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## Latin American Middle Classes: The Distance between Perception and Reality

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# **Latin American Middle Classes:**

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**December 2011**

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## **Abstract<sup>1</sup>**

The main contribution of this paper with respect to previous work is the use of data on subjective perceptions to identify the Latin American middle classes. This paper provides a set of comparisons between objective and subjective definitions of middle-class using data from the 2007 World Gallup Poll. Seven objective income-based definitions of social class are contrasted with a self-perceived social status measure. Mismatches between the objective and the subjective classification of social class are the largest when the objective definition is based on median incomes. Mismatches result from the fact that self-perceived social status is associated not just with income, but also with personal capabilities, interpersonal relations, financial and material assets, and perceptions of economic insecurity. Objective definitions of the middle class based on absolute incomes provide the lowest mismatches and the most accurate differentiation of the middle class from other classes.

**JEL Classification:** D3, I3, D6

**Keywords:** Middle class, Social status, Income distribution, Latin America

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## 1. Introduction

Definitions of the middle class used in the economic literature are mainly based on objective measures that classify as such the group of people who are neither at the top nor at the bottom of the distribution of a statistically measurable characteristic such as income or consumption. However, as these definitions often rely on arbitrary boundaries around measures of central tendency, quantiles of the distribution or absolute thresholds, there is little agreement on what the middle class is. In addition, the economic literature has ignored that social class also refers to social status, meaning place in a social hierarchy on the basis of life opportunities, life-styles and attitudes. Sociologists (Hodge and Treiman, 1968; Jackman and Jackman, 1982; Wright and Singelmann, 1982) argue that no consideration of social class is complete without taking into account the perceptions of individuals, as these may not coincide completely with their objective class position but are likely to affect their behavior and choices.

In the context of today's Latin American countries, social class should be understood as both a subjective and an economic phenomenon that is the result of a more dynamic social mobility fostered by increases in income per capita and changes in people's subjective interpretation of their class position and of their aspirations.

This paper has two objectives. First, it aims to identify which objective definitions are closest to a subjective classification of middle-class status by exploring different income-based measures of social class and their association with a self-perceived social ranking. Since the mismatches between the objective and the subjective classifications are fairly large, the second objective of this paper is to explore what factors, in addition to income, are associated with the self-perceived social ranking of Latin American households.

The remainder of this paper is organized as follows. Section 2 presents a brief literature review of the concept of middle class. The data source is introduced in Section 3. In Section 4, we present alternative measures of the objective middle classes and their matching with the self-classification. Section 5 explores the correlates of self-perceived social status and their ability to identify self-perceived social classes. The main conclusions are summarized in Section 6.

## **2. What Is the Middle Class?**

Social class is a concept long studied in the fields of sociology and economics. The sociological approach goes back to Marx and Weber's works on social stratification in the emerging industrial societies of the nineteenth and early twentieth centuries. Karl Marx defines social classes on the basis of their distinctive relationships to the means of production and property ownership: the capitalist class and the working class (Gilbert, 2008). From another standpoint, Max Weber adds occupation, educational qualifications and life chances for upward mobility to the Marxist theory of social class based on property. The Weberian theory also contributes to the study of social stratification by making a clear distinction between class and status. A social class, an objective economic fact, is a group of people shaped by a similar relationship to the production and acquisition of goods, i.e., people who share the same economic opportunities but who are not aware of their common situation and lack class consciousness. In contrast with social class, status is a subjective concept, a ranking by social prestige and styles of life (Gilbert, 2008).

In economics, there is a large literature on defining the middle class. The middle class is broadly defined as the group of people who are neither at the top nor at the bottom of the distribution of a particular indicator, such as a statistically measurable characteristic like income or consumption. These definitions rely on the (ad hoc) definition of boundaries and, in general, we identify five main groups of objective definitions: i) definitions based on percentiles, ii) definitions based on measures of central tendency, iii) definitions based on absolute thresholds, iv) definitions based on mixed measures, and v) endogenous definitions.

The definition of social class based on percentiles of the income distribution usually classifies as poor those individuals belonging up to the first two deciles or up to the first, or even the second, quintiles, and as rich those individuals belonging to the top decile or quintile. The middle class is, therefore, the group of individuals belonging either to deciles third to ninth (Solimano, 2008), or to the three middle quintiles (Easterly, 2001; Foster and Wolfson, 2009), or to the third and fourth quintiles (Alesina and Perotti, 1996). However, as pointed out by Cruces, López-Calva and Battiston (2010), measures based on quintiles of the income distribution do not permit analyzing the trend of the middle class size, as this definition is insensitive to changes in the distribution of income over time.

Definitions based on measures of central tendency such as the mean or the median typically identify the lower bound as a fraction of this measure, whereas the upper bound is defined as a multiple of the same central tendency measure. For example, Birdsall, Graham and Pettinato (2000) define the middle class as households in a range between 0.75 and 1.25 times the median of the household per capita income distribution. Similarly, Davis and Huston (1992) posit a 0.5 to 1.5 range around the median, and Blackburn and Bloom (1985) define a range of 0.6 to 2.25. In contrast with definitions based on quantiles, definitions based on measures of central tendency are sensitive to changes over time in the distribution of income within countries. This advantage allows researchers to analyze the evolution of the size of the middle class, as noted by Cruces, López-Calva and Battiston (2010).

While the previous definitions are based on within-country relative incomes, Milanovic and Yitzhaki (2002), Banerjee and Duflo (2008) and Ravallion (2009) have used absolute income-based measures to define middle classes. This approach uses an absolute threshold (PPP adjusted) to divide national income distributions on the basis of the worldwide income distribution. For instance, Milanovic and Yitzhaki (2002) use the average per day incomes of Brazil and Italy (12 dollars and 50 dollars, 2000 PPP prices, respectively) to classify as middle class those households with incomes between these two benchmarks. Banerjee and Duflo (2008) identify as middle class those households with consumption levels between 2 dollars and 10 dollars per day or in some cases, from \$2 to \$4 a day or \$6 to \$10 day, while Ravallion (2009) defines the middle class as those with income ranges between 2 dollars (the median value of the poverty line in 70 developing countries) and 13 dollars (the poverty line in the US) a day at 2005 PPP prices.

A fourth strand of applied work (Birdsall, 2010; Sosa Escudero and Petralia, 2010) defines the middle class based on a mixed threshold. In particular, Birdsall (2010) defines middle class in the developing world as people at or above the equivalent of \$10 a day, PPP adjusted, and at or below the 95<sup>th</sup> percentile of the income distribution in their own country. The first boundary, \$10 a day, is a global threshold below which people are deemed too poor to be middle class in any present-day global society. Birdsall (2010) proposes the lower boundary as a reasonable minimum level of economic security that allows households to care about and save for the future. The second boundary, the 95<sup>th</sup> percentile, is defined as a local threshold above



which people are rich in their own society. In the same study, Birdsall observed low-income countries in which household income per capita at the 90<sup>th</sup> percentile was below \$10 a day.

Endogenous definitions of middle class have also been proposed (D'Ambrosio, Muliere and Secchi, 2002; Zhu, 2005; Olivieri, 2008; Massari, Pittau and Zelli, 2009; Cruces, López-Calva and Battiston (2010). For instance, Cruces, López-Calva, and Battiston (2010) have proposed a non-parametric definition. For a sample of Latin American countries, the authors develop a polarization-based measure that results in a less volatile middle class size over time and that accounts for greater homogeneity within groups and larger differences between groups in terms of socioeconomic characteristics.

Solimano (2008) and Banerjee and Duflo (2007) also provide some characteristics of the middle classes in their studies. In particular, Solimano investigates the relationship of some variables of economic and political nature with the middle class and finds that middle and higher per capita income countries have, on average, a larger share of the middle class than low-income countries. The same effect is observed in countries with lower inequality of income and wealth, larger governments and a large size of the Small and Medium Enterprises (SME) sector.

On the other hand, Banerjee and Duflo (2008) analyze the patterns of expenditures of the middle class and find that the share of budget spent on food falls with increases in the standard of living. Contrariwise, expenditures on education, health and domestic infrastructure increase. Middle-class consumers typically look for better health care and more expensive education for their children. Banerjee and Duflo also find that occupational patterns of the middle-class, as well as their entrepreneurial investments, are similar to those of the poor.

### **3. Data**

Our main data source is the 2007 World Gallup Poll, a survey conducted in 134 countries, which provides the most extensive coverage of both objective and perceived conditions of quality of life, including economic and social conditions. The study sample is representative of the population aged 15 or over in each country. In this study, we use information on 16 Latin American countries for which the poll provides data on income brackets, which allows us to construct the household income variable and estimate an income-based definition of middle class status.

Information on individual income levels is not accurately reported in the 2007 World Gallup Poll, but it includes a question on monthly total household income before taxes that is reported in brackets. However, this question is not always answered by the person who best knows the income of the household, as the respondent is a randomly selected household member older than 15. It is also important to note that brackets are expressed in local currency units and therefore differ across countries.

In their assessment of the Gallup data for the Latin America and Caribbean region, Gasparini et al. (2009) approximate the household income distribution per country, using information from household surveys to estimate the intra-bracket distribution, by assigning random income values in the corresponding income bracket expressed in local currency units. These values are then converted into US dollars using country exchange rates adjusted for purchasing power parity (PPP). Since the data set has information on the number of household members, but not their ages, it permits calculation of per capita household income but not a household income variable adjusted for the demographic composition of the household. In this paper, we use the same dataset as Gasparini et al. (2009).

The main advantage of the Gallup Poll is that it allows for international comparisons. Gasparini et al. (2009) compared the income distribution estimated with the Gallup data and the income distribution obtained from household surveys, and found them very similar. Although they found that in the Gallup Poll the poorest and richest quintiles are somewhat smaller than in household surveys (while the proportion of households in the fourth quintile is in general larger), the income distribution ranking of countries of the two sources is similar.

