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Poverty in Latin America: feelings/perceptions Vs. material conditions

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Resumen

Los indicadores objetivos de bienestar basados en los ingresos pueden no tener en cuenta importantes factores socioeconómicos que podrían afectar al nivel de bienestar de un hogar. Esto ha llevado al desarrollo de medidas subjetivas de bienestar, basadas en las autoevaluaciones de los encuestados sobre su bienestar. En este artículo, se derivan líneas de pobreza subjetivas para siete países latinoamericanos (Brasil, Colombia, Ecuador, El Salvador, Paraguay, Perú y Uruguay) basadas en una pregunta de Ingreso Mínimo incluida en las encuestas de gasto de los hogares. A partir de ello, se compara la incidencia de la pobreza bajo el enfoque subjetivo y objetivo encontrando que la pobreza subjetiva es mayor que la pobreza objetiva para todos los países. Las personas identificadas como pobres son generalmente pobres según ambas medidas o sólo pobres subjetivos, aunque los patrones de superposición difieren entre países. De este modo, ser pobre de ingresos no coincide totalmente con sentirse pobre. Se exploran los factores asociados a considerarse pobre -es decir, ser pobre subjetivo- cuando el ingreso per cápita del hogar es superior al umbral de pobreza absoluta. En términos generales, el desempleo y la informalidad se asocian a una mayor probabilidad de pobreza subjetiva. Otros factores que no tienen que ver directamente con los ingresos pero que reflejan una elevada seguridad económica, como tener seguro médico, ser propietario de una vivienda, la calidad de la vivienda y un índice de activos, también tienden a reducir la probabilidad de sentirse pobre. Por último, no se identifican efectos de estigma de la asistencia social, al menos en lo que se refiere a la pobreza subjetiva.

Palabras clave: líneas de pobreza, pobreza subjetiva, América Latina

Código JEL: I32, O10

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Abstract

Income-based objective welfare indicators may fail to account for important socio-economic factors that could affect the level of a household's well- being. This has led to the development of subjective measures of well-being, based on respondent's self-assessments of welfare questions. In this article, we derive subjective poverty lines for seven Latin American countries (Brazil, Colombia, Ecuador, El Salvador, Paraguay, Peru and Uruguay) based on a Minimum Income Question included in household expenditure surveys. We compare poverty incidence under the subjective and objective approach and find that subjective poverty is larger than objective poverty for all countries. People that are identified as poor are generaly poor by both measures or only subjective poor, although the patterns of overlapping differ between countries. Thus, being income poor does not comletely coincide with feeling poor. We explore the factors associated to considering oneself as poor -that is, being subjectively poor- when the per capita household income is higher than the absolute poverty line. In general terms, unemployment and informality are associated with higher probability of subjective poverty. Other factors not directly involving income but reflecting high economic security, such as having health insurance, home ownership, the quality of housing and an asset index, also tend to reduce the probability of feeling poor. Finally, the welfare stigma effect seems not hold, at least in terms of subjective poverty.

Keywords: poverty lines, subjective poverty, Latin America

JEL Classification: I32, O10

1. Introduction

Fighting poverty consists of one of the main objectives of any development agenda. The importance of this goal has led to refinement in the measurement of deprivation, with a central role of household income or consumption to reflect household's wellbeing. The development of objective measures to reflect poverty based on monetary metrics has been profuse in the economic literature, as well as the discussion about its limitations (Ravallion, 2016). This approach also has a long tradition in Latin American countries (Altimir, 1981; Gasparini et al., 2013; ECLAC, 2019; among others).[1]

On a somehow parallel path, scholars have attempted to measure subjective well-being, based on respondent's self-assessments in survey questions. A popular approach to collecting subjective data on poverty consists of asking for a money-metric of subjective welfare. As in the objective approach, the underlying assumption is that it is possible to make interindividual welfare comparisons on the poverty/non poverty threshold. The most widely used approach is based on the minimum income question that asks what income level does the person consider to be absolutely minimal, in the sense that with less she could not make ends meet (see among others, Goedhart et al., 1977,Van Praag et al., 1980, Danziger et al. 1984, De Vos & Garner, 1991).[2] This subjective questions are used to calibrate an interpersonally comparable welfare function based on observed covariates which are assumed to be relevant (Ravallion, 2010). Potential limitations of subjective measures arise from response errors, random discrepancies in the interpretation of the survey questions, idiosyncratic differences in the respondents' moods and differences in tastes and personality, among others.

Efforts to integrate the subjective and objective approaches, based on the idea that income-based objective welfare indicators may fail to account for important socio-economic factors that could affect the level of a household's well- being, have found relatively higher levels of aggregate poverty under the subjective approach. They have also detected significant differences in the poverty profiles derived from these measures (Ravallion & Lokshin, 2002; Lokshin et al., 2006). This divergence may hide relevant information for our understanding of poverty. More specifically, objective poverty lines often imply that larger households are poorer, but this is not typically the case in studies under the subjective approach, which implies greater economies of scale than normally assumed (Ravallion, 2010).

In Latin America, the tradition of poverty measurement has been based on the comparison of objective absolute poverty lines with income data obtained from household surveys. The pioneering work of Altimir (1979; 1981) set the grounds for the measurement of the cost of basic food and non-food needs, and at present most countries in the region calculate their own official poverty indicators using objective absolute poverty lines. Although poverty has been at the center of the region's research agenda for many years (Amarante et al., 2018), subjective poverty has not been widely addressed. Some studies have considered the welfare relevant information contained in subjective measures (Herrera, 2002; Luchetti 2006; Rojas & Jiménez 2008; Scalese, 2021), but comparative analysis at the country level remains missing.

[1] Objective measures based on the multidimensional approach (Alkire & Foster, 2007; 2011) are also relevant for the poverty debate in the region (see Santos & Villatoro, 2018).

[2] Other approaches use qualitative categories in the welfare space, for example based on the economic ladder question, or on broader concepts such as satisfaction with life or happiness (see Van Praag & Ferrer-i-Carbonell, 2004) as well as consumption adequacy questions (Pradhan and Ravallion, 2000; Lokshin et al., 2006).

In this article, we review the economic foundations of the objective and subjective approaches to poverty measurement and estimate household specific subjective poverty lines for seven Latin American countries (Brazil, Colombia, Ecuador, El Salvador, Paraguay, Peru and Uruguay). We analyze the overlapping between objective and subjective poverty identification and compare the poverty profiles derived from both thresholds and the potential regularities and differences between countries. Besides contributing with novel and comparative empirical evidence, we reflect about the implications of incorporating subjective poverty measurement in poverty discussion and poverty alleviation policies' design.

