.9	72.4	27.6	81.6	18.4	79.0	21.0	74.7	25.3
2009	74.3	25.7	72.3	27.7	81.6	18.4	78.4	21.6	-	-
2010	74.4	25.6	-	-	-	-	-	-	-	-

Source: Authors' calculations based on household surveys.

Regarding age, on average, 60 percent of those included in the households surveys were between 31 and 50 years old. Brazil and El Salvador show a slightly higher proportion of young people between 21 and 30, than the rest of the countries.

Argentina has the largest proportion of university graduates in the sample. On average, university graduates account for 20 percent of the Argentinean sample, whereas in the rest of the countries this proportion is around 10 percent. Importantly, only 2 percent of each annual sample for Brazil were university graduates.

Table 12. Sample Composition by Age Categories

Year	Argentina					Brazil					Peru					Ecuador					El Salvador				
	21/30	31/40	41/50	51/60	61/65	21/30	31/40	41/50	51/60	61/65	21/30	31/40	41/50	51/60	61/65	21/30	31/40	41/50	51/60	61/65	21/30	31/40	41/50	51/60	61/65
2004	17.9	28.4	26.9	21.2	5.6	23.0	32.2	26.9	14.6	3.2	12.9	28.0	30.3	21.4	7.4	13.2	27.2	29.9	21.9	8.0	24.5	30.8	24.5	16.0	4.3
2005	16.4	28.1	27.3	22.0	6.3	23.3	31.2	26.6	15.2	3.6	13.1	27.4	29.6	22.3	7.6	12.3	27.7	30.8	22.8	6.3	22.4	32.0	24.2	16.4	5.0
2006	17.0	26.7	27.2	22.4	6.4	22.3	31.3	27.1	15.8	3.5	12.7	27.8	27.7	22.8	9.1	12.6	24.9	30.9	24.3	7.2	21.5	29.5	25.5	18.3	5.1
2007	14.5	27.8	28.7	22.4	6.6	21.9	30.9	27.2	16.2	3.6	13.7	28.8	28.1	21.4	7.9	13.7	27.1	29.1	22.6	7.4	17.8	28.8	28.2	20.0	5.3
2008	14.2	27.7	28.7	22.6	6.7	21.4	30.1	27.7	17.0	3.8	12.3	27.0	31.5	22.1	7.0	11.6	25.5	31.2	23.4	8.3	19.7	30.1	26.9	18.3	5.0
2009	14.0	28.2	28.3	22.4	7.1	20.9	30.6	27.5	17.1	3.9	11.0	26.3	31.2	23.4	8.1	11.1	24.3	31.2	23.9	9.5	-	-	-	-	-
2010	13.6	28.9	27.9	22.5	7.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Authors' calculations based on household surveys.

Table 13. Sample Composition by Educational Level

Year	Argentina		Brazil		Peru		Ecuador		El Salvador	
	Univ.	Non Univ.	Univ.	Non Univ.	Univ.	Non Univ.	Univ.	Non Univ.	Univ.	Non Univ.
2004	15.5	84.5	1.7	98.3	17.1	82.9	11.6	88.4	5.7	94.3
2005	16.2	83.8	1.7	98.3	16.3	16.7	12.8	87.2	6.6	93.4
2006	16.7	83.3	1.7	98.3	23.3	76.7	11.3	88.7	6.3	93.7
2007	19.4	80.6	1.7	98.3	23.5	76.5	11.5	88.5	6.3	93.7
2008	19.8	80.2	1.7	98.3	12.9	87.1	11.0	89.0	9.7	90.3
2009	20.9	79.1	1.8	98.2	13.6	86.4	9.8	90.2	-	-
2010	21.6	78.4	-	-	-	-	-	-	-	-

Source: Authors' calculations based on household surveys.

Annex B. The Importance of the Middle Class

This section reviews the differences among the sample distribution according to different measures of the middle class. First using the definition based on daily income (Banjee and Duflo, 2007), for most of the countries studied, the middle class does not represent a significant proportion of the population. Some cross-country differences, however, are important enough to be mentioned. Argentina is the only country where the middle class represents more than 50 percent of the population. In Brazil and Ecuador, about 40 percent of the population is middle class, and in Peru and El Salvador, the middle class is even smaller, representing 20 percent of the population.

