



King's Research Portal

Document Version

Publisher's PDF, also known as Version of record

[Link to publication record in King's Research Portal](#)

Citation for published version (APA):

Hertova, D., Lopez-Calva, L. F., & Ortiz Juarez, E. (2010). *Bigger... But Stronger? The Middle Class in Chile and Mexico in the Last Decade*. (Inclusive Development Series 2). United Nations Development Programme (UNDP).

Citing this paper

Please note that where the full-text provided on King's Research Portal is the Author Accepted Manuscript or Post-Print version this may differ from the final Published version. If citing, it is advised that you check and use the publisher's definitive version for pagination, volume/issue, and date of publication details. And where the final published version is provided on the Research Portal, if citing you are again advised to check the publisher's website for any subsequent corrections.

General rights

Copyright and moral rights for the publications made accessible in the Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognize and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the Research Portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the Research Portal

Take down policy

If you believe that this document breaches copyright please contact librarypure@kcl.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.



**United Nations Development Programme
Regional Bureau for Latin America and the Caribbean**

**Research for Public Policy
Inclusive Development**

ID-02-2010

**Bigger... but Stronger?
The Middle Class in Chile and Mexico in the Last Decade[♦]**

Dagmar Hertova*
Luis F. Lopez-Calva**
Eduardo Ortiz-Juarez**

Keywords: Middle class, Distribution, Vulnerability

JEL Codes: D3, I3, D6

[♦] Document prepared for RBLAC-UNDP Project on “Middle Class and Indicators of Economic Success in Latin America and the Caribbean”.

* UN, Department of Economic and Social Affairs **UNDP, Regional Bureau for Latin America and the Caribbean

The opinions expressed in this document are those of the authors, and do not necessarily represent the views of the United Nations Development Programme, or those of the Regional Bureau for Latin America and the Caribbean.

Please cite this document as: Hertova, D., L.F. Lopez-Calva and E. Ortiz-Juarez (2010) ‘Bigger... but Stronger? The Middle Class in Chile and Mexico in the Last Decade’. Research for Public Policy, Inclusive Development, ID-02-2010, RBLAC-UNDP, New York.

BIGGER... BUT STRONGER?
THE MIDDLE CLASS IN CHILE AND MEXICO IN THE LAST DECADE¹

Dagmar Hertova

UN, Department of Economic and Social Affairs

Luis F. Lopez-Calva

Eduardo Ortiz-Juarez

UNDP, Regional Bureau for Latin America and the Caribbean

ABSTRACT

The analysis of the middle class emerges as a relevant issue given the strong influence that this social group has on societies and also on the economic performance. The aim of this document is to empirically contrast different ways of measuring the middle class, from purely statistical approaches to context-relative and absolute-standard measures, and to vulnerability analysis. The evidence for Chile and Mexico suggests that, based on most measures, the middle class has increased over last decade. Additionally, this document proposes to analyze middle class as those households facing a lower probability of falling into poverty based on several indicators. Despite the inherent increase of middle class by this approach, the analysis shows that the income gap between the middle class and lower class has expanded over 1992-2006 which suggest that the middle class has moved away from the households in the bottom of the income distribution. Furthermore, at least in the case of Chile, it seems that there has been a strengthening of the income of the middle class.

Keywords: Middle class, income distribution, vulnerability

JEL Codes: D31, I30, D63

¹ We would like to thank François Bourguignon for helpful comments. The document benefitted from discussions at the ALCADCA Meeting held in Montevideo and the UNAM's Social Affairs Seminar held in Mexico City.

1. INTRODUCTION

The concept of social class is an analytical tool widely used in sociology and other social sciences, but mostly ignored in modern economics. In practice, social classes are usually defined in terms of income sources. Whichever notion of middle class one chooses to use, it is important to understand that any definition is dependent on a particular period and place and is determined by various factors, such as history and development of a society, as well as cultural aspects. The evidence shows that a strong middle class through its emphasis on human capital investment, consumption and savings helps to produce economic benefits and foster economic development, which then in turn contributes to further expansion of the middle class. Middle class is also the backbone of democracy and ensures social and political stability in a country by fostering social cohesion and mitigating tensions between the poor and the rich.

The analysis of the middle class in Latin America emerges as a relevant issue given the strong influence that this social group has on societies and also on the economic performance. The middle class is an important source of skilled and productive labor, as well as a sector that demands a large amount of goods and services, thus stimulating greater economic dynamism. Moreover, the growth and development of the middle class appears to be able to stimulate a greater degree of governance and social cohesion. As political scientists suggest, a strong and stable middle class is usually accompanied by a more ‘stable democracy’.

This document presents a theoretical overview and an empirical analysis of different ways to measure size, analyze the evolution and observe the strength of the middle class in Chile and Mexico. Our aim is not to question the validity of these approaches or measures but to compare and contrast the results that they generate. From a statistical perspective, the evidence suggests that the middle class has been growing during the last decade in both Chile and Mexico. An analysis where the middle class is defined as those non-poor households facing a lower probability to fall into poverty, with a given probability threshold representing the beginning for the *lower bound* of the middle class, suggests that the percentage of households ‘less vulnerable’ –and therefore the total middle class– has also

increased in both countries. Furthermore, the income gap between the middle class and lower class has expanded over 1992-2006 which suggests that the middle class has moved away from the households in the bottom of the income distribution. This result suggests a strengthening of the middle class income, especially in the case of Chile, which is confirmed by the statistical measures which show that the Chilean middle class has not only grown in size but also in the share of income appropriated.

This document is organized as follows. Section 2 discusses what is viewed as the middle class from sociologic and economic perspectives, highlighting the importance of this group on economic and sociopolitical aspects. Section 3 provides a literature review analyzing the middle class as an indicator of success, while section 4 reviews the definitions and measures of the middle class which are empirically contrasted in section 5.

2. WHAT IS THE MIDDLE CLASS AND WHY IS IT IMPORTANT?

2.1. SOCIOLOGICAL APPROACH

In the field of sociology, the two most famous frameworks for class analysis are that of Max Weber and Karl Marx. On one hand, the Weberian concept defines class as a group of individuals with common economic 'life chances' which determine their opportunities for income in the market. The Marxist view, on the other hand, defines class in terms of common structural positions within the social organization of production, where class divisions are based on the concept of exploitation and property relations (Wright 1979).

There have been several approaches to identifying the term 'middle class' in sociological literature, but the above frameworks remain as the most influential. Marx's (1818-1883) analysis defined the middle class more specifically as small independent businessmen and professionals who work for themselves. In particular, these individuals would have acquired special skills, knowledge or education and would rely only on themselves and their resources to make money. Marx predicted that this class would gradually diminish as capitalist enterprises developed and consolidated. This middle class is what later came to be known as *old middle class*, when between 19th and 20th century sociologists began to comment on the changing nature of the middle class and on the emerging *new middle class*,

which has evolved during the transformation and modernization of the economy towards manufacturing, industry and the service sector. Both the old and new middle class can be characterized by their approach towards obtaining higher education and skills. Even Weber saw the middle class as those individuals owning skills and education, and John Goldthorpe defined middle class as those who look to the future and thus see savings and education as essential (Birdsall, et al. 2000). These characteristics may well be the reason why the presence of middle class has often been emphasized as being essential for successful and growing society.