#### **4. Measures of the Size of the Latin American Middle Class**

As mentioned above, the middle class can be defined objectively on the basis of some per capita income thresholds. In this paper, we analyze four different groups of income-based definitions of middle class, as summarized in Table 1.

Given each definition of middle class, some descriptive statistics can be drawn from our sample (see Figure 1). The median monthly income per capita for the middle class ranges from US\$358 (in PPP terms) in Ecuador to US\$532 in Costa Rica when using the mixed-threshold definition proposed by Birdsall (2010), while it ranges from US\$128 in El Salvador to US\$211 in Costa Rica using Ravallion's (2009) definition. In comparison with other measures, the

middle class, as defined by belonging to the 2nd to 8th deciles (Easterly, 2001), has an income per capita that ranges from US\$103 in Peru to US\$298 in Argentina. Table 2 presents the middle class size calculations by country. The different objective income-based definitions show that the middle class represents from 45 percent in Argentina to 73 percent in Honduras when using measures based on absolute thresholds; from 18 percent in the Dominican Republic to 46 percent in Argentina when using measures based on the median income; and from 7 percent in El Salvador and Peru to 45 percent in Argentina when using the mixed-threshold measure.

In contrast, we propose a subjective definition of middle class status based on the self-valuation of relative wealth. By asking individuals what they perceive as their relative wealth position (on a scale from 0 to 10),<sup>2</sup> the 2007 Gallup World Survey allows us to get an approximation of the size and characteristics of the subjective middle classes in Latin America. On average, Latin Americans rate their relative wealth condition at 4.2.

We avoid the simplest option of considering as subjective middle class a central range of the ladder question on subjective wealth or any other ad-hoc threshold. Instead, we propose a definition of subjective social classes that is interrelated with the sizes of the objective classes. For instance, in our measure of subjective social-classes, we group households in a subjective middle-class having the same size (by percentage of observations) as an objective middle-class specified by an income-based definition of class. The procedure is as follows. Firstly, we generate uniformly distributed random values on a range  $\pm 0.5$  to translate the categorical question of wealth condition into a continuous variable for all the individuals in our sample. Secondly, we rank people from the lowest to the highest value of this continuous variable and classify the lowest as subjective poor until the subjective-poor group size equals the objective-poor group size in their respective country. We repeat the second step to classify the following individuals into subjective middle-class and rich, using the objective middle-class size and the objective rich-group size as references. As a result, for each class within a given country, the corresponding objective and subjective measures have approximately the same relative size. The procedure is arguable; however, we benefit from not imposing ad hoc criteria.

The computations reveal that the objective and subjective definitions of middle class only partly match each other and that mismatches are observed along the whole income distribution.

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<sup>2</sup> The ladder question on subjective wealth in the Gallup Poll is “Please look at this card. Imagine on one end are located the ‘Richest people’ of [COUNTRY] and in the other end are located the ‘Poorest people’ of [COUNTRY]. Taking into consideration your current personal situation could you please tell me in which cell you place yourself?”

Panel a) in Table 3 displays the percentage of people by income decile that assesses their standing in each of the 10 rungs of the subjective ladder question. On average, most of the poorest and the richest individuals believe they belong to the lower-middle fraction of the wealth distribution in their countries. We also use our definition of subjective social class to estimate the mismatches. In panel b), we decompose the whole sample of individuals by objective and subjective classes with one of our alternative objective definitions of middle class: people living on more than US\$2 and less than US\$13 a day. By construction, the sizes of the classes are the same in the objective and the subjective classifications<sup>3</sup> (roughly 17 percent, 66 percent and 17 percent for the poor, middle and rich classes, respectively). However, those that are classified consistently (and therefore, are placed on the NW-SE diagonal of the table) represent only 57.9 percent of the total sample. Among those in the middle class, 45.5 percent are consistently classified as such in the objective and the subjective scales. Panel c) in Table 3 displays the cross-social class classifications in which the middle class are all those individuals with incomes between 0.5 and 1.5 times the median income of their respective countries. In contrast with the definition proposed by Ravallion, those that are classified consistently represent only 44.3 percent of the total sample, and around 19 percent are consistently classified as middle class in the objective and the subjective scales. On average, the inconsistency between objective and subjective social class has its origins, according to sociologists, in the imperfect correlation among income, occupation, education and some other factors such as local economic conditions, employment status, gender, marital status, talent, and luck that create class ambivalence (Hout, 2008).

We can use a matching coefficient as criterion to compare the alternative objective definitions of middle class. Our matching coefficient corresponds to the percentage of correct subjective and objective classifications of those belonging to the middle class by country. As presented in Table 4, definitions based on absolute thresholds and percentiles provide, on average, matching coefficients between objective and subjective middle-classes that are roughly similar (62 to 69 percent) and substantially higher than those based on the median and mixed measures. This is not only observed in the average for the Latin American countries considered in this paper, it is also observed in each country (see Table 5).

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<sup>3</sup> Apart from minor differences, which are less than 1 percent for all countries, due to inability to classify some individuals by one of the two criteria, as some of them have missing values in either the income variable or the subjective classification variable.

Despite the mismatches, there is a positive and significant degree of correlation between each objective measure of social class and the subjective definition. For the whole sample, the Kendall<sup>4</sup> correlation coefficients of the relationship between subjective and objective social classes displayed in Table 5 confirm that ranking by income is indeed relevant in the subjective valuation that individuals make of their relative wealth condition; however, the fact that those coefficients are consistently below 0.3 indicates that there are other factors affecting this valuation.

## **5. Characteristics of the Latin American Middle Class**

### ***5.1 Correlates of Perceived Social Position***

Apart from income, what other factors seem to influence how people see themselves along a relative wealth scale within their countries? Answering this question may provide a useful characterization of the subjective middle classes in Latin America. In order to identify what factors people consider when ranking their social status, we posit that perceived social status depends on all forms of wealth, real and perceived. Following the classification proposed by the Inter-American Development Bank (IDB, 2008), those factors can be organized into three main categories: i) capabilities; ii) relational goods, which include family conditions and other interpersonal conditions; and iii) material conditions of life, which comprise income, financial circumstances and physical assets.

The first category, *capabilities*, includes variables that are specific to the individual such as gender, age, health status (which can be measured by the EQ-5D, a standardized instrument that inquires about the presence of health problems in five dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression<sup>5</sup>) and education level. Capabilities are necessary conditions for personal fulfillment and social development (Sen, 1985).

The second category, *relational goods*, is the group of variables referring to the individual in relation to others. It includes family conditions, such as marital status and childbearing, and other interpersonal conditions, which reflect the extent and depth of relations

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<sup>4</sup> Kendall's rank correlation provides a distribution-free test of independence and a measure of the strength of dependence between two variables and the similarity between two different orderings.

<sup>5</sup> The European Quality of Life-5 Dimensions Index (EQ-5D) is an indicator calculated on the basis of answers to quasi-objective questions of basic individual health conditions. The original EQ-5D studies were conducted in the United Kingdom and then implemented in the United States. See Dolan (1997) and Shaw, Johnson and Coons (2005).

of the individual, including whether he declares to have friends to rely on, whether or not religion is important in his personal life, being employed and having a supervisor.

The *material conditions of life* are subdivided into three groups: i) income, ii) financial circumstances and iii) physical assets. Household income per capita is the most obvious manifestation of wealth. If all forms of wealth were adequately measured through the other variables considered in our model, and if all of them had perfect functioning markets, it would be unnecessary to include income separately in the regression, as total income would correspond to the flow of returns from all forms of wealth. Since these conditions are not met, the inclusion of income is clearly warranted.

The influence of income on wealth perception suffers from endogeneity, particularly because both variables could be jointly determined by a set of common variables, like national economic conditions. However, the problem is ameliorated by including a set of variables on “perceptions of financial circumstances,” since these should capture the influence that temporal shocks may have on both income and the subjective perception of wealth.

Financial circumstances comprise real and perceived circumstances. To summarize the information on access and use of financial services, we have constructed an Access to Financial Services Index, calculated with Principal Components Analysis, PCA. For its calculation we include the following list of dichotomous variables: whether or not the individual has savings account, checking account, ATM card, certificates of deposit, credit card and savings for retirement. Perceptions of financial circumstances may affect how people see themselves along the wealth ladder. They are measured with the answers to the questions of whether or not the individual experiences shortages of income to cover food and housing costs, and a composite variable that summarizes the absence of other financial concerns.<sup>6</sup>

Finally, physical assets include variables of ownership of non-financial assets such as house, television, computer, automobile, washing machine, freezer and house. We also include in this subgroup variables of access to running water and electricity as well as the location (urban or rural) of residence as proxies of the possession of, or access to, other assets.

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<sup>6</sup> A household head is considered to have financial worries if he states that he faces one or more of the following problems: i) not being able to pay for children’s education, ii) fears of not having enough money for retirement, iii) not being able to maintain his standard of living, or iv) not being able to afford the medical costs of a serious illness or accident. The composite variable of not having financial concerns was calculated using the Principal Components Analysis methodology.

To estimate the correlates of subjective social status we implement an ordered logistic regression analysis on the ladder question of relative wealth condition.<sup>7</sup> To summarize our findings we follow the results presented in Table 6. In addition, we evaluate the robustness of our estimation by including some psychological traits variables as regressors in the estimation of correlates of perceived wealth (see column 2).<sup>8</sup> The main conclusion of our findings is that people judge their relative wealth condition taking into consideration all forms of capital, not just their current income.