Table 14. Sample composition by Social Class (based on daily income)

Year	Argentina			Brazil			Peru			Ecuador			El Salvador		
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
2004	67.8	30.7	1.8	66.9	29.5	3.6	82.8	15.6	1.5	77.9	21.4	0.7	76.5	22.6	1.0
2005	64.3	33.5	2.2	64.5	31.4	4.1	83.6	14.8	1.6	76.2	22.8	1.1	77.3	21.8	1.0
2006	54.3	43.0	2.6	61.6	33.8	4.6	73.4	24.4	2.1	73.1	26.0	0.9	79.7	19.2	1.1
2007	45.3	50.6	4.1	60.3	35.3	4.3	70.5	27.1	2.3	62.6	32.3	5.1	78.3	20.5	1.2
2008	43.6	52.8	3.5	57.3	37.9	4.8	73.7	24.4	1.9	60.7	36.5	2.8	78.5	20.7	1.0
2009	39.2	56.0	4.8	56.3	38.6	5.1	72.1	25.9	2.0	67.2	30.8	2.1	-	-	-
2010	38.5	56.8	4.7	-	-	-	-	-	-	-	-	-	-	-	-

Reference: L (low); M (middle); H (high).

Source: Authors' calculations based on household surveys.

Comparing this proportion over time, as expected from the general increase in personal incomes in the region during the last decade, the proportion of middle class individuals throughout the population has grown. This situation, however, is more evident in Argentina and Brazil.

Using the definition of the middle class that is based on median income distribution, as proposed by Castellani and Parent (2010), shows a different picture. In almost all of the countries studied, the middle class accounts for 50 percent of the population. Peru is the single exception, with a percentage close to 40 percent. Curiously, the evolution of this percentage over time is not as significant as when the previous definition is used. As expected, using the median of the distribution as the definition does not incorporate the general increase in personal income.

**Table 15. Sample Composition by Social Class
(based on the median of the distribution)**

Year	Argentina			Brazil			Peru			Ecuador			El Salvador		
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
2004	24.0	42.8	33.1	22.9	43.4	33.6	28.8	36.1	35.1	20.2	49.4	30.4	19.4	49.3	31.3
2005	22.6	45.4	32.0	23.0	42.7	34.3	28.7	36.8	34.5	19.3	50.6	30.2	19.5	47.9	32.7
2006	22.3	45.8	31.9	22.4	44.7	33.0	28.7	37.4	33.8	17.9	50.7	31.3	19.4	49.7	30.9
2007	21.7	44.5	33.7	21.2	44.7	34.1	27.2	39.1	33.7	24.5	40.6	34.9	19.5	49.3	31.2
2008	21.6	46.9	31.4	21.7	45.8	32.5	26.2	40.3	33.5	20.1	47.8	32.1	20.3	48.2	31.5
2009	21.2	46.5	32.3	21.7	46.0	32.3	25.7	41.6	32.7	18.1	50.8	31.1	-	-	-
2010	20.8	47.2	32.0	-	-	-	-	-	-	-	-	-	-	-	-

Reference:

L (low); M (middle); H (high).

Middle-class is defined as those households where per capita incomes are between 0.5 and 1.5 times the median of the income distribution (Castellani and Parent, 2010)

Source: Authors' calculations based on household surveys.

Finally, defining middle class using the polarization measure (Esteban and Ray, 1994), one observes an intermediate situation. According to this measure, the middle class accounts for one-third of the population. This holds for all the countries studied except Peru, where the percentage is somewhat smaller.

Table 16. Sample Composition by Social Class (based on the polarization index)

Year	Argentina			Brazil			Peru			Ecuador			El Salvador		
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
2004	39.8	37.2	23.0	51.4	34.7	13.9	61.5	27.6	10.8	57.5	31.4	11.1	54.1	30.9	15.0
2005	39.9	37.1	22.9	49.7	35.9	14.3	59.9	27.9	12.2	55.0	36.2	8.8	55.7	30.4	13.9
2006	39.1	36.6	24.3	50.5	36.0	13.5	56.2	30.1	13.6	63.6	31.1	5.3	53.6	33.4	13.0
2007	36.2	36.9	26.9	49.0	36.7	14.3	56.4	29.9	13.7	60.1	32.1	7.8	55.7	31.4	12.8
2008	37.2	37.5	25.3	48.7	36.7	14.6	58.2	28.5	13.3	57.1	30.9	12.0	51.4	32.9	15.6
2009	34.9	36.6	28.5	48.2	36.8	14.5	58.9	28.5	12.6	56.6	31.5	12.0	-	-	-
2010	36.0	37.0	26.7	-	-	-	-	-	-	-	-	-	-	-	-

Reference:

L (low); M (middle); H (high).

Middle-class definitions are elaborated based on the polarization index elaborated by Esteban and Ray (1994). This technique allows grouping the sample into different groups of homogeneous individuals based on certain characteristics. For each year and country this technique estimates different upper and lower bounds used to calculate the proportion of middle-classes.

Source: Authors' calculations based on household surveys.