2.2. ECONOMIC APPROACH

In the field of economics, it is more common to define middle class in terms of a measurable characteristic. Economists usually identify middle class statistically, as groups of individuals who occupy certain position in a society's income distribution. All the above definitions of middle class, whether in terms of occupations or income or other criteria, are known as an 'objective' definition, which are reviewed and empirically contrasted in next sections. A more subjective way to identify middle class -not necessarily consistent with the objective approach- is to assess those individual who see themselves as belonging to the middle class. This association is typically based on their orientation towards the values that they see as representing the average members of society. For example, the *World Values Survey* allows us to compare the cases of Chile and Mexico, the two countries analyzed in this document. By asking individuals what they think about their social class membership, we observe that over 1996-2000 the 'middle class' in Mexico fell from 59% to 51%, while the 'lower class' increased, possibly reflecting the negative effects of the crisis during 1994-95. However, the trend is opposite in Chile where the self-perceived 'middle class' increased from 63% to 67%, with slight reductions in the remaining classes. Whichever notion of middle class one chooses to use, it is important to understand that any definition is dependent on a particular time period and place and is determined by several factors, such as history, culture and the process of development.

2.3. THE IMPORTANCE OF THE MIDDLE CLASS

There are number of benefits that derive from the existence of a strong and stable middle class. A strong middle class is crucial in a market-based democracy since it provides the

invaluable incentives for the market to work at its best. Research on the impact of middle classes on democracies around the world shows that members of the middle class tend to behave more rationally when choosing their political representatives. Benefits from the existence of a middle class can be classified in two main categories: political benefits (equity/social homogeneity and cohesion, political stability, preference for market reform); and economic benefits (market-friendly development, enhanced market demand, productivity and quality of the productive base, employment/skills).

Examples of the economic benefits from the existence of a middle class are the presence of a large demand and a source of human capital investment. Such consumption pattern is beneficial to the economy as a whole not only through the increased demand for such goods when produced internally, but also for tax revenues on these goods. After consumption, the rest of middle class household incomes often go towards current investment in their children's education and savings towards human capital. The macroeconomic effects of this behavior are a greatly enhanced labor productivity of future generations and increased skills for better and more rewarding jobs. Moreover, the major and immediate benefit from the existence of a healthy middle class for the political sphere derives from the observation that a large middle class produces relative equity in society, suggesting more stable political and economic conditions. The absence of a strong and cohesive middle class as a political group representing its interests can lead to political polarization and consequent long-term political destabilization of the society.

3. MIDDLE CLASS AS AN INDICATOR OF SUCCESS

3.1. THE ECONOMY SIDE

While the extent of literature analyzing the significance of middle class for the economy has been more limited, there are some interesting studies that look at various channels and aspects of this relationship. Easterly (2001) empirically argues that countries with a large middle class have higher levels of income and grow faster, as long as they are not too ethnically diverse. This concept of 'middle class consensus' implies a situation where there is relative income equality, high share of income going to the middle class, and a high degree of ethnic homogeneity. Easterly's model identifies inequality and ethnic diversity as

the main determinants of incentives for future investment, which in turn affects growth and income. Following this work, Josten (2005) looks at a slightly different channel through which the ‘middle class consensus’ affects growth and that is by focusing on the role of social capital and transaction costs.² Through his *heterogeneous-agents, endogenous-growth* model Josten shows that a decrease in the size of the middle class lowers the social capital of a community, leading to increased economy-wide transaction costs and thus lowering the growth rate of the economy.

A comprehensive study by Solimano (2008) presents empirical correlations between the size of the middle class and different economic variables for 129 countries. His analysis suggests a positive relationship between the share of the middle class and the level of economic development, with the correlation coefficient between the size of the middle class and per capita income of 0.41. The evidence suggests that high income countries have higher share of the middle class -nearly 6 percentage points higher than middle income and low income countries. The results also show a negative correlation between income inequality and the size of the middle class, suggesting that countries that have more unequal income distribution have relatively smaller middle class. An interesting finding is that the correlation between per capita income and income inequality is stronger for the groups in the lower-middle of income distribution (third to sixth deciles) than the upper-middle (seventh to ninth deciles), suggesting that lower inequality and higher economic growth would be relatively more beneficial for people whose incomes are closer to those of the poor than those of the rich.

The significance of the middle class can also be depicted in terms of its emphasis on human capital accumulation. Doepke and Zilibotti (2007) propose a theory where society is divided into middle class and upper class families who are distinguished from each other by their occupations, attitudes and preferences towards work and leisure. The middle class are in occupations that require skills and experience and they thus develop work ethics and patience, whereas the upper class families rely on rental income which allows them to

² Josten’s consensus differs from Easterly’s definition, as it is defined as the existence of a middle class whose members share ‘a fairly homogenous set of social orientations’.

nurture their taste for leisure. The authors argue that these class-specific attitudes evolve over time and that they are the main determinants of success in an industrialization process.

Galor and Zeira (2003) also demonstrate how initial wealth distribution significantly affects growth through human capital accumulation, not only in the short term, but also in the long run, given that an individual's inheritance determines his or her investment in human capital. There are multiple long-term equilibria depending on the initial distribution of wealth. An economy that starts off as poor, will end up just as poor as an economy with large initial wealth that is held only by a few. However an economy with large initial wealth that is distributed among many will end up rich, or in other words, a country with larger middle class is likely to grow more in the long run.

Another important role of middle classes is that of customers and consumers and their contribution to the size and growth of the domestic market. Murphy, et al. (1989) highlight the importance of a strong middle class as a source of buying power of domestically manufactured goods. They posit that only if domestic markets are large enough can countries profitably industrialize and one condition inductive of successful industrialization is an equally distributed income that ensures strong demand for domestic goods. They propose a model where there are two distinct classes of consumers: the upper class, which pays for the fixed costs of industrial production, and the middle class, whose spending determines the pure profits from industrialization. Hence, an equal society, with large share of middle class, is a key to successful and profitable industrialization.

On a different view, Birdsall (2000) suggests that policies should support not only the poor but at the same time also the middle class. This work defines an inclusive growth as that which extends the pro-poor growth to the majority of people and as growth that is more likely to be economically and politically sustainable. The argument is that economic situations that are good/bad for the poor are also likely to be good/bad for the middle class and that a strong middle class is advantageous for the poor by being more likely to support policy reforms that improve openness, maintain price stability and also by insisting on accountable governments.

3.2. POLITICAL STABILITY, DEMOCRACY AND SOCIAL COHESION

Since Aristotle, the significance of equal society and strong middle class has been emphasized as one of the key fundamentals of democracy and a guarantee of political and social stability.³ When talking about the political role of the middle class Seymour Martin Lipset (1959) stated that *“a large middle class plays a mitigating role in moderating conflict since it is able to reward moderate and democratic parties and penalize extremist groups”*.

An empirical analysis of the impacts on democracy is presented in Barro (1999) which shows that the share of the middle three quintiles is the most important aspect of income inequality that positively affects the extent of democracy. Thus, higher income inequality can have a negative effect not only on political stability, but also on social stability and social cohesion. Similar results were found in Perotti (1993), who argues that initial income distribution determines the amount of redistribution in political equilibrium. Middle class cannot be too far apart from the upper class and too far apart from the lower class in order to ensure such a redistribution so that every class invests in human capital thus leading to higher growth and greater political stability.

Alesina and Perotti (1996) also develop a theory where income inequality, indicated by the share of the middle class, increases socio-political instability and uncertainty which then has a negative effect on investment and consequently growth. The authors test this hypothesis on a sample of 71 countries for the period 1960-1985 in a two equation system in which the two endogenous variables are investment and an index of socio-political stability -based on variables measuring social unrest. Their findings support the argument that income inequality creates more political unrest, and that the presence of a wealthy middle class reduces socio-political instability.