First, individuals' judgment of their relative wealth position is affected by their human capabilities. Women might tend to conform more than men, as they are more likely to place themselves in the higher rungs of the ladder. Age shows the familiar U-shape found in happiness studies, which in this context implies that, controlling for income and all the other factors mentioned, self-classification in a wealth ladder declines with age until about 72 years of age, and then increases. Although no definite explanation has been given for this pattern, it could be associated with changes in aspirations.<sup>9</sup> Notice that this pattern could not be the result of life cycle factors, since this would imply an inverse U-shape, whereas income and wealth tend to increase with age until about retirement age, and then decline. Other aspects of human capabilities that influence perceived wealth status are health status and education, which is entirely consistent with the hypothesis that human capital is part of subjective wealth.

The same goes for the different forms of relational capital, which are sources of interpersonal relations and support, such as family, friends and religion. Thus, having a spouse and having children are associated with a higher subjective classification. Surprisingly, being divorced, as compared with being single, is also associated with higher subjective social status. In this regard it should be noted that that our estimates point only to correlates of subjective social status, without implying causality (divorce may be more common among those with more

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<sup>7</sup> We have included country dummies in the regressions to control for differences in asset prices and other important unobservable country-specific characteristics.

<sup>8</sup> These psychological traits are reflected in a set of subjective wellbeing indicators. Gallup asked individuals about their life attitude using the following question: "There are all sorts of attitudes towards life. Of those listed, which one comes closest to your own personal attitude? (Single Response) Work hard and get rich / Live each day as it comes, cheerfully and without worrying / Don't think about money or fame, live a life that suits your own tastes / Resist all evils in the world and live a pure and just life / Try to make a name for yourself / Never think of yourself, give everything in service to society."

<sup>9</sup> Blanchflower and Oswald (2004) suggest that, in order to explain the U-shaped curve in wellbeing, "one possibility is that individuals learn to adapt to their strengths and weaknesses, so in mid-life quell their infeasible aspirations."

wealth, but may not necessarily be a *source* of higher subjective social status). Having friends is also associated with higher subjective wealth, since they may be a source of help and support. However, within each social class friendship may mean something different. Psychological research (Argyle, 1994) shows that the poor tend to choose as friends people who they can always turn to for help (mainly, their families) whereas the middle-class describe friends as people whose company they enjoy. Argyle (1994) also points out that people prefer to choose friends who are from the same social class or occupational group, and that this tendency is stronger at the top and bottom of society (middle-class people deliberately make friends from different settings). We also observe a similar effect of religion on the subjective classification of Latin Americans.

Material conditions of life are, of course, central in how people judge their relative standing in society. Income is a strong determinant of subjective social ranking, as mentioned above. Our estimates imply that when income doubles, keeping everything else constant, the probability of being at the sixth rung of the wealth ladder of the subjective wealth scale increases by 1.18 percentage points.<sup>10</sup> Apart from income, however, many other aspects of the financial and material situation of individuals affect their self-evaluation of relative wealth. Having access to financial services and ownership of a variety of physical assets certainly contributes to feeling richer. Perceived social status is strongly associated with feelings of economic vulnerability (as captured in the variables “not having shortage of income to cover food,” “not having shortage of income to cover housing costs,” and “not being concerned with financial matters”). These results are in line with the findings of Solimano (2008), who found, under certain circumstances, a positive correlation between the size of the middle class with the country’s income per capita and the level of net wealth composed of physical and financial assets, housing, and debts. Finally, the results in the second column of Table 6 show that our results remain unchanged after controlling for psychological traits that might bias respondents’ views of their social ranking.

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<sup>10</sup> By way of comparison, using the same Gallup dataset and the question “On what step of the ladder do you feel currently, with the highest step (10) representing the best possible life for you and the lowest step (0) representing the worst for you?”, the *ceteris paribus* effect of doubling income implies that the probability of being at the sixth ladder in the life-satisfaction 0-10 scale increases by 0.37 percentage points.



## ***5.2 A Detour: Valuing the Different Components of Subjective Wealth***

The relative importance of each type of capital in people's assessments of their own wealth can be assessed using the so-called life satisfaction approach originally developed by Frey, Luechinger and Stutzer (2004) to value public goods. These authors use subjective well-being regression results to assess individuals' preferences for public goods or externalities. For this purpose, the public good in question is included as an additional explanatory variable in the micro-econometric "happiness function," where a measure of happiness or life satisfaction is the dependent variable. The estimated coefficient can be interpreted as the marginal utility of the public good. Together with the estimate for the marginal utility of income, the marginal rate of substitution between income and the public good can be calculated, thus providing the valuation (in terms of income) of the public good. The life satisfaction approach has been used to estimate the value of public goods and externalities such as air quality (Luechinger, 2009) and terrorism (Frey, Luechinger and Stutzer, 2009), as well as several personal capacities and interpersonal conditions that contribute to life satisfaction (IDB, 2008). The same method of appraisal can be used to calculate the income-equivalent values of all the forms of capital that contribute to people's subjective valuation of their own wealth. Column 3 of Table 6 presents the valuations of all the significant correlates in regression 1 of the same table.

This valuation requires the estimation of the marginal effects at particular values for the independent variables. In order to specify such values, we have arbitrarily chosen a hypothetical individual, more specifically a 30-year-old Brazilian woman, in (self-reported) perfect health, who has completed higher education, who is married with one child, who considers religion to be important in her life, has friends she can trust, and is employed and has a work supervisor. All these features are desirable in the sense that they are associated with higher levels of subjective well-being, according with regression 1. Per capita income in this person's household is assumed to be US\$157 monthly (in PPP terms), which corresponds to the median income for the whole sample of Latin American countries. We further assume this individual to have all the desirable financial and material conditions that are associated with a higher self-reported wealth level (namely, access to financial services, no financial concerns, house ownership, possession of all basic housing services and assets, and residence in an urban area).

Then, we calculate the income change required to keep constant the subjective wealth of this individual (which we have assumed to be 6 on the 0 to 10 scale) if this person did not have

the desirable characteristics enumerated above. For instance, we find that if the health status of this woman were to deteriorate to that of the 25<sup>th</sup> percentile with worst health within Brazil, the loss in terms of subjective wealth would be equivalent to 0.57 times her income. In a similar way, if she did not have complete higher education, but only complete secondary education, the income equivalent loss of subjective wealth would be 2.3 times her income. By adding the corresponding valuations of the three possible education levels, it can be concluded that the income equivalent value of her human capital in education is 4.11 times her income. Therefore her total human capital (in health and education) is valued at 4.68 times her income.

The value of her relational capital can be computed in a similar way. If she were single instead of married, had no children, religion were not important in her life and had no friends she could trust, she would need to have 3.37 times more income in order to have the same subjective wealth. (Had we assumed that the hypothetical individual originally was divorced and had several children, this calculation would go up to 3.78 times her income).

Similarly, the income equivalent value of all the desirable financial circumstances amounts to 5.2 times the income of the individual, and the value of all her material possessions amounts to 8.26 times her income.

Putting together all the forms of subjective capital of this hypothetical individual, we can conclude that her capital adds up to 21.51 times her income. This is a stark reinforcement to the conclusion that income is but one minor component of people's self-evaluation of their relative wealth. These calculations could be used to compute the distribution of wealth among individuals or social classes (a topic that will be pursued in a separate paper).

### ***5.3 Are Subjective Middle Classes Different than the Rich and the Poor?***

The importance of the correlates of the subjective social ranking discussed above can be further tested by assessing whether they help to discriminate effectively between the subjective middle classes and the other two classes. Our dependent variables will be categorical (belonging or not belonging to a subjective class), as defined in a previous section. Since we have seven alternative definitions of the objective middle classes, we also have the corresponding seven subjective definitions (constructed so that class sizes match as explained above). The issue considered here is whether the subjective middle classes can be differentiated from the other classes on the basis

of the variables associated with the self-ranking of wealth? Results from multinomial logit regression models are presented in Table 7.

A cursory reading of the results immediately reveals that, across all definitions of the middle class, there are many more factors that help discriminate between the middle class and the poor than between the middle class and the rich. While no fewer than 20 variables help to differentiate the middle class from the poor in four or more of the definitions used, there are just six variables that contribute to discriminate between the middle class and the rich in four or more definitions. They are (in the order they appear in the table): have friends, income, shortage of income to cover food costs, financial concerns, access to telephone service, own computer, and own automobile. All are discriminators between the middle class and the rich that are also discriminators between the middle class and the poor for most of the definitions. In contrast, a long list of factors consistently differentiates the middle class from the poor (that is, across at least four definitions) while not contributing to differentiating it from the rich. Personal characteristics include lower age, better health and more education (of all levels). Having just one child is not a common feature among the poor, and so helps differentiate it from the middle classes. Assets and possessions that differentiate consistently the middle class from the poor include owning a house, television and freezer. Living in an urban area is also a feature of the middle class that differentiates it from the poor.

To simplify these results greatly, a Latin American who defines herself as middle-class is someone younger, with better health and more education than the poor, who has already managed to acquire some of the possessions of the rich (including a house, and in a few cases a computer, but probably not an automobile), and who has more income, more friends and more financial security than the poor but not as much of all those things as the rich. However, on the basis of all these variables, it is much easier to tell how the middle class differentiates from the poor than the rich.

Some of the definitions of subjective middle class lend themselves better to characterizing who is and who is not middle class in Latin America. The definitions that match those based on absolute income thresholds perform better in the sense that a larger pseudo R-squared is found compared with those that match those based on relative incomes.<sup>11</sup> However, a

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<sup>11</sup> The model predicts correctly middle- class status in around 63 percent of the cases, when the definition based on the absolute threshold proposed by Ravallion (2009) is used. In comparison with the classification based on

pseudo R-squared of just around 0.15 for the absolute threshold-based measures suggests that the factors identified are vastly insufficient to fully understand the reasons that lead people to see themselves as middle class.