The following tables show the composition of the sample by occupational category and social class using two different definitions. Using the definition based on the median of the distribution (Castellani and Parent, 2010) one sees that the entrepreneurial population tends to be dominated by the middle and upper classes in all the countries studied over time. Using the

middle class definition based on the polarization criteria (Esteban and Ray, 1994), an intermediate situation is observed. Using this definition, the middle class represents around one-third of the entrepreneurial population. This proportion is stable for the entire period being analyzed and across countries.

**Table 17. Sample Composition by Occupational Category and Social Class
(based on daily income)**

Year		Argentina			Brazil			Peru			Ecuador			El Salvador		
		En	Se	Em	En	Se	Em	En	Se	Em	En	Se	Em	En	Se	Em
2004	(L)	38.2	75.5	67.3	23.4	69.8	69.7	73.2	91.9	75.3	67.2	86.8	72.6	46.3	76.2	78.9
	(M)	54.1	23.2	31.0	60.6	27.6	27.5	24.1	7.9	22.0	31.8	12.7	26.6	46.2	23.6	20.4
	(H)	7.7	1.4	1.7	16.01	2.6	2.8	2.7	0.2	2.7	1.0	0.5	0.8	7.5	0.3	0.7
2005	(L)	30.5	70.2	64.5	23.0	67.7	67.1	73.9	93.4	75.1	66.8	86.3	69.7	49.5	84.4	76.7
	(M)	58.1	28.1	33.6	60.2	29.5	29.5	23.1	6.5	22.1	31.4	13.1	29.0	44.8	15.3	22.6
	(H)	11.4	1.7	1.9	16.7	2.8	3.4	3.0	0.1	2.9	1.8	0.6	1.3	5.7	0.3	0.8
2006	(L)	25.5	63.6	53.5	21.2	64.6	64.4	56.9	85.5	65.4	59.0	83.3	67.4	58.4	84.9	79.5
	(M)	62.7	35.0	44.1	59.6	32.1	31.9	39.5	14.0	31.3	39.1	16.5	31.4	37.9	14.4	19.5
	(H)	11.8	1.5	2.4	19.3	3.3	3.7	3.7	0.5	3.4	2.0	0.3	1.2	3.7	0.6	1.0
2007	(L)	19.9	54.3	44.9	21.3	61.7	62.9	51.3	84.3	62.2	29.7	69.6	63.3	49.8	84.9	77.9
	(M)	67.5	43.1	51.3	60.2	34.9	33.6	41.8	14.9	34.8	46.6	27.5	33.4	45.0	14.7	20.9
	(H)	12.6	2.6	3.8	18.5	3.4	3.6	6.8	0.8	2.9	23.8	2.8	3.3	5.2	0.4	1.2
2008	(L)	22.0	51.5	43.3	21.2	61.1	59.3	60.5	84.9	66.7	36.3	68.5	58.9	51.6	86.5	77.3
	(M)	68.3	45.9	53.4	59.9	35.6	36.7	34.9	14.6	30.8	53.5	29.6	38.9	44.2	13.1	22.0
	(H)	9.7	2.6	3.3	18.9	3.3	4.1	4.5	0.5	2.5	10.2	1.9	2.2	4.2	0.4	0.7
2009	(L)	23.3	48.1	38.0	19.8	59.3	58.6	62.0	83.9	63.9	42.3	73.9	64.4	-	-	-
	(M)	63.9	49.0	57.3	61.3	37.1	37.1	33.2	15.3	33.5	50.6	24.6	33.7	-	-	-
	(H)	12.8	2.9	4.7	18.9	3.7	4.3	4.8	0.7	2.6	7.0	1.4	1.9	-	-	-
2010	(L)	23.1	49.6	36.5	-	-	-	-	-	-	-	-	-	-	-	-
	(M)	65.6	47.9	58.7	-	-	-	-	-	-	-	-	-	-	-	-
	(H)	11.2	2.5	4.8	-	-	-	-	-	-	-	-	-	-	-	-

Reference:

Rows: (L) Low-class, (M) Middle-class; and (H) High-class.

Columns: (En) Entrepreneur; (Se) Self- Employed and (Em) Employee.

Source: Authors' calculations based on household surveys.