In the light of social cohesion, Easterly, et al. (2000) analyze what makes ‘good’ politicians adopt ‘bad’ policies. They argue that politicians, especially in developing countries, are

³ *“It is possible for those states to be well governed that are of the kind in which the middle-class is numerous, and preferably stronger than both the other two classes, or at all events than one of them, for by throwing in its weights it sways the balance and prevents the opposite extremes from coming into existence”[...]“Surely the ideal of the state is to consist as much as possible of persons that are equal and alike, and this similarity is most found in the middle classes”* (Aristotle, 1932)

socially constrained in introducing reform policies and that these constraints are affected by the degree of social cohesion within a country. The authors discuss the different measures employed as indicators of social cohesion, including the income share of the middle three quintiles, and find that the most cohesive societies are those with higher income share of middle class and least ethnically diverse. Such societies have good policies, good politicians and higher quality institutions, thus always growing faster, a result similar to that of Easterly (2001).

Within the social structure the middle class essentially serves as a buffer between the poor and the rich in preventing social tensions or possible conflicts. Those tensions arising from conditions such as social hierarchies and cleavages and resulting in marginalization of some groups and privileging of others, along class or ethnic lines for example, are defined as structural tensions. Distribution of income and the economic gaps between social groups are both indicators of structural tensions and the deeper these tensions are the higher the probability of outbreak of (possibly even violent) conflicts (Leatherman, et al. 1999). This suggests that the presence of a middle class positioned between the rich and poor works as a force mitigating the tensions and possible conflicts between the two groups.

4. DEFINITIONS AND MEASURES OF THE MIDDLE CLASS⁴

4.1. STATISTICAL AND ABSOLUTE MEASURES

A common way in which economists measure the middle class is in relation to its position in the income distribution. Statistical measures identify the middle class as consisting of households with per capita income in a certain range around the median household per capita income. For example, Blackburn and Bloom (1985) measure middle class as households with per capita income in the range of 0.60 and 2.25 times the median household per capita income. Using a narrower range, Davis and Huston (1992) classify as middle class

⁴ Except for the vulnerability analysis of the middle class suggested in this section, the statistical and absolute-standard approaches, and also the polarization measures, are widely discussed by Foster and Wolfson (2009). Regarding to polarization measures (see for example Esteban and Ray 1994) some studies have empirically applied it to the analysis of the middle class. The recent analysis by Cruces, et al. (2010) constitutes a good example.

those families with incomes between 0.50 and 1.50 times the median income, while Birdsall, et al. (2000) use a range between 0.75 and 1.25.

Alternatively, one can employ a pure income measure, where the middle class is simply a certain percentage share of the income distribution. The disadvantage of this measure is that the size of the middle class will always be fixed. However, it allows quantifying the share of total income appropriated by this group. For example, Alesina and Perotti (1996) use the share of income of the third and fourth quintiles of the income distribution, Partridge (1997) use the middle quintile, Barro (1999) and Easterly (2001) use the middle three quintiles, and Solimano (2008) the third to ninth deciles. All these measures can be formalized in terms of percentiles of the income distribution, as shown in Table 1, where p_n indicates a percentile n , and y_x the per capita income of a household x .

Table 1. Statistical measures of the middle class
In terms of percentiles of the income distribution

| | | |
|----------------------------------|-------------------------------|---|
| Blackburn and Bloom (1985) | | $0.60 \cdot (p_{50}) \leq y_x \leq 2.25 \cdot (p_{50})$ |
| Davis and Huston (1992) | | $0.50 \cdot (p_{50}) \leq y_x \leq 1.50 \cdot (p_{50})$ |
| Birdsall, et al. (2000) | | $0.75 \cdot (p_{50}) \leq y_x \leq 1.25 \cdot (p_{50})$ |
| Alesina and Perotti (1996) | $x \in \textit{Middle Class}$ | $p_{41} \geq y_x \leq p_{80}$ |
| Partridge (1997) | | $p_{41} \geq y_x \leq p_{60}$ |
| Barro (1999) and Easterly (2001) | | $p_{21} \geq y_x \leq p_{80}$ |
| Solimano (2008) | | $p_{21} \geq y_x \leq p_{90}$ |

A comprehensive study conducted by The Economist and The Pew Global Attitudes Project in 2009 suggests the existence of two types of middle class.⁵ One measured by a monetary standard –but not strictly comparable- according to the context of each country (for instance, as those households with income between the official poverty line, and a well-off threshold determined by the average income level in some point of the country’s income distribution), and one measured by a monetary and comparable standard (for instance, as those households with income in a specific range expressed in standardized international dollars).

⁵ The Economist, Special Reports, February 12th 2009.

While a variation of the first type of middle class is proposed in next subsection, the second type has been probably the most analyzed in empirical literature. For example, Milanovic and Yitzhaki (2002) look at the middle class in global perspective by identifying the middle income group of the whole world. They choose to divide the world population into three groups and to identify the middle class as those individuals with per capita income between the mean per capita income of Brazil and Italy. In an influential study, Banerjee and Duflo (2008) define middle class as households with per capita expenditures at purchasing power parity (PPP) between \$2 and \$10. Based on these thresholds, they use household survey data for 11 developing countries to analyze the consumption, employment patterns and other aspects of lives of the middle class. In a similar way, Ravallion (2009) recently proposed the concept of ‘developing world’s middle class’ defined as those who are not considered poor by the poverty lines of developing countries, but are still poor by the poverty lines of rich countries. Middle class is thus defined as those households with consumption per capita between \$2 (the median poverty line for 70 developing countries) and \$13 (the US poverty line) a day at 2005 PPP.⁶

4.2. VULNERABILITY APPROACH

An alternative way proposed in this document is to analyze the middle class in terms of vulnerability of households to fall into poverty, as estimated by a logistic model, according to the Chilean and Mexican realities. In other words, we correlate the poverty status of households with different socioeconomic indicators to obtain probabilities of being poor. In next specification, the dependent variable $poor_i$ represents the poverty status of the i^{th} household measured by the official poverty line in each country and takes value of 1 if the household is poor and 0 otherwise; $\mathbf{X}_i = [x_1, x_2, \dots, x_k]$ is a vector of observable characteristics that includes dwelling indicators (access to running water and floor materials), as well as socioeconomic characteristics of the head (education, sex, age, access to social security, occupational status, and an indicator for rural residence to capture

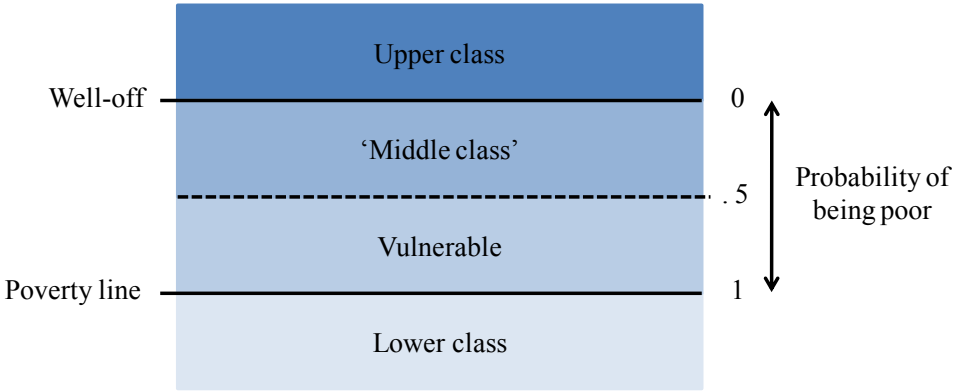
⁶ Additionally, Ravallion separates this classification into upper and lower tiers through a dividing line of \$9 a day. This line is the highest poverty line in his sample of developing countries, which corresponds to Uruguay.

geographical isolation); and $\beta = [\beta_0, \beta_1, \dots, \beta_k]$ is a vector of model parameters.⁷ The estimated probability (p_{ei}) for a household i is thus given by:

$$p_{ei} = E(\text{poor}_i | \mathbf{X}_i) = F(\mathbf{X}_i' \boldsymbol{\beta})$$

These probabilities are used to set a threshold so that those non-poor households at or below are identified as less vulnerable to poverty and therefore can be considered as the *lower bound* of the middle class -this threshold is proposed to be fixed at 0.5. In addition, we assume that the upper end of the middle class is determined by a ‘well-off’ threshold whose value is the median of the income in decile 9.⁸ Notice that this definition allows us to identify three additional classes: lower class, with income at or below the official poverty line; upper-class, with income above the ‘well-off’ threshold; and vulnerable class, with income above the poverty line but with probabilities of being poor above 0.5 (see Figure 1).