## 6. Concluding Remarks

While sociologists have noted that proper analysis of social classes must consider both objective and subjective factors, the economic literature often ignores subjective aspects of class and opts for social class analysis based on objective variables such as income and consumption. In this paper we consider both strands of theory and use a subjective definition of social stratification to compare its match with seven alternative, income-based, statistical definitions of middle-class in Latin America using the rich dataset of the 2007 World Gallup Poll.

The size of the middle class varies across the different objective definitions of middle-class not only on the average but also by country. For example, Argentina's middle class encompasses 57 percent of the population when it is defined based on an absolute threshold of 2 to 13 dollars a day, but only 46 percent when it is defined based on an interval of 0.5 to 1.5 times the median country income.

Social classes derived from income-based definitions using absolute thresholds and percentiles provide, on average, the highest matching coefficients with a subjective social classification based on a ladder question of individual relative wealth. Sociologists argue that such inconsistency between objective and subjective social class is due to class ambivalence created by the imperfect correlation among observables such as income, occupation, education and some other factors such as local economic conditions, employment status, gender, marital status, talent, and luck.

Several the factors underlying the discrepancies between objective and subjective social classes are identified in this paper. People consider many variables other than income when ranking their social status. More precisely, they consider *all forms of capital*, including personal capabilities, relational goods and material conditions of life, in their self-assessment of their position in society. The relative importance that they attach to each form of capital in relation to income can be used to compute their income-equivalent value.

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absolute-threshold measures, this percentage declines to 28 percent when the relative definition proposed by Davis and Huston (1992) is considered.

The same set of factors that is associated with the self-ranking of individuals along the wealth ladder is used in this paper to identify the distinctive characteristics of the subjective middle-classes vis-à-vis the self-defined poor and the self-defined rich. For that purpose, we use alternative definitions of subjective middle class so as to match the size and relative position of the middle classes according to different objective definitions. Consistently across definitions, it is much easier to discriminate the subjective middle class from the subjective poor than from the subjective rich. A Latin American who defines himself as middle class is someone younger, with better health and more education than the poor, with some of the possessions of the rich, and who has more income, more friends and more financial security than the poor but not as much as the rich.

The set of factors considered is more successful in discriminating the middle class from the other classes when the definitions of subjective middle-class correspond to the objective definitions based on absolute income thresholds (or on a mix of an absolute threshold and a relative income). Our results show that older people have a greater tendency to self-classify as poor whereas younger people tend to classify themselves as either middle-class or rich. Women are less likely to see themselves as poor as compared to men, whereas having some level of secondary or higher education increases the odds of being self-classified as middle-class or rich. On the contrary, having financial concerns and feelings of economic vulnerability are more characteristic of those in the poor and middle classes. Since the objective definitions based on absolute thresholds also produce some of the best matches with the corresponding subjective definitions, they should be taken as superior to the alternative definitions based on relative incomes or median incomes. In any case, it is clear from our results that income is just one of the many factors that influence social class self-perception.

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**Table 1. Definitions of the Middle Class**

Definition	Authors	Household $x \in \textit{Middle Class}$ if <sup>a</sup>
Based on the median (p50) of the income (y) distribution	Davis and Huston, 1992	$0.5 * D^{-1}(p_{50}) \leq y(x) \leq 1.5 * D^{-1}(p_{50})$
	Birdsall et al, 2000	$0.75 * D^{-1}(p_{50}) \leq y(x) \leq 1.25 * D^{-1}(p_{50})$
Based on percentiles of the income (y) distribution	Easterly, 2001	$D^{-1}(p_{20}) \leq y(x) \leq D^{-1}(p_{80})$
	Solimano, 2008	$D^{-1}(p_{30}) \leq y(x) \leq D^{-1}(p_{90})$
Based on absolute thresholds	Banerjee and Duflo, 2007 <sup>b</sup>	$2 \text{ usd ppp per day} \leq y(x) \leq 10 \text{ usd ppp per day}$
	Ravallion, 2009	$2 \text{ usd ppp per day} \leq y(x) \leq 13 \text{ usd ppp per day}$
Based on mixed thresholds	Birdsall, 2010	$10 \text{ usd ppp per day} \leq y(x) \leq D^{-1}(p_{95})$

a. Definition in terms of the cumulative distribution  $D(y)$ ,  $n^{\text{th}}$  percentile  $P_n$ , and  $x$ 's household income  $y(x)$

b. The authors also specified two alternative segments on their study: \$2 to \$4 a day and \$6 to \$10 day.

**Table 2. The Size of the Middle-Classes by Country (Objective Definitions)**

Country	Number of Observations	Observations with Valid Income	Objective Middle-Class Size						
			Based on Absolute Thresholds		Based on Percentiles		Based on the Median		Mixed Measures
			2 to 10 usd ppp a day	2 to 13 usd ppp a day	p20 - p80	p30 - p90	0.5 - 1.5 times p50	0.75 - 1.25 times p50	10 usd ppp a day - p95
Argentina	1,000	74%	45%	57%	60%	60%	46%	23%	45%
Bolivia	1,000	69%	58%	64%	60%	60%	42%	22%	10%
Brazil	1,038	86%	58%	67%	60%	60%	45%	24%	27%
Chile	1,023	87%	61%	71%	60%	60%	45%	23%	27%
Costa Rica	1,002	68%	49%	60%	60%	60%	42%	28%	41%
Dominican Rep.	1,000	78%	54%	61%	60%	60%	34%	18%	23%
Ecuador	1,061	92%	63%	69%	60%	60%	44%	24%	10%
El Salvador	1,001	74%	62%	66%	60%	60%	43%	23%	7%
Guatemala	1,000	52%	65%	71%	60%	60%	42%	21%	9%
Honduras	1,000	61%	65%	73%	60%	60%	45%	23%	15%
Mexico	999	85%	59%	66%	60%	60%	40%	20%	17%
Nicaragua	1,000	92%	58%	65%	60%	60%	41%	23%	17%
Panama	1,000	81%	62%	70%	60%	60%	41%	23%	18%
Paraguay	1,000	85%	58%	65%	60%	60%	39%	20%	17%
Peru	1,000	85%	59%	64%	60%	60%	39%	20%	7%
Uruguay	1,004	64%	47%	59%	60%	60%	39%	20%	40%
<b>Latin America *</b>	17,128	73%	58%	66%	60%	60%	42%	22%	21%

\* Total Number of Observations, Total Percentage of Observations with Valid Income, and Average Middle Class Size .

Source: Authors' calculations based on Gallup (2007).

**Table 3. Classifying Latin American Social Classes**

a) Income Distribution and Self-Assessment of Wealth (% of Individuals)

Subjective Wealth	Decile of the Income Distribution									
	1	2	3	4	5	6	7	8	9	10
<b>The Poorest</b>	7.8	5.5	+	+	+	+	+	+	*	*
<b>1</b>	12.2	8.8	7.8	5.4	5.7	5.0	+	+	+	+
<b>2</b>	<b>17.6</b>	13.9	11.2	11.2	9.9	8.7	6.3	5.3	+	+
<b>3</b>	<b>18.5</b>	<b>21.0</b>	<b>19.0</b>	<b>18.1</b>	<b>17.5</b>	<b>19.0</b>	<b>13.2</b>	<b>14.1</b>	13.8	8.4
<b>4</b>	<b>17.5</b>	<b>19.3</b>	<b>20.9</b>	<b>21.9</b>	<b>21.2</b>	<b>21.3</b>	<b>22.9</b>	<b>21.3</b>	<b>18.9</b>	<b>14.0</b>
<b>5</b>	17.2	<b>20.8</b>	<b>24.1</b>	<b>24.7</b>	<b>25.1</b>	<b>26.2</b>	<b>29.7</b>	<b>31.2</b>	<b>30.2</b>	<b>30.7</b>
<b>6</b>	+	5.8	7.1	8.6	9.9	9.6	12.9	12.4	<b>15.7</b>	<b>18.8</b>
<b>7</b>	+	+	+	+	5.1	+	6.3	7.5	9.4	13.3
<b>8</b>	+	+	+	+	+	+	+	+	+	6.4
<b>9</b>	*	*	*	*	*	*	*	*	*	+
<b>The Richest</b>	*	*	*	*	*	*	*	*	*	*

\* Less than 1%

+ Between 1% and 5%

*Note:* The data in each column add up to 100 percent.

b) Social Class Definition Based on Absolute Threshold of 2 to 13 USD PPP a Day.

	%	Objective			Total Subjective
		Poor	Middle-class	Rich	
Subjective	<b>Poor</b>	5.88	9.93	0.98	16.79
	<b>Middle-class</b>	10.13	45.53	10.02	65.68
	<b>Rich</b>	0.85	10.24	6.44	17.53
	<b>Total Objective</b>	16.85	65.7	17.45	100

c) Social-Class Definition Based On 0.5 to 1.5 Times the Median of the Income Distribution

	%	Objective			Total Subjective
		Poor	Middle-class	Rich	
Subjective	<b>Poor</b>	12.98	11.02	5.09	29.09
	<b>Middle-class</b>	11.91	18.79	11.05	41.75
	<b>Rich</b>	4.61	11.97	12.57	29.16
	<b>Total Objective</b>	29.51	41.78	28.71	100

*Source:* Authors' calculations based on Gallup (2007).