2. Objective and subjective approaches to poverty

Objective approach

Poverty alleviation is a concern shared by various social actors, including academics, and the identification of people living in poverty becomes crucial to think about the design and implementation of policies aimed at this end. With this objective in mind, a relevant step is the identification of people living in poverty. Academic debates on this subject have a long history, dating back to the late 19th century and the discussion about how to reflect the insufficiency of income to cover basic needs for the fulfillment of mere physical efficiency. This early approach is founded on the idea of objectivity, implying that there is a certain reality which can be captured by a specific measure. Poverty is confined to the material aspects of life and a monetary metric is needed to reflect the phenomenon. The origins of this approach can be traced to the contributions of Booth and Rowentree who documented the living conditions of England's poor in the cities of London and York during the late 19th and early 20th centuries.

This is still the approach with the largest development in economics (Ravallion 2010) and allows for multiple non-income dimensions of welfare, reflecting an absolute view in the space of welfare. The formalization of the approach assumes a utility function for individual i of the form $u(q_i, x_i)$ where q_i is a vector of the quantities of commodities consumed, and x_i is a vector of non-income characteristics which are relevant for welfare, including demographic characteristics of the household. The utility maximizing consumption vector is denoted $q(p_i, y_i, x_i)$ at price vector p_i and total expenditure on consumption y_i. The implied indirect utility function is $v(p_i, y_i, x_i)$, which gives the maximum attainable welfare at the prevailing prices and characteristics and can be inverted to get the expenditure function $e(p_i, y_i, x_i)$. This function gives the minimum cost of utility u for person i when facing prices p_i.

If the minimum utility necessary to escape poverty is denoted u_z, the welfare consistent poverty lines are given by $z_i^u = e\,(p_i, x_{i,} u_z)$ which can in turn be rewritten as $z_i^u = p_i\, q^c(p_i, x_{i,} u_z)$. This equation reflects that the welfare consistent poverty line is the cost of a bundle of basic consumption needs given by the vector of utility compensated demands at the reference level of utility defining who is poor in the welfare space. The poverty rate is then the proportion of population whose income[3] is below the poverty line, $\frac{y_i}{z_i^u} \leq 1$. In other words, a person is identified as poor if their household income is below a certain monetary threshold. At present, most absolute poverty thresholds reflect an income level which covers not only the minimum nutritional requirements for good

[3] The monetary aggregate for poverty measures is generally income or consumption. Latin American countries´ tradition of poverty measurement is based on income, as in developed countries. In general terms, the rest of the developing world uses expenditure for poverty measurement. In this article, we refer to income, as we focus on Latin American countries.

health and a normal level of activity, but also the goods and services that cover other needs.

It is important to notice that this framework allows for a measure of absolute monetary poverty, as the one undertaken in this article, but it is also consistent with relative monetary poverty measurement, and with the measurement of non-monetary poverty. These three measures (absolute, relative, non-monetary) are part of the objective approach to poverty measurement. In the case of relative income, it is possible to assume that the vector of non-income characteristics which are relevant for welfare, x_i, includes mean income of some reference group.

Moreover, Ravallion (2010) has argued that this framework is consistent with the measurement of poverty as deprivation in terms of a persons' functionings, as proposed by Sen's (1985) influential work. This would imply considering that poverty is the situation of not having sufficient income to support specific normative functionings. Nevertheless, most studies of deprivation under the capability approach have taken alternative paths, considering multidimensional deprivation based on the Alkire-Foster multidimensional counting approach (Alkire & Foster, 2007; 2011). This implies identifying the multidimensionally poor based on a two-stage process in which a threshold is defined for deprivation in each dimension and then a second cutoff is established to determine the number of dimensions in which someone is required to be deprived to be identified as multidimensionally poor. None of these two stages implies the consideration of equivalent income to fulfill a certain functioning.

As discussed, the measure of poverty through a monetary-based method can be built upon an absolute or a relative poverty line. The absolute poverty line is set in reference to the cost of a basic food basket plus a given sum for covering non-food needs, referring to certain elements required to survive, such as clothing or shelter. The alternative is to use a relative poverty line, that is set based on the comparison with a reference group. In general, this is defined with reference to a certain point in the income or expenditure distribution. For instance, European countries use this approach and consider the poverty line as equivalent to 60% of median equalized household income.

In any case, the objective approach is based on the idea that poverty is confined to material aspects of life and can be measured based on information about these aspects. The differences within this approach are on whether the command is over commodities or over what an individual can and cannot do in life and on the importance of the reference group to establish the poverty threshold.

Criticisms to the objective approach

The objective approach to poverty implies that there is a certain reality "out there" which can be captured through certain statistical methodologies (Ruggeri Laderchi et al., 2003). The idea of being able to capture and monitor the situation of the population with regards to poverty is undoubtedly appealing. But when moving on to the action of poverty measurement, a big number of (very) relevant assumptions are needed, and this leads to questioning the claim of objectivity of the measurement. There are value judgments involved, which can be made explicit or subject to sensitivity analysis by the researchers. In any case, it is difficult to consider the measurement as purely objective and completely free of biases. In what follows, and given the scope of our article, we concentrate on the main criticisms of the objective approach to poverty based on absolute monetary poverty lines. The expert-based definition of food baskets and poverty lines has been considered as a rather paternalistic procedure to define a socially acceptable poverty line (Van Praag & Ferrer Carbonell, 2005).

It is true that the underlying assumptions are derived from economic theory, but most of these assumptions cannot be tested or evaluated. Some of the controversial aspects involved include the technical rules for the determination of food requirements, the definition of the essential consumption basket, the issue of how to price comparable goods in different regions, the treatment of different housing situations, and the adjustment of needed resources according to household size and composition. Besides all these technical aspects, the objective monetary method does not consider that household income or expenditure is endogenous to its preferences and needs (Sen 1985). Households may prefer to reduce the hours of work if they value leisure over consumption, and this may lead to considering these households as income poor, even if they do not consider themselves poor because of their valuation of leisure.