Figure 1. Class classification from vulnerability analysis



5. EMPIRICAL ILLUSTRATION: THE MIDDLE CLASS IN CHILE AND MEXICO

The empirical estimates of previous approaches are based on national representatives surveys data for both countries over 1992-2006. In the case of Mexico we use data from the

⁷ Coefficients from this correlation analysis and statistics of the variables used are shown in Appendix 2 and 3. Some methods identifying determinants of vulnerability to poverty are formalized in Calvo and Dercon (2007).

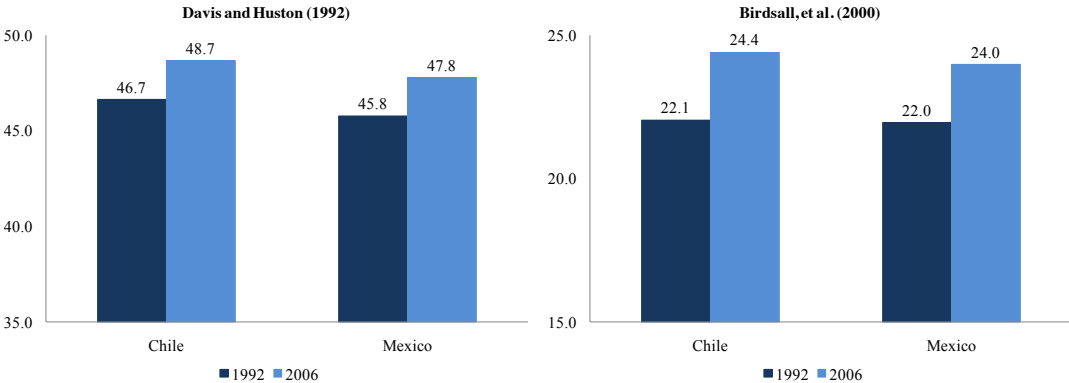
⁸ A further analysis we are implementing also observes the determinants of transitions from middle class to poverty and vice versa, based on panel data for Chile (CASEN Panel) and Mexico (MxFLS) over the first years of the current decade.

National Household Consumption and Expenditure Survey (ENIGH), carried out by the National Institute of Statistics and Geography (INEGI), which collect information on household income and expenditure, dwellings characteristics and data on household members related to age, sex, employment, occupation and education. For Chile, we use the Socioeconomic Characterization Survey (CASEN), undertaken by the Chilean Ministry of Planning (MIDEPLAN). With the exception of household expenditures, this survey collects similar information to that collected by the ENIGH.

5.1. THE SIZE OF THE MIDDLE CLASS FROM A STATISTICAL VIEW

According to the definition of Davis and Huston (1992) the proportion of middle class increased from 46.7% to 48.7% in Chile and from 45.8% to 47.8% in Mexico. This trend is consistent with that obtained when using the definition of Birdsall, et al. (2000) by which Chile’s middle class rose from 22.1% to 24.4% and Mexico’s middle class from 22% to 24% (see Figure 2).⁹

Figure 2. The size of the middle class in Chile and Mexico
Percentage of households



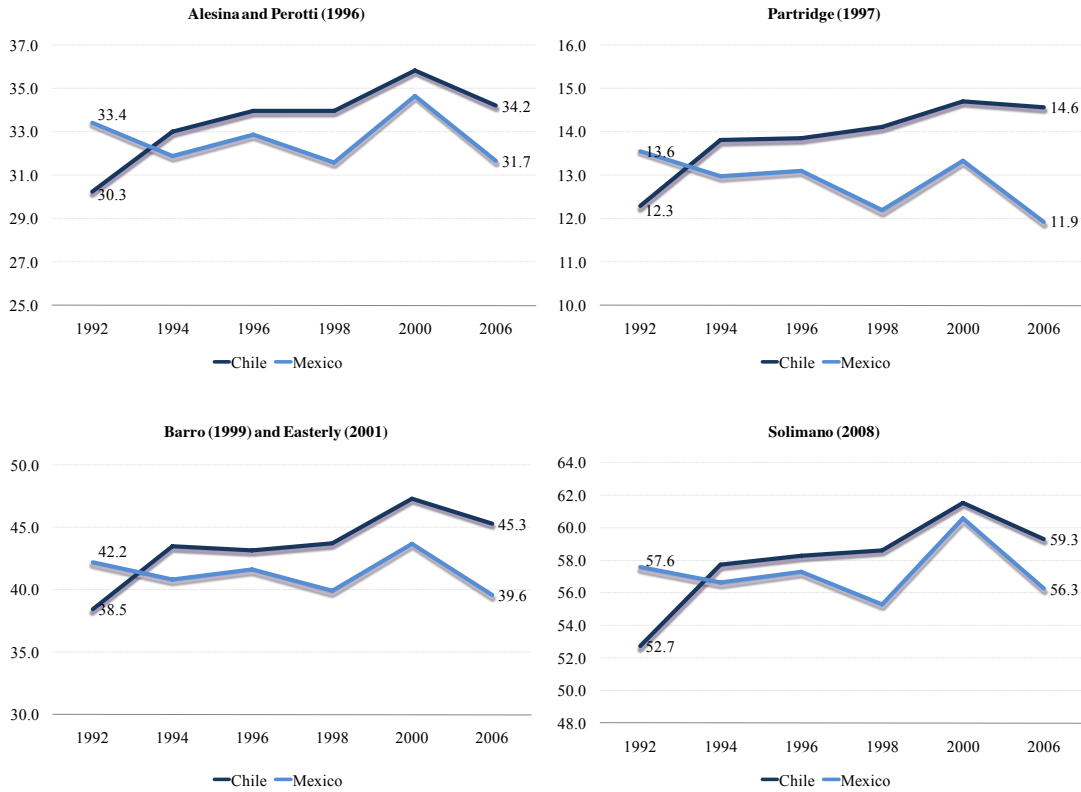
Source: Own estimates from CASEN and ENIGH, 1992-2006

Regarding the measures that identify the middle class as a certain percentage of the income distribution, Figure 3 shows that under any of these measures in 1992 the middle class in Mexico received a higher income share than the middle class in Chile. In the following

⁹ The increase of the size of middle class in Chile and Mexico showed in this work is trend-consistent with results from previous work by Birdsall, et al. (2000) who analyze the middle class in high income countries, and in transition and Latin American economies.

years, however, the growth of this share was faster in the latter, thus dramatically widening the gap between the two countries in the opposite direction. By 2006 both countries experienced a significant drop, causing the income share of the middle class in Mexico to fall to levels even lower than those of 1992.