**Table 4. Matching Coefficients between Objective and Subjective Middle-Class for Alternative Objective Definitions**

Definition	Household $x \in \text{Middle Class}$ if <sup>a</sup>	Average Matching Coefficient
Based on the median (p50) of the income (y) distribution	$0.5 * D^{-1}(p_{50}) \leq y(x) \leq 1.5 * D^{-1}(p_{50})$	45%
	$0.75 * D^{-1}(p_{50}) \leq y(x) \leq 1.25 * D^{-1}(p_{50})$	24%
Based on percentiles of the income (y) distribution	$D^{-1}(p_{20}) \leq y(x) \leq D^{-1}(p_{80})$	63%
	$D^{-1}(p_{30}) \leq y(x) \leq D^{-1}(p_{90})$	64%
Based on absolute thresholds	$2 \text{ usd ppp per day} \leq y(x) \leq 10 \text{ usd ppp per day}$	62%
	$2 \text{ usd ppp per day} \leq y(x) \leq 13 \text{ usd ppp per day}$	69%
Based on mixed thresholds	$10 \text{ usd ppp per day} \leq y(x) \leq D^{-1}(p_{95})$	36%

Source: Authors' calculations based on Gallup (2007).

**Table 5. Correlation and Matching Coefficients by Country (Objective Definition)**

	Correlation <sup>a</sup>							Matching Coefficient <sup>b</sup>						
	Based on absolute thresholds		Based on percentiles		Based on the median		Mixed measures	Based on absolute thresholds		Based on percentiles		Based on the median		Mixed measures
Country	2 to 10 usd ppp a day	2 to 13 usd ppp a day	p20 - p80	p30 - p90	0.5 - 1.5 times p50	0.75 - 1.25 times p50	10 usd ppp a day - p95	2 to 10 usd ppp a day	2 to 13 usd ppp a day	p20 - p80	p30 - p90	0.5 - 1.5 times p50	0.75 - 1.25 times p50	10 usd ppp a day - p95
Argentina	0.188 **	0.196 **	0.154 **	0.190 **	0.196 **	0.200 **	0.184 **	51%	62%	59%	62%	47%	23%	52%
Bolivia	0.207 **	0.186 **	0.246 **	0.204 **	0.186 **	0.166 **	0.137 **	60%	67%	63%	64%	45%	25%	16%
Brazil	0.175 **	0.166 **	0.177 **	0.163 **	0.166 **	0.204 **	0.112 **	60%	68%	62%	66%	49%	22%	32%
Chile	0.333 **	0.341 **	0.351 **	0.364 **	0.341 **	0.300 **	0.312 **	68%	77%	67%	69%	52%	28%	40%
Costa Rica	0.253 **	0.280 **	0.234 **	0.164 **	0.280 **	0.264 **	0.227 **	54%	65%	60%	61%	41%	22%	53%
Dominican Rep.	0.315 **	0.292 **	0.312 **	0.280 **	0.292 **	0.303 **	0.307 **	60%	66%	65%	67%	33%	19%	38%
Ecuador	0.298 **	0.267 **	0.307 **	0.310 **	0.267 **	0.398 **	0.230 **	66%	72%	64%	65%	46%	22%	21%
El Salvador	0.250 **	0.218 **	0.264 **	0.210 **	0.218 **	0.244 **	0.189 **	67%	71%	67%	64%	47%	27%	20%
Guatemala	0.177 **	0.174 **	0.171 **	0.168 **	0.174 **	0.159 **	0.149 **	67%	73%	62%	62%	48%	20%	9%
Honduras	0.120 **	0.087 **	0.126 **	0.105 **	0.087 **	0.075 **	0.105 **	66%	72%	60%	61%	45%	27%	24%
Mexico	0.319 **	0.308 **	0.318 **	0.321 **	0.308 **	0.269 **	0.266 **	64%	71%	66%	67%	45%	24%	25%
Nicaragua	0.263 **	0.268 **	0.271 **	0.290 **	0.268 **	0.298 **	0.187 **	63%	70%	66%	67%	46%	28%	26%
Panama	0.176 **	0.147 **	0.171 **	0.158 **	0.147 **	0.143 **	0.121 **	62%	70%	59%	61%	45%	23%	26%
Paraguay	0.274 **	0.257 **	0.278 **	0.274 **	0.257 **	0.247 **	0.278 *	62%	70%	66%	64%	44%	19%	32%
Peru	0.243 **	0.247 **	0.202 **	0.233 **	0.247 **	0.213 **	0.099 **	62%	67%	63%	62%	44%	24%	9%
Uruguay	0.153 **	0.160 **	0.250 **	0.219 **	0.160 **	0.173 **	0.141 **	52%	60%	63%	62%	36%	20%	45%
<b>Average</b>	0.298 ***	0.285 ***	0.244 ***	0.235 ***	0.245 ***	0.237 ***	0.246 ***	62%	69%	63%	64%	45%	24%	36%

a. Kendall's Tau Coefficient Correlation for all social classes; significant at: \*\*\*99%, \*\*95%, \*90%

b. Matching coefficient : Full middle class size to average middle class size ratio, by country

Source: Authors' calculations based on Gallup (2007).

**Table 6. Factors Associated with Subjective Social Ranking**  
Ordered Logit Estimation

	Subjective social ranking (wp5722, 0-10 scale)		Valuations in Times of Income
	(1)	(2)	
<i>Capabilities</i>			
Female	0.116*** (0.062)	0.123*** (0.063)	(a)
Age (years)	-0.028*** (0.005)	-0.026*** (0.004)	0.1
Age squared	0.000*** (0.000)	0.000*** (0.000)	
Health score (EQ - 5D)	0.882*** (0.212)	0.804*** (0.214)	0.57
Complete primary education	0.197*** (0.078)	0.203*** (0.078)	0.79 (b)
Complete secondary education	0.374*** (0.111)	0.384*** (0.112)	1.02 (c)
Complete superior education	0.582*** (0.106)	0.600*** (0.108)	2.3 (d)
<i>Relational Goods</i>			
Married	0.127*** (0.038)	0.122*** (0.036)	0.53 (e)
Divorced	0.185*** (0.079)	0.188*** (0.086)	0.78 (f)
Widowed	0.219 (0.135)	0.230*** (0.127)	
Has one child	0.138*** (0.047)	0.139*** (0.050)	0.58
Has two or more children	0.168*** (0.086)	0.163*** (0.090)	0.74 (g)
Consider religion to be important	0.136*** (0.076)	0.129*** (0.077)	0.57
Has friends	0.348*** (0.072)	0.356*** (0.069)	1.69
Has employment	0.052 (0.053)	0.035 (0.050)	
Has a supervisor	0.005 (0.059)	0.014 (0.062)	
<i>Material conditions of life</i>			
<i>Income</i>			
Household's monthly per capita income, US\$ PPP, logs	0.267*** (0.044)	0.274*** (0.044)	

(Table continued)

**Table 6. Factors Associated with Subjective Social Ranking (continued)**

	Subjective social ranking (wp5722, 0-10 scale)		Valuations in Times of Income
	(1)	(2)	
<i>Material conditions of life</i>			
<i>Financial circumstances</i>			
Access to financial services index	0.163*** (0.051)	0.150*** (0.054)	0.26
Does not have shortage of income to cover food costs	0.386*** (0.055)	0.394*** (0.056)	1.91
Does not have shortage of income to cover housing costs	0.235*** (0.091)	0.226*** (0.091)	1.07
Not concerned with financial matters	0.261*** (0.029)	0.261*** (0.030)	1.96
<i>Physical Assets</i>			
Owens a house	0.127*** (0.065)	0.133*** (0.068)	0.53
Access to running water service	0.252*** (0.092)	0.243*** (0.097)	1.15
Access to telephone service	0.218*** (0.042)	0.226*** (0.044)	0.98
Has a television	0.246*** (0.080)	0.238*** (0.081)	1.12
Has a computer	0.233*** (0.048)	0.222*** (0.050)	1.05
Has an automobile	0.177*** (0.067)	0.182*** (0.064)	0.77
Has washing machine	0.147*** (0.064)	0.140*** (0.066)	0.63
Has a freezer	0.232*** (0.069)	0.237*** (0.072)	1.05
Lives in urban area	0.218*** (0.124)	0.205*** (0.123)	0.98

(Table continued)

**Table 6. Factors Associated with Subjective Social Ranking (continued)**

	Subjective social ranking (wp5722, 0-10 scale)		Valuations in Times of Income
	(1)	(2)	
<i>Personality Traits</i>			
Life attitude: "Work hard and get rich"		0.129 (0.121)	
Life attitude: "Live each day as it comes, cheerfully and without worrying"		0.079 (0.113)	
Life attitude: "Don't think about money or fame, live a life that suits your own tastes"		0.071 (0.127)	
Life attitude: "Try to make a name for yourself"		-0.151 (0.172)	
Life attitude: "Never think of yourself, give everything in service to society"		0.029 (0.108)	
Cut 1	0.173 (0.356)	0.186 (0.365)	
Cut 2	1.364*** (0.356)	1.383*** (0.360)	
Cut 3	2.347*** (0.354)	2.370*** (0.357)	
Cut 4	3.438*** (0.354)	3.461*** (0.353)	
Cut 5	4.514*** (0.386)	4.538*** (0.387)	
Cut 6	6.098*** (0.411)	6.118*** (0.421)	
Cut 7	7.091*** (0.450)	7.111*** (0.466)	
Cut 8	8.156*** (0.497)	8.178*** (0.520)	
Cut 9	9.636*** (0.508)	9.642*** (0.528)	
Cut 10	10.339*** (0.583)	10.344*** (0.603)	
Observations	8,613	8,373	
Pseudo R <sup>2</sup>	0.094	0.094	
Log Likelihood ln L( $\beta$ )	-15564.131	-15134.656	

Significant at: \*\*\*99%, \*\*95%, \*90%. Country dummies are not reported.

Source: Authors' calculations based on Gallup (2007).

Notes: a) Individual depicted in this valuation is a married 30-year-old Brazilian woman with one child and high education level, employed, with friends and religious beliefs, who lives in a house with all public utilities. The valuation only takes into account significant variables in Column 1. This statement applies wherever not indicated by a different note. b) This is the value of having only primary education. c) This is the additional value of having secondary education. d) This is the additional value of having superior education. e) Marriage is compared with single. f) Divorce is compared with single. g) Having two or more children is compared with not having children.