**Table 18. Sample Composition by Occupational Category and Social Class
(based on the median)**

Year		Argentina			Brazil			Peru			Ecuador			El Salvador		
		En	Se	Em	En	Se	Em	En	Se	Em	En	Se	Em	En	Se	Em
2004	(L)	6.3	3.13	23.0	2.8	26.9	23.3	23.6	47.0	10.4	17.5	32.4	9.8	5.1	17.3	21.3
	(M)	31.3	43.7	43.2	20.3	42.3	45.8	31.6	32.6	41.0	40.3	48.5	52.4	31.0	50.4	50.3
	(H)	62.4	25.0	33.8	77.0	30.8	30.9	44.7	20.4	48.6	42.2	19.1	37.8	63.9	32.3	28.4
2005	(L)	6.1	29.0	21.7	3.6	26.9	23.4	21.8	46.8	10.7	17.6	31.5	9.5	6.4	21.6	19.6
	(M)	28.3	44.6	46.6	20.2	42.0	45.0	33.3	33.9	40.6	43.3	50.1	52.4	33.7	52.3	47.2
	(H)	65.6	26.4	31.7	76.1	31.1	31.6	44.8	19.3	48.7	39.1	18.3	38.2	60.0	26.1	33.2
2006	(L)	6.3	30.2	21.0	3.8	26.1	22.8	19.8	45.5	15.7	13.2	29.1	9.3	11.0	27.5	16.3
	(M)	34.5	45.2	46.6	22.0	44.2	46.9	31.0	34.4	40.8	41.1	51.0	52.8	35.5	48.1	52.0
	(H)	59.2	24.5	32.4	74.2	29.7	30.2	49.2	20.1	43.4	45.8	19.9	37.9	53.6	24.4	31.7
2007	(L)	9.3	29.4	20.6	2.8	23.8	21.8	15.8	42.7	16.5	8.8	33.9	19.9	9.0	28.2	15.9
	(M)	31.0	44.4	45.7	22.9	43.2	46.9	32.1	37.8	41.1	23.4	37.7	46.2	32.1	48.8	51.5
	(H)	59.7	26.1	33.7	74.4	33.0	31.3	52.1	19.4	42.5	67.8	28.4	33.9	58.9	22.9	32.6
2008	(L)	9.3	29.2	20.5	4.1	25.9	21.9	21.1	42.2	13.5	11.1	30.0	13.5	8.9	30.2	16.4
	(M)	35.8	46.2	48.2	25.1	44.8	47.9	31.9	37.2	44.7	31.4	45.2	53.2	30.5	47.2	50.8
	(H)	55.0	24.6	31.3	70.8	29.3	30.1	47.0	20.7	41.9	57.5	24.7	33.3	60.6	22.6	32.8
2009	(L)	10.5	30.1	19.6	3.2	25.8	22.0	19.8	42.4	12.5	8.8	27.9	10.1	-	-	-
	(M)	38.2	45.3	47.5	26.1	44.5	48.2	35.9	37.8	45.9	35.5	47.6	56.2	-	-	-
	(H)	51.2	24.7	32.9	70.7	29.7	29.8	44.2	19.8	41.5	55.7	24.5	33.7	-	-	-
2010	(L)	10.9	30.7	18.7	-	-	-	-	-	-	-	-	-	-	-	-
	(M)	39.2	46.6	48.0	-	-	-	-	-	-	-	-	-	-	-	-
	(H)	49.9	22.7	33.2	-	-	-	-	-	-	-	-	-	-	-	-

Reference:

Rows: (L) Low-class, (M) Middle-class; and (H) High-class.

Columns: (En) Entrepreneur; (Se) Self- Employed and (Em) Employee.

Source: Authors' calculations based on household surveys.