The objective approach, based on external value judgments, completely ignores the real perception of the poor. The convenience of complementing the expert-derived poverty thresholds with views which consider the insider's perspectives and people's perceptions about their own poverty status has received significant support from academics. Among others, Deaton (2010) has underlined that people themselves have a very good idea of whether they are poor, and so their opinions should be considered. In his words, "there is something to be said for directly asking people around the world how their lives are going, whether they have enough, or whether they are in financial difficulty, and in cases where there are reliable income data, turning those reports into poverty lines" (Deaton, 2010). A few sentences written by the most prestigious poverty researchers suffice to illustrate the simplification implied by the pretension of absolute objectivity in poverty measurement (see box 1).

Box 1. Objectivity in poverty measurement

-one cannot completely eliminate the value judgements inherent in the construction of poverty thresholds, we should try to make the ad hoc assumptions more justifiable (Kakwani, 2010)

-the choice of reference group should be determined on the basis of the commitment the governments want to make in terms of allocating resources to poverty reduction programs (Kakwani, 2010)

-importance of testing the sensitivity of poverty comparisons to the choice of reference, as it determines the level of the poverty line (Ravallion, 2012)

-in the end, a judgment is invariably required as to whether the implied lines seem reasonable in the specific setting (Ravallion, 2012)

-what one is doing in setting an objective poverty line in a given country is attempting to estimate the country's underlying social subjective poverty line (Ravallion, 2012)

-There is "scope for debate at virtually every step" in generating objective poverty measures (Ravallion & Lokshin 2002)

Subjective approach

A different approach to identify poverty situations consists in asking people about how they perceive their own welfare, whether in absolute or relative terms, and making

subjective interpersonal welfare comparisons. In words of Ravallion (2010), this approach can be considered as an attempt of cross-fertilization between the antagonistic "objective-quantitative" and "subjective-qualitative" schools of poverty that dominate different academic disciplines. This approach is by far not the dominant one in poverty research, although in recent years some studies based on subjective information have emerged, especially for developing countries. The low prevalence of studies based on the subjective approach in economics derives, to a certain point, from the scarcity of these data. But it is also explained by economists' skepticism about whether these questions elicit meaningful answers for welfare measuring, as discussed below.

The subjective approach measures the welfare levels of households based on their responses to "subjective" questions about their evaluations of their own economic status, instead of deriving utility-based measures from market behavior. Then, a poverty threshold is derived in the monetary space, defined as the income level at which some critical level of subjective welfare is reached in expectation.

The departing point of the subjective approach is the theory of consumer behavior developed in Van Praag (1968), based on the idea that the individual can evaluate his welfare position with respect to his income level on a bounded scale. This approach is in the tradition of cardinal utility, as opposed to the possibility of only being able to order according to (ordinal) preferences. It allows for the derivation of an individual *Welfare Function of Income* or cardinal utility function of income, which measures only the individual relative welfare as perceived by the individual. Each individual has her own individual welfare function. It is measured as a proportion between the current welfare and the welfare that could be in the optimal imaginable situation. Welfare is approximated by income and the Welfare Function is evaluated on a [0, 1] scale.

The pioneering work of Van Praag (1971) and Van Praag & Kapteyn (1973) at the University of Leyden (The Netherlands) was developed within this framework, attempting to verify the operationality of the theory proposed in Van Praag (1968) and to estimate the welfare function of income for a sample of individuals. Besides the theoretical formulation, they provide empirical illustrations based on a specific question included in consumer union surveys for Belgium and the Netherlands respectively. On theoretical grounds, individuals should be provided with a serious of income levels and asked to evaluate these levels in a bounded space, for example on a zero-one scale. This is a complex exercise, as it would be very difficult for extremely poor people to differentiate between diverse incomes at very high-income levels (and the other way round). The solution is to employ an indirect method, using the so-called *"income evaluation question*", which allows to elicit individual's welfare judgments. Through this question, the individual is asked to determine the level of income he/she considers fits into certain categories associated to utility.

In the original work of Van Praag (1971) and Van Praag & Kapteyn (1973) the categories were "Excellent", "Good", "Amply sufficient", "Sufficient", "Barely sufficient", "Insufficient", "Very insufficient", "Bad" and "Very bad". By answering, the individual gives a division of the income range into certain intervals. The answers to this question are transformed into numbers of a zero-one scale, under the assumption that the individual partitions the income range according to equal percentiles of the welfare function. This information allows to estimate the individual welfare function of income, which is represented through a lognormal distribution and whose welfare parameters μ and σ may differ between individuals. Different exercises have considered welfare levels between 0.4 to 0.6 on a zero-one scale to set the poverty line (Goedhart et al., 1977; Van Praag et al., 19822. According to Van Praag et al. (1982), a level of 0.5 means approximately that a family is called poor if it evaluates its income as barely sufficient or less.

The underlying idea is that a society and its policy makers can stipulate a certain minimum welfare evaluation below which citizens should not fall. The income levels corresponding to those minimum welfare evaluation levels defines the poverty threshold). The computation of the corresponding minimum income levels for each individual in order not to fall below that minimum welfare according to their Welfare Function of Income, is straightforward and allows the estimation of national subjective poverty lines.

The other approach to build a subjective poverty line consists of asking only one income amount which corresponds to a specific welfare label, instead of asking several income levels which correspond to several welfare levels -as done through the income evaluation question-. This question is called the Minimum Income Question (MIQ) and can be conceived as a simplified version of the income equivalent question (see Flik & Van Praag, 1991). A typical formulation of the MIQ question is*: To meet the expenses you consider necessary, what do you think is the minimum income, a family like yours needs, on a yearly/monthly basis, to make ends meet?*.[4] A similar question with an alternative wording is the Minimum Spending Question (MSQ): *In your opinion, how much would you have to spend each year/month in order to provide the basic necessities for your family?* (see Garner & Short, 2003).

The "minimum income question" seeks to get the respondent to declare what the minimum income would be he/she considers necessary for his/her household to "make ends meet". Of course, the response to this question is influenced by several idiosyncratic and psychological factors, so it is not one's stated perception of own welfare that is taken to be the relevant welfare metric. Instead, the subjective question provides information for the identification of a metric of welfare, including the setting of subjective poverty lines. In sum, these subjective questions are used to calibrate an interpersonally comparable welfare functions based on observed relevant covariates (Ravallion, 2010).

This implies that it is necessary to estimate a model with the answer to the minimum income question as the dependent variable and the household income, together with other characteristics of the person or household that are considered important, as regressors. The result of the estimation is equated with the household income, to subsequently clear the value of the income that defines the subjective poverty line (SPL). Thus, all households below this line are considered poor. As underlined by Peng et al. (2020), it should be noted that although the subjective poverty line has been classified as a subjective approach, it in fact stands somewhere between the economic approach of measuring poverty by monetary indicators set by outsiders and the subjective approach of asking respondents to assess their own degree of poverty.