Figure 3. Income of the middle class in Chile and Mexico, 1992-2006
Share of total income



Source: Own estimates from CASEN and ENIGH, 1992-2006

These patterns are consistent with those obtained by observing the distribution of the income shares by deciles. While in Chile the income share for deciles 1 to 8 increased by about 1 percentage point on average between 1992 and 2006, the income share of the highest decile decreased by 7.6 percentage points in the same period. In Mexico, conversely, the deciles 1 to 8 experienced a drop in their income share by 0.3 percentage points, on average, while for the upper two deciles it increased by 1.3 percentage points.

If the size of the middle class has grown in both countries, even though a divergent pattern on income appropriation was observed, how have the socioeconomic indicators of these

households evolved? We observe some characteristics of the middle class household heads, in terms of the definitions of Birdsall, et al. (2000) and Solimano (2008). The middle class has experienced advances in education in both countries, shown in Appendix 1. However, in 1992 the percentage of household heads with some university degree was higher in Chile than in Mexico, a situation that was reversed slightly towards 2006.

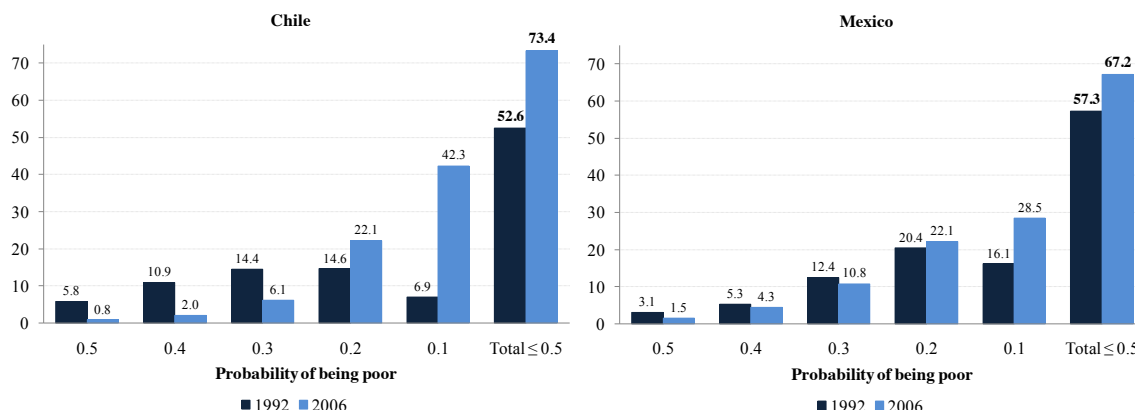
Regarding social security, improvements in coverage are clear in the case of Chile, while in Mexico coverage has receded. This result is also confirmed by data from individual employment categories. In terms of employment sectors, the middle class employed in the sectors of commerce, transport and communication, and mostly also in community and social services has expanded between 1992 and 2006 in both countries. In Chile, there has been a large increase in the employment of the middle class in the financial services sector, while in Mexico it has declined.

Furthermore, the percentage of population identified as ‘blue collar’ middle class workers and middle class farmers has fallen, while the proportion of ‘white collar’ middle class workers and middle class technicians, teachers, service sector workers, sellers or trade sales agents has increased. This result observes similarities with the sociological concept of new middle class described in Section 2, which argues that middle class accumulate education and skills over time and expands its role in the economy towards manufacturing, industry and the service sector.

5.2. VULNERABILITY MEASURES

Following the methodology described in subsection 4.2, the percentage of middle class households increased from 52.6% to 73.4% in the case of Chile, and from 57.3% to 67.2%, in the case of Mexico over 1992-2006 (see Figure 4). A breakdown by probability intervals shows that this increase is dramatically higher in Chile than in Mexico for lower intervals. For example, at the interval between 0 and 0.2 the size of middle class households rose by 43 and 14 percentage points, respectively. Previous figures suggest that in 2006 a higher number of households, in both countries, faced lower probabilities of fall into poverty than in 1992, which can be a signal of strengthening.

Figure 4. The size of the middle class and its distribution by probability intervals
Percentage of households, Chile and Mexico 1992-2006



Source: Own estimates from CASEN and ENIGH, 1992-2006

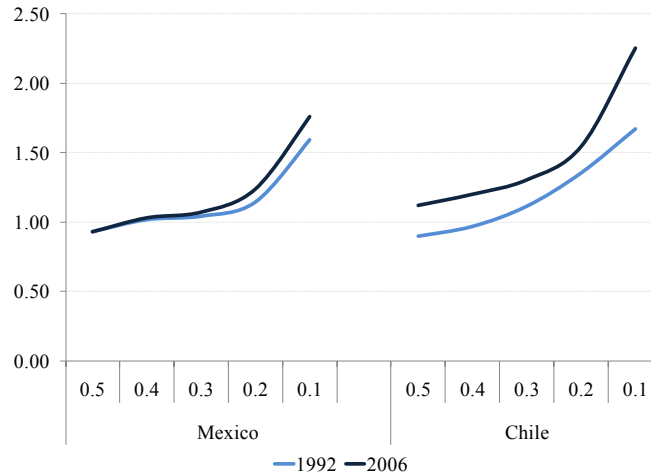
In the case of households ‘more vulnerable’ to poverty which are not defined here as middle class because their probabilities to fall into poverty are above 0.5, the percentage declined significantly in the case of Chile where the proportion fell from 4.3% to 0.4% over 1992-2006. In Mexico, however, the decline was only about half that of Chile (from 4.5% to 2%), so that in 2006 about 500 thousand Mexican households were still highly vulnerable to fall into poverty due to shocks.

How has the income of the middle class evolved relative to other groups, for instance, the poor households? An approximation to answer this question is to estimate a variation of an index proposed by Foster, et al. (1984), known as the FGT_1 measure, in order to observe the income gap between the middle class and the lower class, where the threshold is the value of the official poverty line in each country.¹⁰ As expected, as the probability of being poor decreases, the gap between the income of the middle class and the poverty line expands in a consistent way (see Figure 5). The most interesting result, however, arises when comparing the gap in 1992 to that in 2006. It is clear that the gap has expanded significantly in both countries over time, which makes it evident that the middle class has, on average, moved

¹⁰ The family of indices proposed by Foster, et al. (1984) is defined as $FGT_\alpha = 1/n \sum_{i=1}^n g_i^\alpha$ where $g_i^\alpha = (z - y_i/z)$, z being a poverty threshold and y_i the income of middle class household i . In the context of poverty, the coefficient α is a measure of poverty aversion. When $\alpha = 1$, as used here, the measure represents a gap showing how far away the middle class household i is from the poverty line.

away from the poverty line. However, a much larger widening of the gap occurring in Chile suggests an ‘enrichment’ of the Chilean middle class.

Figure 5. Income gap of the middle class to poverty line by probability intervals
Chile and Mexico 1992-2006



Source: Own estimates from CASEN and ENIGH, 1992-2006

To validate the increase of the middle class in Chile and Mexico, Figure 6 shows Kernel distributions of income in 1992 and 2006. From these distributions, it can be seen that the bulge in the middle has grown over the period making the bell taller and confirming that the middle class has increased, partly due to improvements in income distribution (motivated by an expansion and enhancement of social programs), combined with a reasonable performance in economic growth, which is evident by a movement of the bell to the right.