**Table 19. Sample Composition by Occupational Category and Social Class
(based on the polarization index)**

Year		Argentina			Brazil			Peru			Ecuador			El Salvador		
		En	Se	Em	En	Se	Em	En	Se	Em	En	Se	Em	En	Se	Em
2004	(L)	35.7	50.5	36.7	17.2	58.1	51.7	52.3	77.3	43.8	46.8	70.9	47.7	37.6	58.6	53.7
	(M)	26.9	33.6	39.1	38.0	31.6	35.8	28.8	18.6	38.9	34.2	23.0	38.4	32.8	29.1	31.6
	(H)	37.4	15.9	24.2	44.8	10.3	12.5	19.0	4.1	17.2	19.0	6.0	13.9	29.7	12.3	14.8
2005	(L)	35.6	48.2	37.6	16.5	57.4	49.7	48.9	77.0	40.8	48.1	68.9	44.4	40.3	66.6	51.2
	(M)	24.7	34.5	38.9	38.4	32.3	37.3	31.1	18.3	39.2	37.1	24.0	46.4	29.2	27.4	32.3
	(H)	39.8	17.3	23.4	45.1	10.4	13.0	20.0	4.7	19.9	14.8	7.0	9.2	30.6	6.0	16.5
2006	(L)	34.7	48.6	36.6	17.7	57.6	50.9	45.6	71.7	43.5	50.1	75.6	56.1	32.4	62.6	51.5
	(M)	27.1	33.7	38.2	38.8	33.1	36.9	30.6	22.2	37.4	39.3	21.7	37.5	36.4	29.0	35.3
	(H)	38.2	17.7	25.3	43.5	9.3	12.2	23.8	6.2	19.1	10.6	2.8	6.4	31.1	8.4	13.3
2007	(L)	15.2	44.9	35.5	16.6	54.7	49.4	43.1	72.3	44.4	31.4	67.2	59.9	31.6	66.1	52.7
	(M)	35.1	34.7	37.7	37.9	34.2	37.7	30.8	22.1	36.5	39.0	27.8	34.4	36.9	26.3	33.6
	(H)	49.7	20.4	26.8	45.6	11.1	13.0	26.1	5.6	19.0	29.6	5.0	5.7	31.4	7.6	13.7
2008	(L)	18.1	45.4	36.6	19.1	56.2	48.6	47.5	73.5	43.6	33.1	65.8	54.7	26.8	61.9	48.3
	(M)	35.1	35.0	38.4	37.6	33.1	38.1	28.9	20.4	37.6	37.2	26.0	33.8	36.0	29.0	34.8
	(H)	46.9	19.6	25.1	43.3	10.8	13.1	23.6	6.2	18.9	29.7	8.2	11.6	37.1	9.1	16.9
2009	(L)	20.9	44.2	33.4	17.2	55.1	48.6	48.1	74.3	44.4	34.8	64.7	52.5	-	-	-
	(M)	31.5	35.2	37.4	39.2	33.9	37.7	32.2	19.7	37.4	34.3	26.8	35.6	-	-	-
	(H)	47.6	20.6	29.2	43.6	11.0	13.7	19.6	6.0	18.2	30.9	8.6	11.9	-	-	-
2010	(L)	21.5	46.8	34.1	-	-	-	-	-	-	-	-	-	-	-	-
	(M)	35.3	35.7	37.5	-	-	-	-	-	-	-	-	-	-	-	-
	(H)	43.2	17.5	28.4	-	-	-	-	-	-	-	-	-	-	-	-

Reference:

Rows: (L) Low-class, (M) Middle-class; and (H) High-class.

Columns: (En) Entrepreneur; (Se) Self- Employed and (Em) Employee.

Source: Authors' calculations based on household surveys.

Annex C. Pseudo-panel Design

The development of pseudo-panel techniques by Deaton (1985, 1997) has been a useful approach to overcome the limitations of households surveys. Provided that the population is not much affected by immigration and emigration, and that the cohort is not so old that its members are dying in significant numbers, we used successive surveys for each country every year to “follow” each cohort over time by looking at the members of the cohort who were randomly selected into each survey. These averages, which relate to the same group of people, thus have many of the properties of panel data. Therefore, pseudo-panels are also called cohort data.

Cohorts are interesting in their own right, and questions about social mobility can be answered by following these groups over time. Since there are many cohorts going at one time, cohort data are more diverse and richer than aggregate data. Their semi-aggregated structure provides a link between the microeconomic household-level data and the macro-data from national accounts. In addition, the most important measure of income mobility has strong life-cycle, age, gender, and level of education-related components, but the profiles themselves move upward over time with economic growth. Many panels suffer from attrition, especially in the early years, and so run the risk of becoming increasingly unrepresentative over time. Because the cohort data are constructed from samples every year, there is no attrition.

In our case, the pseudo-panel was formed creating synthetic observations obtained from averaging real observations with birth year starting from 1943-1947 to 1983-1987 using a time span of five years in a sequence of repeated cross-sectional data sets over year. Cohorts are constructed based on year of birth, country of residence, and gender. Our pseudo-panel averages observations corresponding to the same survey weighing each observation by an expansion factor in each survey. People were grouped in five-year time bands to avoid too low a number of observations in each cell. The middle point of the band defined the age of the cohort. Information for nine cohorts is used including those who were 21-25 years old in 2008 through those between 61-65 years old in 2008. Given the fact that the younger cohorts were not observed in the first years and that the oldest cohorts were not in the last years, the whole sample has 114 annual observations of the cohorts, 57 for males and 57 for females. The cohort enters the sample at the age of 23; the youngest cohort is not included until 2008.²⁷

²⁷ Given that the entry age of a cohort into the sample begins at age 23 and ends at age 63, the pseudo-panel design is necessarily unbalanced.