The "minimum income question" had its first applications in the works of Goedhart et al. (1977), Van Praag et al. (1980, 1982), Danziger et al. (1984), Colasanto et al. (1984), Kapteyn et al. (1988) and De Vos & Garner (1991). In this paper, we use this strategy to build subjective poverty lines for Latin American countries. The methodological details for the estimation of subjective poverty lines are discussed in section 2.

Criticisms to the subjective approach

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[4] An alternative approach to MIQ consists on addressing subjective income poverty through the economic ladder question: "*Imagine six steps, where on the bottom, the first step, stand the poorest people, and on the highest step, the sixth, stand the rich. On which step are you today*?

The extent to which subjective perceptions of individuals really reflect objective social conditions is a contented issue, driven and encouraged by the famous Easterlin paradox which argues that when a country's income increase, happiness does not increase (Easterlin, 1974).[5] One potential reason for this paradox is that individuals evaluate their well-being in relation to other groups or points in time, although this remains an open debate (Di Tella & MacCulloch, 2008; Clark, 2018; Burchardt, 2005).

Focusing on the more specific issue of subjective poverty measurement, critiques are also abundant. One strand of literature poses theoretical critiques to the Welfare Income Function (WFI). Seidl (1994) questions that the utility function of income is bounded both from below and above and criticizes the idea that a utility function of money has a convex-concave form. Van Praag & Kapteyn (1994) respond to the first critique by providing counterexamples of bounded utility functions, such as those used in the literature on decisions under uncertainty (Arrow, 1971). In relation to the second critique, Van Praag & Kapteyn (1994) defend the proposal of a convex-concave or sigmoid form of the utility function, arguing that, for extremely poor people, an extra dollar brings them closer to survival, implying that the utility function would be convex shaped until the individual exceeds the situation of poverty.

But most critiques refer to the underlying assumption that everyone ascribes the same welfare meaning to the concept of "minimally necessary income". If the answers to the minimum income questions are related to differences in lifestyle and not to actual costs or needs, their use for poverty assessment is questionable. Garner & De Vos (1995) include expenditure in the estimation of the subjective thresholds and compare respondents from US and Netherlands, finding that the United States respondents were thinking about their current expenditures and lifestyles, rather than their "basic needs" when answering the question. This implies that the assumption that everyone adheres the same welfare connotation to a "minimally necessary income", may not be valid across surveys or between and within populations, posing a doubt about the measurement of subjective poverty. On the same line, in the case of the Leyden Poverty Line, it is necessary to assume that people can evaluate income levels in general and their own income in terms of "good", "bad", "sufficient", etc. It is also assumed that the verbal labels can be translated into a utility function that is bounded in the [0, 1] scale.

Another potential limitation is the possibility that the measure of income obtained from the survey for calculating a subjective poverty line may not be consistent with what respondents have in mind when they answer the MIQ. The method assumes that every respondent gives the same welfare meaning to the phrase "minimally necessary income", an assumption not always backed by the evidence (Garner & De Vos, 1995). The survey-based income is estimated considering many questions covering a wide range of potential sources of income, the respondent builds his or her income by systematically considering these different sources. The MIQ assumes that the respondent already knows its income and can bring a precise response to a unique question. Additionally, households may have different concepts of income which may not correspond to the concept of income of the MIQ. Special components of income such as cash income, imputed rent or income from own production activities are of particular concern in relation to these divergencies. Given these issues, Pradhan & Ravallion (2000) conclude that there are serious difficulties for obtaining sensible answers to the usual MIQ in most developing countries,

[5] The literature discussing the empirical support for Easterlin paradox includes (but is not limited to) Frey & Stutzer (2002), Blanchflower & Oswald (2004), Easterlin et al. (2010).

and they propose a method to retrieve the subjective poverty line from some qualitative questions on perceived consumption adequacy added to an integrated household survey.

On the same line, if self-assessment of well-being reflects aspirations rather than real circumstances, and if these aspirations are influenced by how own's situation compares to well-being of other households, the measurement of subjective poverty may not be clear cut.

In their discussion about the limitations of subjective data, Bertrand & Mullainathan (2001) conclude that experimental evidence supports the idea that cognitive effects (ordering of questions, wording, etc.) affect the way people answer subjective questions. This casts doubts about the use of variables originated from subjective questions as dependent variables, as measurement error seems to be correlated with characteristics and behaviors. On a similar line, Ravallion & Lokshin (2002) indicate that personality traits may influence how people respond to subjective welfare questions, so we would need to control latent psychological differences to identify welfare levels.

A more positive view about the use of subjective data and the calibration of subjective poverty measures is given by Ravallion (2010), who underlines the trade-offs between the problems inherent to subjective data and the welfare relevant information that it may contain.

3. The definition of objective and subjective poverty lines

A poverty line represents a relevant threshold in any society and the setting of this line involves a political decision (Goedhart et al, 1977). The establishment of a poverty line implies normative options that may go beyond technical aspects. There are not internationally validated standards that can be applied in all contexts, so the setting of a poverty line invariably implies a certain degree of arbitrariness (Deaton, 1997). Moreover, the discussions and deliberations of poverty thresholds take place within the framework of historical processes and specific contexts, where national and international institutions and organizations also play an important role. The decisions made when setting the poverty threshold may have implications in terms of public policies and access to public benefits.

On economic grounds, the poverty line should reflect the costs of attaining a certain standard of living, and this minimum level of welfare can be identified based on an objective or a subjective approach, as discussed above. Within each approach, there is a broad set of decisions that must be made to set the line in each context, and these decisions have impacts on the results obtained.