Figure 6a. Change in income distribution in Chile, 1992-2006
Household per capita income in 2006 prices

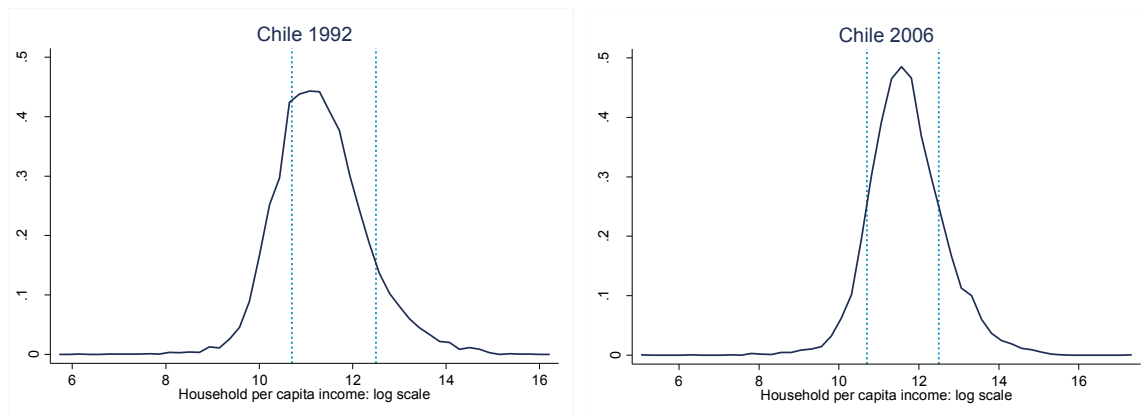
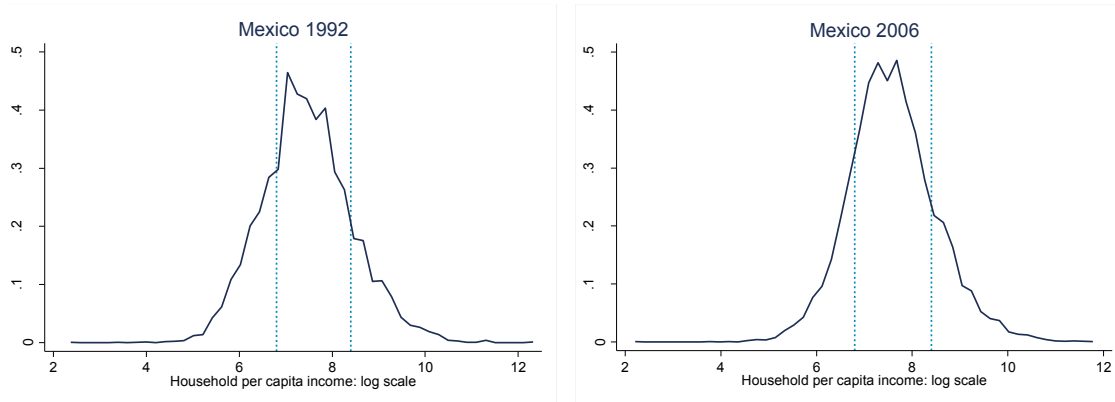


Figure 6b. Change in income distribution in Mexico, 1992-2006
Household per capita income in 2006 prices



Source: Own estimates from CASEN and ENIGH, 1992-2006

Note: The dotted lines represent the official poverty line and the well-off threshold in each country.

5.3. THE ABSOLUTE-STANDARD MIDDLE CLASS

The analysis of Ravallion (2009) using standardized household surveys for a sample of almost 100 developing countries shows that the middle class in developing world grew from 32.8% in 1990 to 48.5% in 2005 (see Table 2). These figures suggest that more than 1.2 billion people joined the middle class over 1990-2005, of which China accounts for half of this amount. Extending the calculations back by a decade, the middle class in Latin America and the Caribbean also increased from 61.3% in 1981 to 63.2% in 1990 and to 65.8% in 2005, which represents an absolute amount of 138 million people.

Table 2. Distribution of absolute-standard middle class in developing world, by region
People living on between \$2 and \$13 a day

| Region | 1981 | | 1990 | | 2005 | |
|---------------------------------|--------------|-------------|----------------|-------------|----------------|-------------|
| | Millions | % | Millions | % | Millions | % |
| East Asia and Pacific | 98.2 | 7.1 | 315.5 | 19.8 | 1,117.1 | 59.3 |
| Eastern Europe and Central Asia | 332 | 78.6 | 355.3 | 76.3 | 347.8 | 73.4 |
| Latin America and the Caribbean | 224.2 | 61.3 | 276.7 | 63.2 | 362.1 | 65.8 |
| Middle East and North Africa | 118.5 | 68.3 | 170.2 | 75.5 | 240.1 | 78.7 |
| South Asia | 124.3 | 13.5 | 192.7 | 17.2 | 380.2 | 25.8 |
| Sub-Saharan Africa | 99.9 | 25.1 | 117.7 | 22.8 | 197.1 | 25.9 |
| Total | 997.1 | 27.2 | 1,428.1 | 32.8 | 2,644.3 | 48.5 |

Source: Own estimates based on Ravallion (2009) and World Bank, PovcalNet

Although this ‘absolute-standard’ approach has triggered an important debate on internationally comparable measurement of the middle class, for the countries analyzed in this work, however, there is no consistency between the results obtained using the different measures contrasted previously and using Ravallion’s definition: while the ‘absolute-standard’ middle class increased slightly in Mexico and has practically not changed in Chile between 1992 and 2006 (see Table 3), the statistical measures of the middle class, and also the vulnerability analysis, suggest a notable increase in both countries, as shown above.

Table 3. People living on between \$2 and \$13 a day in Chile and Mexico
Percentage of total population

| Country | 1992 | 2006 |
|----------------|-------------|-------------|
| Chile | 68.9 | 68.0 |
| Mexico | 69.0 | 70.1 |

Source: Own estimates from CASEN and ENIGH, 1992-2006

Note: Calculations are based on 2005 Purchasing Power Parity (PPP) exchange rates for household consumption from the 2005 ICP.

These divergences are of course due to the different monetary thresholds used in different measures. For example, the highest value that Ravallion uses is \$13 a day, while the measurement of the middle class relative to the contexts in Chile and Mexico uses around \$25 a day as the highest value, which represents the median income in decile 9. Hence, it is clear that Ravallion’s approach is focused on the lower bound of the income distribution for comparative purposes in the developing world. Therefore, in a comprehensive study on the middle class the inclusion of an absolute-standard measure might involve classifying substantial proportion of households that are poor according to each country's official poverty line as middle class, which is likely the case for the analysis of Chile and Mexico carried out here.

CONCLUDING REMARKS

The above discussion suggests that the size and composition of the middle class is critical for strengthening and stabilizing the democratic system and its institutions, and for the functioning of the economy. Indeed, the middle class appears to be an important source of

skilled and productive workers, as well as a source of demand for goods and services, thereby encouraging greater economic dynamism. At the same time, growth and development of the middle class can lead to a better level of governance and promote social cohesion.

The results from estimating the various measures discussed above suggest an increase in the size of the middle class in both countries over the period analyzed. This result is undoubtedly very important in light of the reasons outlined previously. Analyzing the educational and occupational characteristics of the heads of middle class households, the results show that in recent years there have been significant improvements in many of them. However, there has been deterioration in several other indicators as is for example shown by the case of declining social security coverage in Mexico which calls for public policy action.