**Table 7. Factors Associated with Feeling Middle Class, by Definition**  
**Multinomial Logit Estimation**

Dependent Variable:	Based on absolute thresholds				Based on percentiles				Based on the median				Mixed measures	
Subjective social ranking	US\$2-US\$10 PPP a day		US\$2-US\$13 PPP a day		p20 - p80		p30 - p90		0.5*p50 -1.5*p50		0.75*p50 -1.25*p50		US\$10 PPP a day - p95	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
<i>Capabilities</i>														
Female	-0.073 (0.075)	0.077 (0.101)	-0.087 (0.075)	0.033 (0.132)	-0.175*** (0.081)	-0.064 (0.069)	-0.166*** (0.071)	-0.068 (0.091)	-0.144*** (0.063)	0.010 (0.068)	-0.087 (0.079)	0.097 (0.076)	-0.070 (0.109)	0.076 (0.111)
Age (years)	0.032*** (0.016)	-0.014 (0.011)	0.034*** (0.016)	-0.008 (0.012)	0.030*** (0.014)	-0.006 (0.013)	0.032*** (0.010)	-0.004 (0.017)	0.028*** (0.010)	-0.007 (0.012)	0.038*** (0.012)	0.009 (0.012)	0.018*** (0.010)	-0.002 (0.027)
Age squared	-0.000*** (0.000)	0.000 (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Health score (EQ - 5D)	-0.814*** (0.201)	0.625*** (0.280)	-0.846*** (0.190)	0.517 (0.399)	-0.645*** (0.177)	0.465 (0.330)	-0.841*** (0.163)	0.304 (0.480)	-0.768*** (0.130)	0.514*** (0.269)	-0.620*** (0.174)	0.362*** (0.189)	-0.775*** (0.285)	-0.156 (0.566)
Complete primary education	-0.258*** (0.089)	-0.066 (0.156)	-0.244*** (0.088)	-0.062 (0.184)	-0.214*** (0.088)	0.043 (0.176)	-0.203*** (0.091)	-0.067 (0.210)	-0.213*** (0.090)	0.014 (0.145)	-0.093 (0.105)	0.100 (0.113)	-0.066 (0.156)	-0.252*** (0.146)
Complete secondary education	-0.499*** (0.103)	0.036 (0.166)	-0.508*** (0.109)	-0.024 (0.210)	-0.476*** (0.122)	0.042 (0.211)	-0.466*** (0.145)	-0.135 (0.248)	-0.461*** (0.129)	0.040 (0.179)	-0.279*** (0.145)	0.171 (0.134)	-0.260 (0.184)	-0.546*** (0.164)
Complete superior education	-0.702*** (0.147)	0.300*** (0.144)	-0.737*** (0.153)	0.228 (0.170)	-0.616*** (0.165)	0.369*** (0.182)	-0.683*** (0.145)	0.050 (0.182)	-0.471*** (0.162)	0.330*** (0.168)	-0.330*** (0.154)	0.374*** (0.131)	-0.555*** (0.155)	-0.596*** (0.173)
<i>Relational Goods</i>														
Married	-0.111 (0.070)	0.089*** (0.053)	-0.129*** (0.068)	-0.045 (0.054)	-0.113 (0.079)	-0.001 (0.068)	-0.103 (0.093)	0.037 (0.089)	-0.149 (0.095)	-0.031 (0.064)	-0.113 (0.099)	-0.034 (0.075)	-0.128*** (0.062)	-0.099 (0.140)
Divorced	-0.241 (0.186)	0.205 (0.137)	-0.265 (0.180)	0.107 (0.087)	-0.179 (0.148)	0.236*** (0.129)	-0.183 (0.130)	0.017 (0.178)	-0.135 (0.138)	0.216*** (0.116)	-0.151 (0.160)	0.054 (0.165)	-0.266*** (0.132)	-0.203 (0.216)
Widowed	-0.181 (0.183)	0.255 (0.202)	-0.210 (0.183)	0.148 (0.219)	-0.072 (0.199)	0.270 (0.198)	0.005 (0.219)	0.288 (0.303)	-0.013 (0.206)	0.293*** (0.133)	0.029 (0.223)	0.161 (0.178)	-0.255 (0.216)	0.154 (0.332)
Has one child	-0.171*** (0.069)	0.057 (0.083)	-0.158*** (0.065)	0.201*** (0.098)	-0.221*** (0.058)	0.090 (0.086)	-0.128*** (0.071)	0.179*** (0.103)	-0.192*** (0.073)	-0.033 (0.087)	-0.063 (0.055)	0.036 (0.089)	0.006 (0.094)	0.401*** (0.138)
Has two or more children	-0.207*** (0.094)	0.138 (0.101)	-0.205*** (0.096)	0.203 (0.133)	-0.184*** (0.104)	0.212*** (0.092)	-0.124 (0.103)	0.210*** (0.122)	-0.128 (0.095)	0.040 (0.079)	-0.161*** (0.085)	0.010 (0.085)	-0.103 (0.107)	0.270*** (0.151)
Consider religion to be important	-0.079 (0.097)	0.268*** (0.116)	-0.122 (0.097)	0.111 (0.123)	-0.080 (0.118)	0.218*** (0.118)	-0.135 (0.089)	0.108 (0.110)	-0.106 (0.091)	0.176*** (0.099)	-0.074 (0.082)	0.107 (0.097)	-0.327*** (0.119)	-0.204 (0.143)
Has friends	-0.346*** (0.094)	0.279*** (0.091)	-0.354*** (0.095)	0.340*** (0.103)	-0.355*** (0.079)	0.247*** (0.112)	-0.318*** (0.069)	0.202 (0.163)	-0.308*** (0.074)	0.116 (0.118)	-0.272*** (0.086)	0.131 (0.126)	-0.318*** (0.086)	0.093 (0.191)
Has employment	-0.060 (0.081)	0.043 (0.075)	-0.062 (0.081)	0.071 (0.118)	-0.036 (0.062)	0.002 (0.104)	-0.056 (0.062)	0.104 (0.121)	0.012 (0.074)	0.066 (0.076)	0.029 (0.111)	0.018 (0.106)	0.010 (0.070)	0.281 (0.172)
Has a supervisor	-0.029 (0.113)	0.077 (0.062)	-0.049 (0.116)	-0.017 (0.076)	-0.053 (0.084)	0.041 (0.070)	-0.044 (0.096)	-0.004 (0.105)	-0.089 (0.082)	-0.001 (0.088)	-0.127 (0.115)	0.001 (0.106)	-0.110 (0.080)	-0.108 (0.185)

(Table continued)

**Table 7. Factors Associated with Feeling Middle Class, by Definition (continued)**

Dependent Variable: Subjective social ranking	Based on absolute thresholds				Based on percentiles				Based on the median				Mixed measures	
	US\$2-US\$10 PPP a day		US\$2-US\$13 PPP a day		p20 - p80		p30 - p90		0.5*p50 - 1.5*p50		0.75*p50 - 1.25*p50		US\$10 PPP a day - p95	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
<i>Material conditions of life</i>														
<i>Income</i>														
Household's monthly per capita income, US\$ PPP, logs	-0.173*** (0.045)	0.220*** (0.056)	-0.182*** (0.044)	0.264*** (0.086)	-0.181*** (0.046)	0.263*** (0.074)	-0.218*** (0.041)	0.259*** (0.097)	-0.177*** (0.037)	0.150*** (0.072)	-0.139*** (0.040)	0.139*** (0.062)	-0.226*** (0.053)	0.104 (0.125)
<i>Financial circumstances</i>														
Access to financial services index	-0.130 (0.119)	0.179*** (0.049)	-0.149 (0.116)	0.135*** (0.053)	-0.115 (0.104)	0.124*** (0.058)	-0.131 (0.088)	0.127*** (0.053)	-0.134 (0.092)	0.121*** (0.061)	-0.132 (0.082)	0.061 (0.075)	-0.176*** (0.049)	0.019 (0.072)
Does not have shortage of income to cover food costs	-0.375*** (0.103)	0.308*** (0.077)	-0.388*** (0.103)	0.339*** (0.107)	-0.417*** (0.094)	0.227*** (0.078)	-0.363*** (0.076)	0.188 (0.131)	-0.310*** (0.077)	0.233*** (0.080)	-0.237*** (0.080)	0.175*** (0.088)	-0.383*** (0.079)	-0.050 (0.155)
Does not have shortage of income to cover housing costs	-0.141 (0.105)	0.217*** (0.082)	-0.162 (0.107)	0.133 (0.090)	-0.105 (0.104)	0.179*** (0.094)	-0.298*** (0.081)	-0.050 (0.101)	-0.281*** (0.087)	0.045 (0.114)	-0.150*** (0.088)	0.173*** (0.066)	-0.299*** (0.104)	-0.274 (0.191)
Not concerned with financial matters	-0.199*** (0.055)	0.229*** (0.042)	-0.212*** (0.054)	0.257*** (0.040)	-0.168*** (0.045)	0.224*** (0.045)	-0.189*** (0.027)	0.293*** (0.086)	-0.180*** (0.036)	0.147*** (0.038)	-0.166*** (0.033)	0.137*** (0.030)	-0.193*** (0.040)	0.252*** (0.096)
<i>Physical Goods</i>														
Owens a house	-0.322*** (0.072)	-0.077 (0.089)	-0.313*** (0.074)	-0.001 (0.087)	-0.260*** (0.067)	-0.067 (0.110)	-0.202*** (0.059)	0.021 (0.103)	-0.194*** (0.054)	-0.006 (0.082)	-0.122*** (0.073)	0.042 (0.094)	0.063 (0.086)	0.132 (0.143)
Access to running water service	-0.070 (0.095)	0.206*** (0.107)	-0.082 (0.096)	0.194 (0.121)	-0.088 (0.113)	0.123*** (0.071)	-0.096 (0.091)	0.038 (0.105)	0.009 (0.084)	0.292*** (0.083)	-0.034 (0.105)	0.328*** (0.092)	-0.218 (0.136)	0.057 (0.231)
Access to telephone service	-0.275*** (0.062)	0.133*** (0.078)	-0.283*** (0.060)	0.158*** (0.091)	-0.254*** (0.060)	0.125 (0.089)	-0.234*** (0.058)	0.290*** (0.095)	-0.276*** (0.056)	0.008 (0.076)	-0.259*** (0.090)	-0.022 (0.082)	-0.107 (0.079)	0.281*** (0.138)
Has a television	-0.245*** (0.100)	0.131 (0.148)	-0.255*** (0.105)	0.027 (0.174)	-0.288*** (0.103)	0.127 (0.162)	-0.282*** (0.115)	0.056 (0.242)	-0.317*** (0.090)	0.023 (0.115)	-0.247*** (0.090)	-0.001 (0.129)	-0.266*** (0.123)	-0.223 (0.394)
Has a computer	-0.247*** (0.092)	0.219*** (0.076)	-0.251*** (0.086)	0.246*** (0.062)	-0.301*** (0.091)	0.143*** (0.080)	-0.176*** (0.077)	0.163 (0.103)	-0.163*** (0.093)	0.138*** (0.080)	-0.084 (0.084)	0.147*** (0.085)	-0.211*** (0.089)	0.075 (0.134)
Has an automobile	-0.215*** (0.103)	0.205*** (0.046)	-0.237*** (0.106)	0.229*** (0.085)	-0.168*** (0.095)	0.155*** (0.066)	-0.186*** (0.076)	0.029 (0.106)	-0.183*** (0.075)	0.145*** (0.079)	-0.176*** (0.076)	0.118 (0.090)	-0.216*** (0.042)	-0.006 (0.109)