Following Ravallion (2010), the main methods found in developing countries to set absolute poverty lines are the food-energy intake method and the cost of basic needs method.[6] The food-energy intake method consists of finding the consumption expenditure or income level at which food-energy intake is just enough to meet the requirements for good health and normal activity levels. Using expenditure and consumption surveys, the population is ordered in terms of income, and a group is identified as the first one for which the minimum nutritional requirements for a healthy

[6] In this simple exposition, we are expressing poverty line in per capita units, under the assumption that the cost of meeting the basic needs is the same for each person in the household, regardless of the number of people in the household and their individual characteristics. The consideration of these issues gives rise to the discussion about scale equivalence and economies of scale, which is beyond the scope of our discussion.

life and normal activity are met.[7] The calorie consumption of households is calculated based on the food items purchased, and to incorporate the fact that caloric intakes vary for a certain level of income, the method generally calculates an expected value of intake, given the level of income. The average income or expenditure of the group of households selected as the reference group, is considered the poverty line. This method does not imply the establishment of the basket of goods that allows the minimum nutritional requirements, nor the specification of the items included in non-food consumption. Concerns about this method refer to the fact that the relationship between food energy intake and income may change with differences in tastes, activity levels, relative prices, publicly provided goods, among others (Ravallion, 2010). For example, the real income at which an urban household may attain a given caloric requirement can be higher than the corresponding one for a household in rural areas.

The cost of basic needs method consists of the establishment of an adequate consumption basket to cover certain basic needs, including food and non-food items. The poverty line is established as the cost of the basic basket for each subgroup (generally regions) of the population; this implies selecting a group of households of a certain part of the income distribution (low income). In contrast to the food-energy intake method, instead of using the average expenditure of this group as the poverty line, the food they consume is chosen as a basic food basket. This basket of goods implies the incorporation of demand behavior for the satisfaction of nutritional requirements. There are infinite vectors of consumption that satisfy nutritional needs, but the method chooses the one that is consistent with the consumption decisions of a relevant reference group. As a second step, items corresponding to the non-food expenditures of the reference group are added. These items include goods necessary to meet other basic needs, such as clothing, housing, transportation, etc. This procedure gives rise to the Orshansky coefficient, which establishes the relationship between the basic food basket and the poverty line.[8]

Probably the most known poverty measure is the one proposed by the World Bank, based on a set of absolute poverty lines. Their objective is to measure poverty consistently across countries, reflecting similar levels of well-being in different countries. The original value of the World Bank poverty line was set at one dollar (PPP) per day by Ravallion, Datt and Van de Walle (1991), using as reference the poverty lines used in some of the world's poorest countries. It was then updated to a value of US$2.15 per person per day, adjusted for purchasing power parity (2017 PPP). Since 2017, the World Bank publishes measurements based on two additional and higher lines, associated with the concepts of poverty in countries with higher incomes. The lines are $3.65 and $6.85 (2017 PPP) per person per day and were obtained as the median of the official lines for lower middle-income and upper middle-income countries, respectively, based on Jolliffe and Prydz (2016).

The tradition of poverty measurement in Latin America is based on the consideration of absolute poverty lines, using the basic needs method. This tradition originated in the pioneering work of Economic Commission for Latin America and the Caribbean (ECLAC) at the end of the 1970s, which paved the way for the establishment of a common methodology for the region. At present, almost all the countries of the region have government bodies that carry out poverty measurements, using national absolute

[7] The minimum caloric requirements for each household are set considering the characteristics of household members (age, sex, pregnancy, breastfeeding).

[8] Milly Orshansky (1965) defined minimum food baskets for various types of households to calculate the first USA poverty line. Given that the food share was about a third of total expenditure for households on the poverty line, this line was set as three times the value of the minimum food basket.

poverty lines (ECLAC, 2019). These national poverty lines are the thresholds used in this study to measure objective income poverty.[9]

The estimation of a *subjective poverty line* is based on the question: *'What is the minimum monthly income amount that you estimate is necessary to meet the basic needs of your household?*'. It is important to notice that the approach is model-based in the sense that a model is used to explain the interhousehold variation in the responses to survey questions; individual responses alone are not used to determine the poverty line directly. The respondent's answer to this minimum income question will be denoted as Y_{min}. This minimum income depends on the actual household income and a series of other factors, including, for example, the household size. The formulation, following Goedhart et al. (1977) and Danziger et al. (1984), is as follows:

$$Y_{min} = f(Y, X) \tag{1}$$

where Y is the actual household income, and X is a vector of other variables. The function f is monotonically increasing in Y, and there exists an income level Y^*_{min} defined by

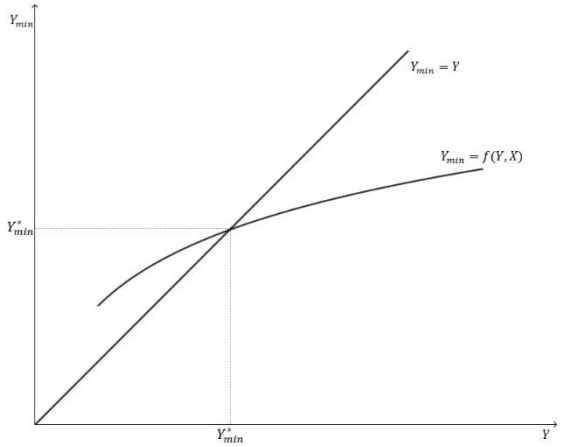
$$Y^*_{min} = f(Y^*_{min}, X) \tag{2}$$

such that, for all incomes Y less than Y^*_{min}, it holds that $Y < Y_{min}$, and for all incomes Y greater than Y^*_{min}, it holds that $Y > Y_{min}$. Therefore, the income level Y^*_{min} is a candidate for the poverty line, people with income above this level tend to feel that their income is adequate, while those below that level tend to feel that it is not. Figure 1 illustrates this situation.

The approach was originally designed for use with panel data (Kapteyn et al. 1988), which allowed to test whether people gravitate toward some true minimum over time. It is expected that respondents who are above the true minimum would find that over time they have a better idea of what their true minimum is and would respond accordingly. For those below the true minimum, over time they would realize that they are actually underestimating their true income needs. However, most empirical applications of the subjective poverty line based on MIQ are based on cross-sectional data. The rationale behind choosing the intersection of the function $Y_{min} = f(Y, X)$ with the line $Y_{min} = Y$, represented by Y^*_{min}, is that only households for which income is equal to their minimally necessary income have realistic perceptions of this minimum income level (Kapteyn et al., 1988). Households with higher income are likely to overestimate their minimally necessary income, while those with lower income are expected to underestimate it (De Vos & Garner, 1991).

[9] An alternative set of absolute poverty lines for Latin American countries is provided by ECLAC with the objective of reflecting the socioeconomic reality of the region in the most comparable manner possible. Details about the calculation of these poverty lines can be found in ECLAC (2019).