In terms of income, the analysis shows some interesting results. On one hand, the share of income captured by the middle class relative to the total population has increased in Chile between 1992 and 2006, caused mainly by a decrease in the income share of the households in the highest income decile. This is not the case for Mexico, where by 2006 the income share of the middle class fell to levels lower than those of 1992. On the other hand, the vulnerability approach showed a widening of the gap between the income of the middle class and the poverty line in each country. However, when comparing the gap over 1992-2006 it is clear that it has expanded remarkably in Chile suggesting a strengthening of the income of Chilean middle class households.

Overall, most measures reviewed for Chile and Mexico confirm that middle class is currently bigger than in 1992, partly due to improvements in income distribution and partly due to a reasonable performance in economic growth in recent years. However, the same measures suggest that the strengthening of this social group has not been the same in both countries, neither in terms of income, nor in important socioeconomic characteristics. Furthermore, it appears that an important number of Mexican families remain vulnerable to the transitory or permanent effects of shocks.

REFERENCES

- Alesina, A. & R. Perotti (1996). 'Income Distribution, Political Instability and Investment'. *European Economic Review*, 40(6), 1203-1228.
- Aristotle (1932). *Politics*. Cambridge: Harvard University Press (translated by H. Rackham).
- Banerjee, A. & E. Duflo (2008). 'What Is Middle Class about the Middle Classes around the World?' *Journal of Economics Perspectives*, 22(2), 3-28.
- Barro, J. R. (1999). 'Determinants of Democracy'. *Journal of Political Economy*, 107(6), 158-183.
- Birdsall, N. (2000). 'Building a Market-Friendly Middle Class'. *Mimeo*, Annual World Bank Conference on Development Economics, World Bank.
- Birdsall, N., C. Graham & S. Pettinato (2000). 'Stuck In The Tunnel: Is Globalization Muddling The Middle Class?' Working Paper No. 14, Center on Social and Economic Dynamics, Brookings Institution, Washington.
- Blackburn, M. & D. Bloom (1985). 'What Is Happening to the Middle Class? *American Demographics*, 7(1), 18-25.
- Calvo, C. & S. Dercon (2007). 'Vulnerability to Poverty'. Working Paper Series 2007-03, Centre for the Study of African Economies, University of Oxford, Oxford.
- Cruces, G., L.F. Lopez-Calva & D. Battiston (2010). 'Down and Out or Up and In? In Search of Latin America's Elusive Middle Class'. Research for Public Policy, Inclusive Development, ID-03-2010, RBLAC-UNDP, New York.
- Davis, J. & J. H. Huston (1992). 'The Shrinking Middle-Income Class: A Multivariate Analysis'. *Eastern Economic Journal*, 18(3), 277-285.
- Doepke, M. & F. Zilibotti (2007). 'Occupational Choice and the Spirit of Capitalism'. Discussion Paper No. 6405, Center for Economic Policy and Research, Washington.
- Easterly, W. (2001). 'Middle Class Consensus and Economic Development'. *Journal of Economic Growth*, 6(4), 317-336.
- Easterly, W., J. Ritzen & M. Woolcock (2000). 'On Good Politicians and Bad Policies: Social Cohesion, Institutions and Growth'. Policy Research Working Paper No. 2448, World Bank, Washington.
- Esteban, J. & D. Ray (1994). 'On the Measurement of Polarization'. *Econometrica*, 62(4), 819-851.

- Foster, J. & M.C. Wolfson (2009). 'Polarization and the Decline of the Middle Class: Canada and the US'. OPHI Working Paper No. 31, University of Oxford, Oxford.
- Foster, J., J. Greer & E. Thorbecke (1984). 'A Class of Decomposable Poverty Measures'. *Econometrica*, 52(3), 761-766.
- Galor, O. & J. Zeira (1993). 'Income Distribution and Macroeconomics'. *The Review of Economic Studies*, 60(1), 35-52.
- Josten, S.D. (2005). 'Middle-Class Consensus, Social Capital and the Mechanics of Economic Development'. Discussion Paper No. 36, Helmut-Schmidt University Economics Department, Hamburg.
- Leatherman, J., W. DeMars, P.D. Gaffney & R. Vayrynen (1999). Breaking the Cycles of Violence: Conflict Prevention in Intrastate Crises. West Hartford: Kumarian Press.
- Lipset, S.M. (1959). 'Some Social Requisites of Democracy: Economic Development and Political Legitimacy'. *American Political Science Review*, 53(1), 69-105.
- Milanovic, B. & S. Yitzhaki (2002). 'Does Decomposing World Income Distribution: Does the World Have a Middle Class?' *Review of Income and Wealth*, 48(2), 155-178.
- Murphy, K.M., A. Shleifer & R. Vishny (1989). 'Income Distribution, Market Size and Industrialization'. *The Quarterly Journal of Economics*, 104(3), 537-564.
- Partridge, M.D. (1997). 'Is Inequality Harmful For Growth? Comment'. *American Economic Review*, 87(5), 1019-1032.
- Perotti, R. (1993). 'Political Equilibrium, Income Distribution and Growth'. *The Review of Economic Studies*, 60(4), 755-776.
- Ravallion, M. (2009). 'The Developing World's Bulging (But Vulnerable) Middle Class'. Policy Research Working Paper No. 4816, World Bank, Washington.
- Solimano, A. (2008). 'The Middle Class and the Development Process'. Serie Macroeconomía del desarrollo No. 65, UN-ECLAC.
- Wright, E. O. (1979). Class Structure and Income Determination. New York: Academic Press.

Appendix 1. Characteristics of the middle class households in Chile and Mexico, 1992-2006

Percentage of households in each category

| Households whose head | Mexico | | Chile | | Mexico | | Chile | |
|--|-------------------------|------|-------|------|-----------------|------|-------|------|
| | 1992 | 2006 | 1992 | 2006 | 1992 | 2006 | 1992 | 2006 |
| | Middle class defined as | | | | Solimano (2008) | | | |
| has complete secondary education or more ^{/a} | 23.0 | 41.8 | 41.6 | 54.3 | 30.5 | 48.7 | 47.8 | 60.3 |
| has incomplete university | 2.4 | 3.6 | 2.4 | 3.9 | 3.5 | 5.9 | 3.5 | 5.0 |
| has complete university | 2.0 | 7.5 | 3.8 | 6.2 | 4.4 | 12.3 | 6.6 | 11.1 |
| has social security ^{/b} | 36.0 | 30.9 | 46.3 | 51.4 | 36.9 | 33.7 | 47.8 | 54.1 |
| has social security if employed ^{/b} | 44.2 | 37.3 | 65.0 | 68.8 | 45.0 | 41.0 | 65.3 | 68.4 |
| is employed | 81.6 | 82.9 | 71.2 | 67.6 | 82.0 | 82.3 | 73.2 | 71.4 |
| is employed in | | | | | | | | |
| - agriculture | 16.9 | 10.6 | 15.2 | 14.5 | 16.0 | 10.4 | 14.5 | 12.7 |
| - energy and water | 1.5 | 0.8 | 3.7 | 2.8 | 1.8 | 1.3 | 4.4 | 3.1 |
| - manufacturing | 19.4 | 18.3 | 17.6 | 14.5 | 19.1 | 16.9 | 17.8 | 14.6 |
| - construction | 10.6 | 12.0 | 13.0 | 13.0 | 9.9 | 11.5 | 11.9 | 11.7 |
| - commerce | 17.6 | 19.9 | 14.8 | 17.1 | 17.5 | 17.6 | 16.0 | 17.4 |
| - transport and communications | 6.1 | 7.8 | 9.6 | 10.0 | 5.6 | 7.8 | 9.6 | 9.9 |
| - financial services | 0.8 | 0.7 | 2.8 | 6.1 | 1.5 | 1.3 | 3.9 | 6.5 |
| - community and social services | 27.1 | 29.9 | 22.7 | 21.4 | 28.7 | 33.1 | 21.3 | 23.3 |
| is employed as^{/c} | | | | | | | | |
| - "white collar" [/] | 7.6 | 8.1 | 12.7 | 12.6 | 11.6 | 13.2 | 17.3 | 17.5 |
| - "blue collar" [/] | 41.0 | 36.0 | 39.3 | 37.5 | 36.2 | 33.8 | 35.9 | 34.8 |
| - farmer | 16.4 | 10.0 | 7.5 | 7.5 | 15.8 | 9.7 | 7.3 | 6.8 |
| - technician or teacher | 4.4 | 4.8 | 4.4 | 5.0 | 6.0 | 7.1 | 5.9 | 7.1 |
| - service sector worker, seller or trade sales agent | 16.6 | 21.8 | 10.5 | 12.3 | 16.9 | 19.6 | 11.0 | 12.0 |
| - not qualified | 9.5 | 14.8 | 23.4 | 24.2 | 10.1 | 12.9 | 20.7 | 20.8 |
| has social security and is employed as | | | | | | | | |
| - "white collar" [/] | 71.7 | 69.2 | 75.7 | 75.7 | 77.6 | 68.6 | 77.0 | 77.0 |
| - "blue collar" [/] | 50.7 | 43.4 | 66.7 | 70.0 | 50.4 | 44.2 | 65.8 | 67.5 |
| - farmer | 6.2 | 6.0 | 42.1 | 44.3 | 7.9 | 6.3 | 41.1 | 45.9 |
| - service sector worker or seller | 37.4 | 30.5 | 60.9 | 67.9 | 37.4 | 31.7 | 59.4 | 67.2 |
| - "not qualified" [/] | 31.7 | 14.5 | 60.2 | 67.3 | 25.6 | 17.9 | 59.1 | 65.0 |