The data sets for this study come from national household surveys of Argentina (2004-2010), Brazil (2004-2009), Ecuador (2004-2009), Peru (2004-2009), and El Salvador (2004-2008). Although household surveys are not uniform, the Research Department of the IDB has harmonized them using similar definitions of variables in each country and year, and by applying consistent methods for data processing. All incomes were deflated using the Consumer Price Index of each country and year, and were adjusted using PPP, as reported in the World Development Indicators supplied by the IDB's Research Department. Next we provide a complete description of the pseudo-panel design.

Year	Birth Cohorts – Five-year Span							
[1983-1987]	[1978-1982]	[1973-1977]	[1968-1972]	[1963-1967]	[1958-1962]	[1953-1957]	[1948-1952]	[1943-1947]
	[22-26]	[27-31]	[32-36]	[37-41]	[42-46]	[47-51]	[52-56]	[57-61]
	[23-27]	[28-32]	[33-37]	[38-42]	[43-47]	[48-52]	[53-57]	[58-62]
	[24-28]	[29-33]	[34-38]	[39-43]	[44-48]	[49-53]	[54-58]	[59-63]
	[25-29]	[30-34]	[35-39]	[40-44]	[45-49]	[50-54]	[55-59]	[60-64]
[21-25]	[26-30]	[31-35]	[36-40]	[41-45]	[46-50]	[51-55]	[56-60]	[61-65]
[22-26]	[27-31]	[32-36]	[37-41]	[42-46]	[47-51]	[52-56]	[57-61]	
[23-27]	[28-32]	[33-37]	[38-42]	[43-47]	[48-52]	[53-57]	[58-62]	

Annex D. Income Mobility Regressions

Income Mobility (Absolute Convergence): Argentina 2004-2010

LOG(Income in t)	Unconditional	Conditional
LOG(Income in t-1)	0.9016***	0.7881***
Entre LOG(Income in t-1)	-0.0097	0.0123
Entrepreneur	-0.0236	0.4508
Age		-0.0319***
Age ²		0.0004***
Female		-0.0422
University		0.9795***
Constant	0.7825***	1.7627***
N cohorts	96	96
R ²	0.8993	0.9166

legend: * p<.1; ** p<.05; *** p<.01

Income Mobility (Relative Convergence): Argentina 2004-2010

LOG(Income in t)	Unconditional	Conditional
LOG(Income in t-1)	0.6280***	0.5851***
Entre LOG(Income in t-1)	-0.0228	-0.0126
Entrepreneur	-0.3590	-0.5290
Age		0.0003
Age ²		-0.0000
Female		-0.0265
University		0.2758
Constant	0.1542***	0.1460
N cohorts	96	96
R ²	0.5440	0.5691

legend: * p<.1; ** p<.05; *** p<.01

Income Mobility (Absolute Convergence): Brazil 2004-2009

	Unconditional	Conditional
LOG(Income in t)		
LOG(Income in t-1)	0.9578***	0.8360***
Entre LOG(Income in t-1)	-0.0388	-0.0716**
Entrepreneur	-0.0792	0.9340
Age		-0.0125*
Age ²		0.0002**
Female		0.0361
University		-0.5271
Constant	0.5788***	1.6502***
N cohorts	80	80
R ²	0.9574	0.9672

legend: * p<.1; ** p<.05; *** p<.01

Income Mobility (Relative Convergence): Brazil 2004-2009

	Unconditional	Conditional
LOG(Income in t)		
LOG(Income in t-1)	0.7771***	0.6539***
Entre LOG(Income in t-1)	-0.0769**	-0.0510
Entrepreneur	-0.0253	1.0427
Age		-0.0224***
Age ²		0.0002***
Female		0.0453
University		5.2221**
Constant	0.1657***	0.5689***
N cohorts	80	80
R ²	0.6369	0.7122

legend: * p<.1; ** p<.05; *** p<.01

Income Mobility (Absolute Convergence): Ecuador 2004-2009

	Unconditional	Conditional
LOG(Income in t)		
LOG(Income in t-1)	0.7444***	0.6838***
Entre LOG(Income in t-1)	0.0340	-0.0875
Entrepreneur	0.4761	4.8183*
Age		-0.0446
Age ²		0.0005
Female		0.2701
University		0.5717
Constant	1.2268*	2.7068**
N cohorts	80	80
R ²	0.5497	0.5770

legend: * p<.1; ** p<.05; *** p<.01

Income Mobility (Relative Convergence): Ecuador 2004-2009

	Unconditional	Conditional
LOG(Income in t)		
LOG(Income in t-1)	0.7649***	0.7297***
Entre LOG(Income in t-1)	0.2097*	0.1753
Entrepreneur	-0.5652	2.9401
Age		-0.0376
Age ²		0.0004
Female		0.2090
University		0.0555
Constant	0.1431*	0.6409
N cohorts	80	80
R ²	0.6106	0.6291