Figure 1. The definition of a subjective poverty line



Source: Kapteyn et al. (1988)

In line with Goedhart et al. (1977), Danziger et al. (1984), and De Vos & Garner (1991), a linear-logarithmic form is used to estimate equation (1). In addition to the logarithm of household income, other explanatory variables (x) are included. First, household size is an important factor in determining Y_{min}, as larger families will require a higher Y_{min}. Moreover, in the case of the United States, it has been observed that Y_{min} is lower for female-headed households (Danziger et al., 1984), while it increases with age, at a decreasing rate (De Vos & Garner, 1991). These authors also highlight the relationship between variables such as education, ethnic background, marital status of the household head, household composition, and the values of Y_{min} (Garner & De Vos, 1995; Garner & Short, 2003). Additionally, the area of residence is also a factor to consider since household needs can vary depending on the environment they are situated in (Colasanto et al., 1984; Garner & Short, 2003).

Based on the log-linear expression of equation (1), finding a subjective poverty threshold implies calculating the Y^*_{min} as the intersection of the relationship:

$$\ln(Y_{min}) = \alpha_0 + \alpha_1 \ln(y) + \alpha_2 x_2 + \alpha_3 x_3 + \ldots . + \alpha_n x_n + \epsilon \qquad (3)$$

Therefore, by equating for $Y_{min} = Y$ for different values of $x_2, \ldots, x_n$, the value of Y^*_{min}, the subjective poverty threshold, is defined as:

$$Y^*(x_2 \ldots x_n) = \exp\left(\frac{\widehat{\alpha_0} + \widehat{\alpha_2} x_2 + \cdots + \widehat{\alpha_n} x_n}{1 - \widehat{\alpha_1}}\right) \qquad (4)$$

4. Previous research about subjective poverty

Research on subjective poverty started over 40 years ago with the pioneering study of Goedhart et al. (1977) who settled the ground of the Minimum income question methodology. After them, several studies applied this methodology with different specifications of the subjective poverty line. Most of the applications in this first stage were based on US data, with some notable exceptions as Van Praag et al. (1980) for several European countries. Later, some studies incorporated basic demographic determinants in the specification of the subjective poverty line, considering for example

age, gender, and urban-rural location (Colasanto et al., 1984; Danziger et al., 1984). Further extensions included education, race, religion, disability, and marital status. An interesting strand of literature has underlined the role of previous family income and reference groups. Results indicate that households who have recently suffered a considerable decrease in their incomes report significantly higher minimum incomes than households with stable incomes (De Vos & Garner 1991). Studies have also explored if certain expenditures are considered when answering the MIQ question. Results indicate that housing and utility expenditures were considered when answering the question about minimum necessary income (De Vos & Garner, 1991; Garner & De Vos, 1995). Differences among European countries in terms of self-perception of poverty have been found to be related to different levels of household and community social capital endowments (Guagnano et al., 2016).

When subjective and objective poverty thresholds are compared, the former are higher (de Vos & Garner, 1991; Garner & Short, 2003). The divergence between the two poverty rates widens with household size, especially when objective poverty is measured based on per capita income. Larger households are more likely to be identified as income poor than to self-assess their status as poor. This may be explained by the lack of adjustment for lower per person costs of maintaining a given standard of living when individuals live together rather than apart. Equivalence scales implicit in subjective poverty measures tend to be greater than those usually considered in objective measures, posing interesting questions for methodological research (Ravallion & Lokshin, 2002).

Recent applications of subjective poverty are less focused on measurement and give more attention to the determinants of subjective poverty, also considering the discrepancies between subjective and objective poverty profiles. At the same time, the focus of the applications has shifted from the US to developing countries. An interesting exception is Zelinsky et al. (2022) that estimates subjective poverty trends between 2004 and 2019 for 28 European countries based on the Minimum income question, as we do. They find poverty declines in more than half of the countries and argue that this reflects country trends that are not captured by official poverty indicators. In the case of Italy, Filandri et al. (2020) find that discrepancies between objective and subjective poverty are associated with the job stability of household members.

Several recent studies estimate subjective poverty for developing countries: Wang et al. (2020) for Rural China, and Maruejols et al. (2022) for China based on Minimum Income Question, Mahmood et al. (2018) for Pakistan based on a ten-step ladder of the relative position of the household in the distribution (steps 1 and 2 considered as poor), and Peng (2021) and Peng & Law (2023) for Hong Kong based on the self-perception of poverty.

The determinants of subjective poverty found in these studies are age and gender (male) of the household head and family size (reducing subjective poverty). Also, large and unusual expenditure on health and education tend to increase subjective poverty (Wang et al., 2020). The proportion of boys among children as well as residence in rural areas reduce subjective poverty, whereas unemployment, food insecurity and physical insecurity increase it (Mahmood et al., 2019). Both studies identify a reduction in the probability of subjective poverty as per capita household income increases but differ in the effect of human capital and household wealth and assets. While Wang et al. (2020) observe that subjective poverty increases with human capital and household wealth and

assets, Mahmood et al. (2019) observe a reduction in subjective poverty with education, household assets, and farmer´s land. Mauejols et al. (2022) propose an explanation to these contrasting results: they find that subjective poverty is mostly associated with income for low-income households, but in the case of middle-income households, subjective poverty is associated with a combination of low income, low endowment (land, consumption assets) and unusual large expenditure.

All the reviewed studies that compare subjective poverty against objective poverty find that the first one is significantly higher (Zelinsky et al., 2022; Wang et al., 2020; Peng 2021; Peng & Law 2023). Mahmood et al. (2019) identify education, household size, own residence, and physical security among the factors that reduce objective poverty among households below the subjective poverty line. In the case of South Africa, Posel & Rogan (2014) conclude that subjective assessments of poverty are influenced by a range of factors in addition to the household's current economic resources, including the ability of the household to generate resources in the past and in the future, the household's access to basic services and the average health status of household members. They also argue that these divergences are related to issues of economies of scale and adult equivalence which deserve more attention.

A slightly different strategy is followed by Peng (2021) and Peng & Law (2023) who focus on the specific importance of one determinant of the subjective/objective poverty disagreement. Peng (2021) studies the importance of the comparisons with parents and friends and finds that upward intergenerational mobility increases the probability of not feeling poor while being economically poor, and the opposite happens with downward mobility. In the case of friends, those who contrasted their social status with their lower-status friends were more likely to feel non-poor, even if they were economically poor, and again the opposite relation is observed for those comparing to higher-status fiends. Overall, parents were a more important reference group than friends. Peng & Law (2023) study the importance of consumption patterns finding that food-dominant consumption pattern increased the probability of feeling poor among the objectively poor as did the mortgage-high pattern among the economically non-poor, both in reference to a balanced pattern.