Source: Own estimates based on ENIGH and CASEN, 1992-2006. ^{/a} In Mexico 9 or more years of schooling; in Chile 8 or more years. ^{/b} For Mexico we include medical services provided from IMSS, ISSSTE, local institutions, PEMEX, SEDENA, MARINA, universities and private services. For Chile we take the various provisional systems. ^{/c} "white collar": professionals, administrative staff and executives of the public, private and social sectors; "blue collar": inspectors, supervisors and other workers of the industrial production; artisans and factory workers in the processing industry and workers in repair and maintenance; plant and machinery operators; drivers and assistant drivers of mobile machinery and transportation; "not qualified": laborers and unskilled workers in the process of industrial production; hawkers and workers in domestic services.

Appendix 2. Descriptive statistics for variables used in regression. Chile and Mexico, 1992-2006
Percentages and averages

| Variables | Chile | | Mexico | |
|--------------------------------------|-------|------|--------|------|
| | 1992 | 2006 | 1992 | 2006 |
| <i>Characteristics of households</i> | | | | |
| Incidence of poverty ^a | 28.0 | 11.3 | 23.2 | 16.1 |
| No piped water | 11.9 | 7.7 | 18.4 | 9.6 |
| Unfinished floor | 4.0 | 0.8 | 15.7 | 7.0 |
| Rural | 15.8 | 13.1 | 36.5 | 34.5 |
| <i>Characteristics of the head</i> | | | | |
| No education | 5.7 | 3.7 | 17.9 | 10.0 |
| Primary | 45.7 | 36.2 | 48.2 | 39.1 |
| Junior high | 30.3 | 31.6 | 15.8 | 20.4 |
| High school | 5.8 | 9.7 | 7.5 | 10.6 |
| College | 12.5 | 18.8 | 9.8 | 18.3 |
| Head female | 20.7 | 29.7 | 14.2 | 25.1 |
| Head male | 79.3 | 70.3 | 85.8 | 75.0 |
| Head age | 47.7 | 51.2 | 44.0 | 47.0 |
| Farmers | 7.7 | 7.0 | 23.1 | 15.8 |
| Unskilled | 23.8 | 21.9 | 10.5 | 13.7 |
| Blue collar | 33.0 | 32.3 | 31.6 | 30.5 |
| Work in services and commerce | 5.7 | 7.2 | 6.1 | 6.8 |
| Professional | 10.2 | 10.9 | 15.1 | 17.8 |
| White collar | 19.5 | 20.8 | 13.6 | 15.5 |
| Not working | 26.5 | 28.9 | 16.6 | 17.8 |
| No social security ^b | 26.7 | 47.0 | 67.3 | 69.6 |

Source: Own estimates based on ENIGH and CASEN, 1992-2006. ^a For Mexico the incidence corresponds to the *Capacities Poverty*. ^b For Mexico we include medical services provided from IMSS, ISSSTE, local institutions, PEMEX, SEDENA, MARINA, universities and private services. For Chile we take into account the coverage to different provisional systems.

Appendix 3. Coefficients from correlation model between poverty and socioeconomic indicators
Logistic regression analysis, Chile and Mexico, 1992-2006

| Variables | Chile | | Mexico | |
|---------------------------------|----------------------|----------------------|----------------------|----------------------|
| | 1992 | 2006 | 1992 | 2006 |
| Education level | -0.503*** (0.027) | -0.462*** (0.037) | -0.729*** (0.064) | -0.534*** (0.053) |
| Head age | -0.052*** (0.002) | -0.050*** (0.002) | -0.027*** (0.004) | -0.033*** (0.003) |
| Head male | 0.088 (0.069) | -0.249*** (0.069) | 0.371* (0.150) | 0.184 (0.102) |
| Rural | -0.850*** (0.060) | -1.095*** (0.077) | -0.235 (0.126) | -0.065 (0.101) |
| No social security ^a | -0.012 (0.041) | 0.535*** (0.053) | 0.658*** (0.118) | 0.712*** (0.107) |
| No piped water | 0.287*** (0.063) | 0.529*** (0.096) | 0.501*** (0.113) | 0.429*** (0.098) |
| Unfinished floor | 0.329*** (0.086) | 0.746*** (0.172) | 0.940*** (0.117) | 1.034*** (0.100) |
| Farmers [omitted] | . | . | . | . |
| Unskilled | 0.448*** (0.065) | 0.330*** (0.084) | -0.097 (0.159) | -0.519*** (0.114) |
| Blue collar | -0.184** (0.071) | -0.230** (0.089) | -0.535*** (0.148) | -1.016*** (0.120) |
| Work in services and commerce | -1.263*** (0.141) | -1.197*** (0.230) | -0.940* (0.393) | -1.348*** (0.259) |
| Professional | -0.405*** (0.091) | -0.442*** (0.120) | -0.847*** (0.168) | -1.109*** (0.138) |
| White collar | -1.240*** (0.101) | -1.316*** (0.147) | -0.770** (0.272) | -1.775*** (0.324) |
| Constant | 2.290*** (0.135) | 1.118*** (0.174) | 0.276 (0.289) | 0.584** (0.240) |
| Observations | 25,625 | 49,505 | 8,600 | 16,765 |
| Pseudo R ² | 0.149 | 0.123 | 0.211 | 0.201 |

Source: Own estimates based on ENIGH and CASEN, 1992-2006

^a For Mexico we include medical services provided from IMSS, ISSSTE, local institutions, PEMEX, SEDENA, MARINA, universities and private services. For Chile we take into account the coverage to different provisional systems.

Dependent variable is the poverty status of households.

Robust standard errors in parentheses, * p<0.05, ** p<0.01, *** p<0.001