(Table continued)

**Table 7. Factors Associated with Feeling Middle Class, by Definition (continued)**

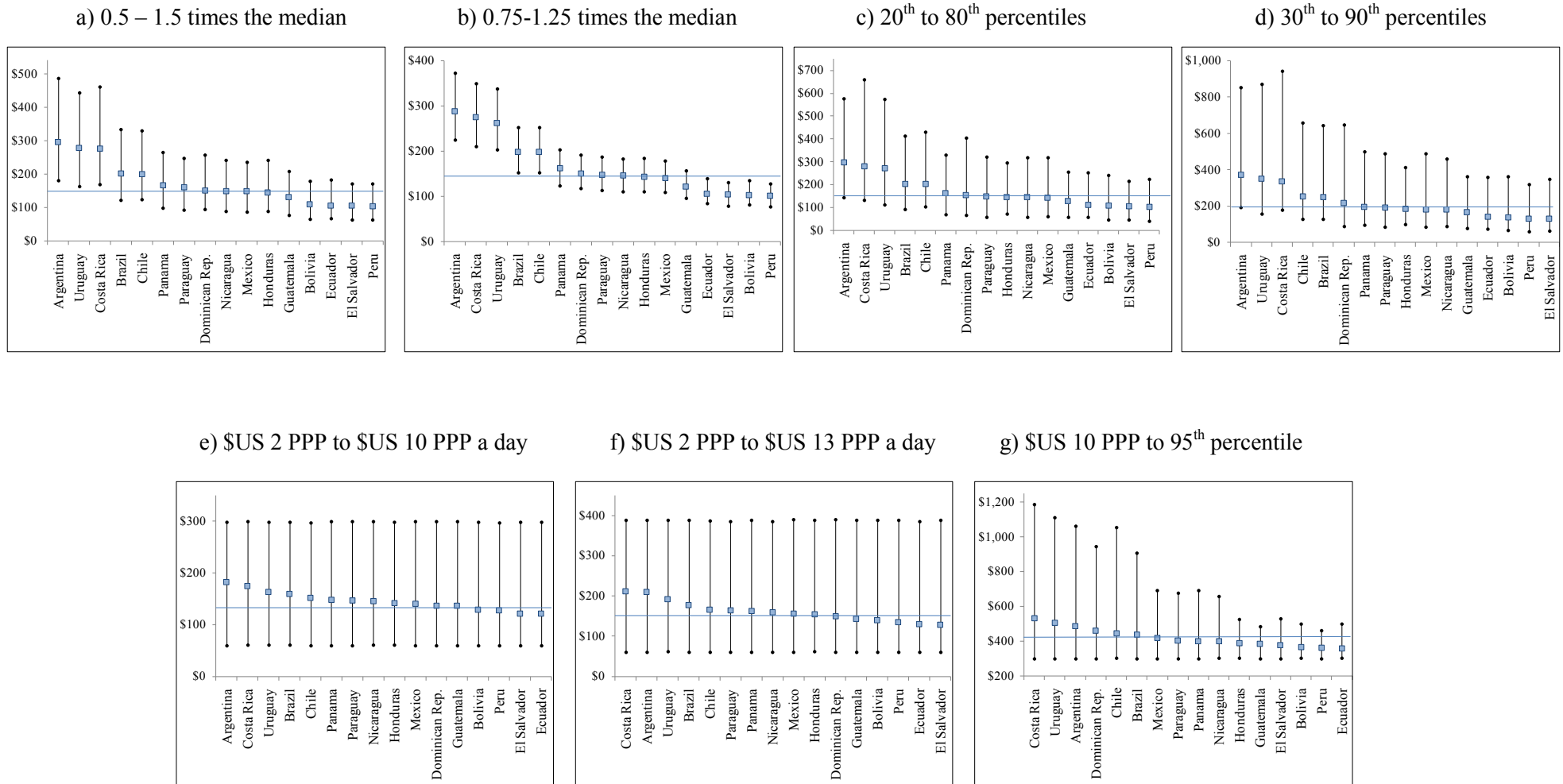
Dependent Variable: Subjective social ranking	Based on absolute thresholds				Based on percentiles				Based on the median				Mixed measures	
	US\$2-US\$10 PPP a day		US\$2-US\$13 PPP a day		p20 - p80		p30 - p90		0.5*p50 -1.5*p50		0.75*p50 -1.25*p50		US\$10 PPP a day - p95	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
<i>Physical Goods</i>														
Has washing machine	-0.121 (0.082)	0.162*** (0.078)	-0.136 (0.086)	0.166 (0.112)	-0.138*** (0.063)	0.155 (0.125)	-0.153*** (0.053)	0.085 (0.164)	-0.112 (0.070)	0.201*** (0.092)	-0.027 (0.064)	0.151 (0.110)	-0.168*** (0.065)	0.050 (0.129)
Has a freezer	-0.222*** (0.088)	0.117 (0.077)	-0.238*** (0.084)	0.089 (0.077)	-0.233*** (0.094)	0.110*** (0.061)	-0.242*** (0.063)	0.061 (0.097)	-0.191*** (0.067)	0.088 (0.086)	-0.099 (0.060)	0.197*** (0.106)	-0.147*** (0.086)	0.079 (0.140)
Lives in urban area	-0.284*** (0.148)	0.005 (0.112)	-0.286*** (0.149)	-0.031 (0.132)	-0.175 (0.126)	0.082 (0.142)	-0.310*** (0.112)	0.045 (0.150)	-0.284*** (0.113)	0.037 (0.119)	-0.293*** (0.105)	0.030 (0.125)	-0.042 (0.114)	0.016 (0.161)
Constant	1.401*** (0.491)	-3.774*** (0.398)	1.413*** (0.488)	-4.395*** (0.480)	1.976*** (0.493)	-4.299*** (0.616)	2.843*** (0.476)	-4.459*** (0.941)	2.587*** (0.385)	-2.798*** (0.449)	2.589*** (0.437)	-2.111*** (0.465)	4.607*** (0.386)	-2.200*** (1.231)
Observations	8,613		8,613		8,613		8,613		8,613		8,613		8,613	
Pseudo R <sup>2</sup>	0.149		0.151		0.097		0.107		0.097		0.091		0.149	
Log Likelihood ln L(β)	-7000.5		-6365.2		-7294.9		-6864.9		-8417.3		-8361.6		-5068.4	

*Source:* Authors' calculations based on Gallup (2007)

Significant at: \*\*\*99%, \*\*95%, \*90% . Country dummies are not reported.

*Notes:* (1) Subjective Poor vs. Subjective Middle Class; (2) Subjective Rich vs. Subjective Middle Class.

**Figure 1. Household Income of the Middle Class**  
Maximum, Minimum and Median of Monthly Household Income by Country



*Note:* The horizontal line represents the Latin-American median per capita income, 2007 US\$ PPP, for the middle class, according to each definition.  
*Source:* Authors' calculations based on Gallup (2007).