In Latin America, studies about subjective poverty are scarce, and the existing ones are focused on one single country; no comparative studies for the region were identified. Many of them are not representative at the national level, as they are based on a specific city, region or group of population. For Mexico, subjective poverty estimates are available for a specific region (Ortiz-Pech et al. 2019) and five center and southern states (Rojas & Jiménez 2008), both based on self-perception. For Peru, estimates based on the Minimum Income Question are available by Monge & Winkerlried (2001) for extremely vulnerable households and Herrera (2002) for the total population. Colombian subjective poverty is estimated by Pinzón Gutiérrez (2006), Niño-Muñoz (2023), and Tobasura & Casas (2017). The first two studies are based on self-perception and the last one on Minimal Income Question, and only Pinzón Gutiérrez (2006) has national representativity. Estimates are also available for Argentina (Luchetti, 2006; based self-perception) and Uruguay (Scalese, 2022; based on the Minimal Income Question).

The studies that compare subjective and objective poverty in the region also find that subjective poverty is significantly higher (Rojas & Jiménez, 2008; Monge & Winkerlried, 2001; Tobasura & Casas, 2017; Luchetti, 2006; and Scalese, 2022). Ortiz-Pech et al.

(2019) find higher subjective poverty, in a context where all the households are objectively poor, and Herrera (2002) finds that in Peru both types of poverty are similar.

As in the international context, the determinants of subjective poverty are studied for some countries in the region. Total household resources (income or expenditure) are identified as a factor reducing subjective poverty (Rojas and Jiménez, 2008; Pinzón Gutierrez, 2006; Herrera, 2002). Other factors positively associated with subjective poverty are undernutrition and violence (Pinzón Gutierrez, 2006). Household size, presence of children, parental education, married couples, and extended households are associated with lower subjective poverty (Herrera, 2002). Rojas & Jiménez (2008) also find that subjective poverty depends on the expectations regarding income and the comparison with reference groups. In her analysis at the municipal level of Colombia, Niño-Muñoz (2023) centers the attention on the study of the effects of institutions over the perception of poverty. Her results show that having a better rule of law and fiscal performance, reducing political fragmentation to have better governance, guaranteeing property rights, fostering the benefits of metropolitan areas, and improving citizen participation reduce the probability of feeling poor.

Last, two studies analyze the determinants of the discrepancy between subjective and objective poverty in the region. Luchetti (2006) observes that labor flexibility, qualification, and formality increase subjective wellbeing but not objective one in Argentina. For Uruguay, Scalese (2022) finds that the probability of discrepancies between absolute and subjective measures is affected by the characteristics of household members (unemployment, informality, education, and immigration), housing and household characteristics, and by the reception of public benefits (food baskets or cash transfers), as well as by the prevailing conditions of the reference group (defined by region of residence and age and education of household head).

5. Data and methodological aspects

This study is based on surveys that include questions regarding subjective poverty. In the case of Brazil (2017-2018), Colombia (2016-2017), El Salvador (2005-2006), Paraguay (2011-2012) and Uruguay (2016-2017), expenditure and income surveys are used. For Ecuador (2013-2014) we use the life conditions survey, and for Peru (2018) we use the National household Survey. Table 1 summarizes the main characteristics of the surveys mentioned above.

Table 1. Characteristics of surveys

Country	Survey	Year	Coverage	# households
Brazil	Household Budget Survey	2017-2018	National	65800
Colombia	National Household Budget Survey	2016-2017	National	86222
Ecuador	Life conditions survey	2013-2014	National	28970
El Salvador	National Survey of Household Income and Expenditure	2005-2006	National	4381
Paraguay	Survey of Income and Expenses and Living Conditions	2011-2012	National	5288
Peru	National Household Survey	2018	National	33900
Uruguay	National Survey of Household Income and Expenditure	2016-2017	National	6880

Source: author's ellaboration

The absolute poverty lines we are considering are constructed by the National Statistical Offices in each country, following the cost of basic needs method, except for Brazil. As Brazil does not have an official poverty line, we follow the usual practice in the literature and consider half minimum wage as the poverty line. Details about the absolute poverty thresholds and their calculation in each country are presented in Table 2. We consider that national poverty lines express more accurately the social sense of poverty than other available absolute poverty lines, such as the ones proposed by the World Bank or ECLAC.

Table 2. Objective absolute poverty lines for selected Latin American countries.

Country	Poverty line construction
Brazil	Brazil does not have an official poverty methodology. To construct a per capita poverty line, half the value of the minimum wage is usually taken as a reference.
Colombia	The poverty line is the minimum per capita cost of a basic basket of goods (food and non-food) in each geographic area, based on the 2016-2017 National Household Budget Survey.
Ecuador	The fifth round of the Quality-of-Life Survey (ECV) conducted in 2006 was used to draw both the official extreme poverty line, which reflects a minimum threshold of 2,144 Kcal per person per day and the official moderate poverty line, which uses an Engel coefficient of 56 percent. The poverty lines are updated across time using the total CPI.
El Salvador	The country uses the Cost of Basic Needs method for the poverty estimates, providing two estimates: (i) extreme poverty (the cost of a basic consumption basket that would allow household members to consume a minimal amount of calories), and (ii) moderate poverty (the cost of an extended consumption basket, equal to twice the value of the basic consumption basket). The official line used by El Salvador was constructed in 1982 and was based on food spending patterns from the 1976 Family Budget Survey.
Paraguay	The extreme poverty line corresponds to the monetary value of the basic food basket, which reflects minimums thresholds of 2117 and 2291 Kcal for urban and rural regions. The value of the total poverty line is equal to the value of the extreme poverty line multiplied by the Engel coefficient, which is 38 percent for urban regions and 48.8 percent for rural areas. The structure of the basic food basket and the basic consumption basket was updated following the 2011-2012 Income and Expenditure and Living Conditions Survey.
Peru	Peru uses monetary poverty lines to measure extreme and total poverty with per capita consumption as the welfare measure. The total poverty line represents the minimum cost of acquiring a basket of goods and services necessary to achieve adequate living conditions, and this basket varies by geographic region as well as by rural and urban areas. It was constructed based on the 2010 National Household Expenditure Survey.
Uruguay	The poverty line corresponds to the updated monetary value of the basic food and non-food baskets considering economies of scale for the non-food expenditures introduced by geographical area. The poverty line is constructed based on Household Consumption and Income Survey of 2005-2006.