legend: * p<.1; ** p<.05; *** p<.01

Income Mobility (Absolute Convergence): Peru 2004-2009

	Unconditional	Conditional
LOG(Income in t)		
LOG(Income in t-1)	0.7734***	0.6345***
Entre LOG(Income in t-1)	-0.0066	-0.0155
Entrepreneur	0.4950	-1.3472*
Age		-0.0017
Age ²		0.0001
Female		-0.1036***
University		0.4133
Constant	1.2377***	2.0760***
N cohorts	80	80
R ²	0.7446	0.8011

legend: * p<.1; ** p<.05; *** p<.01

Income Mobility (Relative Convergence): Peru 2004-2009

	Unconditional	Conditional
LOG(Income in t)		
LOG(Income in t-1)	0.7579***	0.6677***
Entre LOG(Income in t-1)	0.0547	0.1096**
Entrepreneur	0.5841	-0.5643
Age		-0.0020
Age ²		0.0001
Female		-0.0631*
University		-0.0859
Constant	0.0577*	0.1799
N cohorts	80	80
R ²	0.7696	0.7955

legend: * p<.1; ** p<.05; *** p<.01

Income Mobility (Absolute Convergence): El Salvador 2004-2008

	Unconditional	Conditional
LOG(Income in t)		
LOG(Income in t-1)	0.8023***	0.8014***
Entre LOG(Income in t-1)	0.0358*	0.0352
Entrepreneur	0.2547	0.5911
Age		0.0013
Age ²		-0.0000
Female		0.0195
University		0.0592
Constant	0.8727*	0.8481*
N cohorts	63	63
R ²	0.6821	0.6988

legend: * p<.1; ** p<.05; *** p<.01

Income Mobility (Relative Convergence): El Salvador 2004-2008

-

	Unconditional	Conditional
LOG(Income in t)		
LOG(Income in t-1)	0.7908***	0.6578***
Entre LOG(Income in t-1)	0.0668***	0.0652***
Entrepreneur	-0.3570	-0.2089
Age		-0.0073
Age ²		0.0001
Female		0.0108
University		0.9931**
Constant	0.0716**	0.2283
N cohorts	63	63
R ²	0.6948	0.7463

legend: * p<.1; ** p<.05; *** p<.01

Annex E. Occupational Choice Model

The multinomial logit model (MNL) for occupational choice is the most frequently used nominal regression model. In this model, the effects of independent variables are allowed to differ for each outcome, or choice. In this context, the possible outcomes for occupational categories are entrepreneur, self-employed and employee, and they are taken in equilibrium as an approximation of the individual occupational choice. In addition, the parameters of the model and the individual characteristics are both used to predict which choice is made by the individual.

The biggest challenge in using MNL for occupational choice is that the model includes a large number of parameters, and it is easy to be overwhelmed by the complexity of the results. This complexity is compounded by the nonlinear nature of the model, which leads to the same difficulties of interpretation found for other nonlinear models. While estimation of the model is straightforward, interpretation of the results is our primary concern. We presented methods of interpretation of the empirical results and implications in the second section of this document.

The occupational categories are represented in a nominal random variable with the following three outcomes: A, B, and C. Outcome B represents the occupational category for entrepreneur. Outcome C represents the occupational category for self-employed, and Outcome A represents the occupational category for employee (base outcome or comparison group).

The MNL for occupational choice can be thought of as simultaneously binary logits for all comparisons among the occupational category.

$$\ln \left[\frac{\Pr(y_i = C/x_1, x_2, \dots, x_k)}{\Pr(y_i = A/x_1, x_2, \dots, x_k)} \right] = \beta_0 + \beta_{1,C/A} x_1 + \dots + \beta_{k,C/A} x_k$$
$$\ln \left[\frac{\Pr(y_i = B/x_1, x_2, \dots, x_k)}{\Pr(y_i = A/x_1, x_2, \dots, x_k)} \right] = \beta_0 + \beta_{1,B/A} x_1 + \dots + \beta_{k,B/A} x_k$$

The explanatory variables for the model of occupational choice are education (= 1 university), age (by range), gender, economic sector, and time (macro effect). Since there are three outcomes for each occupational category, only two equations need to be estimated. Estimates of the remaining parameters can be computed using equalities of the sort shown next.

$$\ln \left[\frac{\Pr(y_i = C/x_1, x_2, \dots, x_k)}{\Pr(y_i = A/x_1, x_2, \dots, x_k)} \right] - \ln \left[\frac{\Pr(y_i = B/x_1, x_2, \dots, x_k)}{\Pr(y_i = A/x_1, x_2, \dots, x_k)} \right] = \ln \left[\frac{\Pr(y_i = C/x_1, x_2, \dots, x_k)}{\Pr(y_i = B/x_1, x_2, \dots, x_k)} \right]$$

Then

$$\beta_{j,C/A} - \beta_{j,B/A} = \beta_{j,C/B} \quad \forall j = 0, 1, \dots, k.$$

The parameters for each equation represent the partial effect of each explanatory variable on the probability choice between the base occupational category, employee, and occupational category B, entrepreneur, or occupational category C, self-employed. The partial effect of each explanatory variable on the probability choice between outcome entrepreneur and self-employed is computed by the difference of parameters as shown in the above equation.