**Appendix Table A.1. Marginal Effects of the Subjective Social Ranking Equation**

Ordered Logit Estimation

Dependent Variable: Subjective social ranking (wp5722, 0-10 scale)	Marginal Effects by subjective wealth scale										
	The poorest	1	2	3	4	5	6	7	8	9	The richest
<i>Capabilities</i>											
Female	-0.002*** (0.001)	-0.004*** (0.002)	-0.007*** (0.004)	-0.012*** (0.006)	-0.004*** (0.002)	0.015*** (0.008)	0.008*** (0.004)	0.004*** (0.002)	0.002 (0.001)	0.000*** (0.000)	0.000 (0.000)
Age (years)	0.000*** (0.000)	0.001*** (0.000)	0.002*** (0.000)	0.003*** (0.000)	0.001*** (0.000)	-0.004*** (0.001)	-0.002*** (0.000)	-0.001*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Age squared	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Health score (EQ - 5D)	-0.014*** (0.004)	-0.030*** (0.007)	-0.055*** (0.013)	-0.088*** (0.023)	-0.029*** (0.007)	0.113*** (0.029)	0.058*** (0.014)	0.029*** (0.007)	0.013*** (0.004)	0.002*** (0.001)	0.002*** (0.001)
Complete primary education	-0.003*** (0.001)	-0.007*** (0.003)	-0.012*** (0.005)	-0.020*** (0.008)	-0.007*** (0.003)	0.025*** (0.010)	0.013*** (0.005)	0.007*** (0.002)	0.003*** (0.001)	0.000*** (0.000)	0.000*** (0.000)
Complete secondary education	-0.006*** (0.001)	-0.012*** (0.004)	-0.023*** (0.006)	-0.037*** (0.011)	-0.015*** (0.006)	0.046*** (0.014)	0.025*** (0.008)	0.013*** (0.004)	0.006*** (0.002)	0.001*** (0.000)	0.001*** (0.000)
Complete superior education	-0.008*** (0.001)	-0.016*** (0.003)	-0.032*** (0.005)	-0.057*** (0.010)	-0.032*** (0.008)	0.064*** (0.010)	0.043*** (0.010)	0.023*** (0.005)	0.011*** (0.003)	0.002*** (0.001)	0.002*** (0.001)
<i>Relational Goods</i>											
Married	-0.002*** (0.001)	-0.004*** (0.001)	-0.008*** (0.002)	-0.013*** (0.004)	-0.004*** (0.001)	0.016*** (0.005)	0.008*** (0.002)	0.004*** (0.001)	0.002*** (0.001)	0.000*** (0.000)	0.000*** (0.000)
Divorced	-0.003*** (0.001)	-0.006*** (0.002)	-0.011*** (0.005)	-0.018*** (0.008)	-0.008*** (0.004)	0.023*** (0.009)	0.013*** (0.006)	0.006*** (0.003)	0.003*** (0.001)	0.000*** (0.000)	0.000*** (0.000)
Widowed	-0.003*** (0.002)	-0.007 (0.004)	-0.013*** (0.007)	-0.022*** (0.013)	-0.010 (0.007)	0.027*** (0.015)	0.015 (0.010)	0.008 (0.005)	0.004 (0.003)	0.001 (0.000)	0.001 (0.000)
Has one child	-0.002*** (0.001)	-0.005*** (0.002)	-0.008*** (0.003)	-0.014*** (0.005)	-0.005*** (0.002)	0.017*** (0.006)	0.009*** (0.003)	0.005*** (0.002)	0.002*** (0.001)	0.000*** (0.000)	0.000*** (0.000)
Has two or more children	-0.003*** (0.001)	-0.006*** (0.003)	-0.010*** (0.005)	-0.017*** (0.009)	-0.006*** (0.004)	0.021*** (0.011)	0.011*** (0.006)	0.006*** (0.003)	0.003*** (0.001)	0.000*** (0.000)	0.000*** (0.000)
Consider religion to be important	-0.002*** (0.001)	-0.005*** (0.003)	-0.009*** (0.005)	-0.014*** (0.008)	-0.004*** (0.002)	0.018*** (0.010)	0.009*** (0.005)	0.004*** (0.003)	0.002 (0.001)	0.000*** (0.000)	0.000 (0.000)
Has friends	-0.006*** (0.001)	-0.013*** (0.003)	-0.024*** (0.005)	-0.034*** (0.008)	-0.006*** (0.001)	0.046*** (0.011)	0.021*** (0.004)	0.010*** (0.002)	0.005*** (0.001)	0.001*** (0.000)	0.001*** (0.000)
Has employment	-0.001 (0.001)	-0.002 (0.002)	-0.003 (0.003)	-0.005 (0.005)	-0.002 (0.002)	0.007 (0.007)	0.003 (0.003)	0.002 (0.002)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)
Has a supervisor	-0.000 (0.001)	-0.000 (0.002)	-0.000 (0.004)	-0.000 (0.006)	-0.000 (0.002)	0.001 (0.008)	0.000 (0.004)	0.000 (0.002)	0.000 (0.001)	0.000 (0.000)	0.000 (0.000)

(Table continued)

**Appendix Table A.1. Marginal Effects of the Subjective Social Ranking Equation (continued)**

Dependent Variable: Subjective social ranking (wp5722, 0-10 scale)	Marginal Effects by subjective wealth scale										
	The poorest	1	2	3	4	5	6	7	8	9	The richest
<i>Material conditions of life</i>											
<i>Income</i>											
Household's monthly per capita income, US\$ PPP, logs	-0.004*** (0.001)	-0.009*** (0.002)	-0.017*** (0.003)	-0.027*** (0.004)	-0.009*** (0.002)	0.034*** (0.006)	0.017*** (0.003)	0.009*** (0.002)	0.004*** (0.001)	0.001*** (0.000)	0.001*** (0.000)
<i>Financial circumstances</i>											
Access to financial services index	-0.003*** (0.001)	-0.005*** (0.002)	-0.010*** (0.003)	-0.016*** (0.005)	-0.005*** (0.002)	0.021*** (0.007)	0.011*** (0.004)	0.005*** (0.001)	0.002*** (0.001)	0.000*** (0.000)	0.000*** (0.000)
Does not have shortage of income to cover food costs	-0.007*** (0.001)	-0.014*** (0.002)	-0.025*** (0.004)	-0.038*** (0.006)	-0.010*** (0.002)	0.050*** (0.008)	0.025*** (0.004)	0.012*** (0.002)	0.005*** (0.001)	0.001*** (0.000)	0.001*** (0.000)
Does not have shortage of income to cover housing costs	-0.004*** (0.002)	-0.008*** (0.004)	-0.015*** (0.006)	-0.023*** (0.009)	-0.006*** (0.002)	0.031*** (0.012)	0.015*** (0.006)	0.007*** (0.003)	0.003*** (0.001)	0.000*** (0.000)	0.000*** (0.000)
Not concerned with financial matters	-0.004*** (0.000)	-0.009*** (0.001)	-0.016*** (0.002)	-0.026*** (0.003)	-0.009*** (0.002)	0.033*** (0.005)	0.017*** (0.002)	0.009*** (0.001)	0.004*** (0.001)	0.001*** (0.000)	0.001*** (0.000)
<i>Physical Assets</i>											
Owens a house	-0.002*** (0.001)	-0.004*** (0.002)	-0.008*** (0.004)	-0.013*** (0.007)	-0.004*** (0.002)	0.017*** (0.009)	0.008*** (0.004)	0.004*** (0.002)	0.002*** (0.001)	0.000*** (0.000)	0.000*** (0.000)
Access to running water service	-0.005*** (0.002)	-0.009*** (0.004)	-0.017*** (0.006)	-0.025*** (0.009)	-0.005*** (0.001)	0.033*** (0.012)	0.015*** (0.005)	0.008*** (0.003)	0.003*** (0.001)	0.001*** (0.000)	0.001*** (0.000)
Access to telephone service	-0.004*** (0.001)	-0.007*** (0.001)	-0.014*** (0.003)	-0.022*** (0.004)	-0.007*** (0.002)	0.028*** (0.006)	0.014*** (0.003)	0.007*** (0.002)	0.003*** (0.001)	0.001*** (0.000)	0.000*** (0.000)
Has a television	-0.004*** (0.001)	-0.009*** (0.003)	-0.016*** (0.006)	-0.024*** (0.008)	-0.005*** (0.001)	0.033*** (0.011)	0.015*** (0.005)	0.007*** (0.002)	0.003*** (0.001)	0.001*** (0.000)	0.001*** (0.000)
Has a computer	-0.004*** (0.001)	-0.007*** (0.001)	-0.014*** (0.003)	-0.023*** (0.005)	-0.009*** (0.003)	0.029*** (0.006)	0.016*** (0.004)	0.008*** (0.002)	0.004*** (0.001)	0.001*** (0.000)	0.001*** (0.000)
Has an automobile	-0.003*** (0.001)	-0.006*** (0.002)	-0.011*** (0.004)	-0.018*** (0.007)	-0.007*** (0.003)	0.022*** (0.009)	0.012*** (0.005)	0.006*** (0.002)	0.003*** (0.001)	0.000*** (0.000)	0.000*** (0.000)

(Table continued)

**Appendix Table A.1. Marginal Effects of the Subjective Social Ranking Equation (continued)**

Dependent Variable: Subjective social ranking (wp5722, 0-10 scale)	Marginal Effects by subjective wealth scale										
	The poorest	1	2	3	4	5	6	7	8	9	The richest
<i>Physical Assets</i>											
Has washing machine	-0.002*** (0.001)	-0.005*** (0.002)	-0.009*** (0.004)	-0.015*** (0.006)	-0.005*** (0.002)	0.019*** (0.008)	0.010*** (0.004)	0.005*** (0.002)	0.002*** (0.001)	0.000*** (0.000)	0.000 (0.000)
Has a freezer	-0.004*** (0.001)	-0.008*** (0.002)	-0.015*** (0.005)	-0.023*** (0.007)	-0.007*** (0.002)	0.030*** (0.010)	0.015*** (0.004)	0.007*** (0.002)	0.003*** (0.001)	0.001*** (0.000)	0.001*** (0.000)
Lives in urban area	-0.004*** (0.002)	-0.008*** (0.004)	-0.014*** (0.008)	-0.022*** (0.012)	-0.006*** (0.004)	0.028*** (0.016)	0.014*** (0.008)	0.007*** (0.004)	0.003*** (0.002)	0.000*** (0.000)	0.000*** (0.000)

Significant at: \*\*\*99%, \*\*95%, \*90%. Country dummies are not reported.

Source: Authors' calculations based on Gallup (2007).