Formally, the MNLM can be written as:

$$\ln \Omega_{m/w}(x) = \ln \frac{\Pr(y_i = m/x)}{\Pr(y_i = w/x)} = x\beta_{m/w} \quad \text{para } m = 1, \dots, J.$$

where w is the base occupational category, employee, which is also referred as the comparison group. It means that the odds of an outcome compared to the base category are linear in the logarithm.

Therefore, the parameters of the model capture the effect of each explanatory variable on the odd ratio of probabilities for choice. Also these two equations are solved to compute the predicted probabilities for each outcome and each individual as follows:

$$\Pr(y_i = m/x) = \frac{\exp(x\beta_{m/w})}{\sum_{j=1}^J \exp(x\beta_{j/w})}$$

In addition, the predicted probability will be the same regardless of the comparison group w , so changing the base category will produce only a different interpretation of the parameters of interest, but no change in the computed probabilities. Therefore the basic setup of the model is the following:

$$\ln \Omega_{C/A}(x_1, x_2, \dots, x_k) = \beta_0 + \beta_{1,C/A} x_1 + \dots + \beta_{k,C/A} x_k$$

$$\ln \Omega_{B/A}(x_1, x_2, \dots, x_k) = \beta_0 + \beta_{1,B/A} x_1 + \dots + \beta_{k,B/A} x_k$$

And the probabilities for each occupational outcome (choice) are:

$$\Pr(y_i = m/x) = \frac{\exp(x\hat{\beta}_{m/w})}{\sum_{j=1}^J \exp(x\hat{\beta}_{j/w})}$$

The MNLM is just a generalization of the binary response model. Although we could create a simplification using a binary response model for entrepreneurs and other, it is much more appropriate to consider three different outcomes as representing the determinants of the occupational category's decision-making process.

Annex F. Entrepreneurial Propensity Regressions

	ARG	BRA	ECU	PER	ESV
Entrepreneur					
Year 2005	-0.28***	0.07***	-0.04	-0.02	-0.08
Year 2006	-0.23***	0.06**	0.18***	-0.50***	0.34***
Year 2007	0.00	-0.13***	-0.05	-0.51***	0.27***
Year 2008	0.07	0.01	-0.06	-0.06	0.27***
[31;40]	0.62***	0.74***	0.70***	0.38***	0.63***
[41;50]	0.96***	1.14***	1.07***	0.46***	1.09***
[51;60]	1.36***	1.47***	1.22***	0.57***	1.50***
[61;65]	1.61***	1.93***	1.76***	0.87***	1.73***
Secondary	0.54***	0.60***	-0.18***	-0.43***	0.31***
University	0.95***	1.08***	-0.41***	-1.03***	0.39***
Female	-1.26***	-1.07***	-0.71***	-0.42***	0.02
Constant	-3.73***	-3.61***	-2.17***	-1.25***	-3.50***
Self-Employed					
Year 2005	0.02	0.03**	-0.23***	0.07**	-0.06
Year 2006	0.03	0.04***	-0.03	-0.23***	0.28***
Year 2007	-0.01	0.02	-0.16***	-0.27***	0.27***
Year 2008	-0.04	-0.01	-0.09***	-0.09***	0.32***
[31;40]	0.41***	0.38***	0.45***	0.20***	0.43***
[41;50]	0.69***	0.71***	0.81***	0.18***	0.82***
[51;60]	0.96***	1.08***	0.99***	0.35***	1.21***
[61;65]	1.26***	1.55***	1.41***	0.71***	1.59***
Secondary	-0.15***	-0.41***	-0.84***	-0.93***	-0.55***
University	-0.46***	-0.94***	-1.75***	-2.10***	-1.55***
Female	-0.59***	-0.37***	0.23***	0.20***	1.19***
Constant	-1.62***	-1.27***	-0.12***	0.74***	-1.60***
N	117,360	373,142	66,556	63,586	48,291

BASE: Employee

legend: * p<0.05; ** p<0.01; *** p<0.00