Source: author's elaboration

To elaborate the subjective poverty line, we follow the method discussed in section 2. In our case, the control variables considered for the estimation include household income, number of members of the household, age of the head of household and its square, binary variables identifying female household head, non-white household head and urban households, marital status of household head, household type, and years of education of the household head (see Table A.1).

Once we classify households in terms of objective and subjective poverty, we evaluate the correlation and overlapping of both measures. With this objective, we calculate the Cramer V correlation between both types of measure and redundancy coefficients, following Santos & Villatoro (2018).

Given two poverty measures, j and j', the Cramer´s V coefficient is calculated as:

$$Cramer's\ V\ = \frac{\left(p_{00}^{jj'} * p_{11}^{jj'}\right) - \left(p_{10}^{jj'} * p_{01}^{jj'}\right)}{\left[p_{+1}^{j'} * p_{1+}^{j} * p_{+0}^{j'} * p_{0+}^{j}\right]^{1/2}} \qquad (5)$$

Where $p_{00}^{jj'}$ is the proportion of people non-poor in both j and j', $p_{11}^{jj'}$ is the proportion of people poor in both j and j', $p_{10}^{jj'}$ is the proportion of people poor in j but not in j', and $p_{01}^{jj'}$ is the proportion of people poor in j' but not in j. $p_{+1}^{j'}$ and p_{1+}^{j} are the proportion of people poor in j' and j correspondingly, whereas $p_{+0}^{j'}$ and p_{0+}^{j} are the proportions of people non-poor in j' and j respectively. In other words, the Cramer's V is defined as the product of matches minus product of mismatches adjusting for the marginal distribution of the variables.

The redundancy measure R^0 is a more precise indicator showing the matches between deprivations in both measures, as a proportion of the minimum of the two poverty measures.

$$R^0 = p_{11}^{jj'} / \min\left(p_{+1}^{j'}, p_{+1}^{j}\right),\ 0 \leq R^0 \leq 1 \qquad (6)$$

Finally, to analyze the concordance between households classified as poor under the subjective and objective approaches, we use a probit model. This allows us to identify the factors associated with the lack of agreement between these measures. As discussed below, our results indicate that the largest discrepancies occur among households that are not poor in objective terms, but consider themselves as poor, that is, they are subjectively poor. For this reason, our probit model takes the set of households that are not poor in absolute terms, and investigates the factors associated with their perception of themselves as poor.

6. Subjective and objective poverty

We present our main results in three subsections: first the estimations of the subjective poverty line and the comparison with the objective poverty lines in Latin America, second the comparison of poverty prevalence, last the results for the subjective poverty and the superposition with national poverty lines.

6.1 Subjective and objective poverty thresholds in Latin America

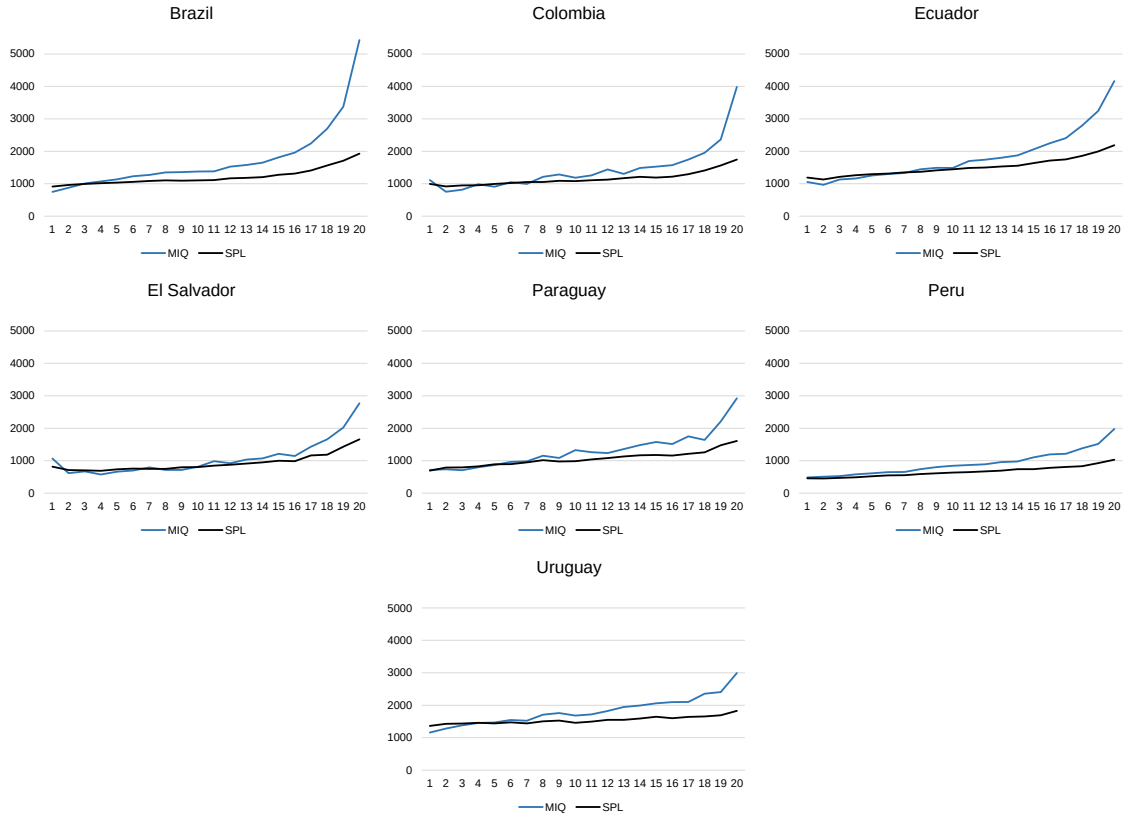
Our subjective poverty lines are estimated based on models with control variables, presented in Table A1 of the Appendix. The results of the models are as expected in the seven countries; the minimum household income is positively related to the perceived household income and with the number of household members. The other control variables also show the expected behavior. In general terms, the minimum income is positively related with the age of the household head (in decreasing terms) and with their education, and negatively related to female and non-white household heads. The result that households with reference persons with less education report needing less than those with higher education has been interpreted as a reference group effects (Garner &

Short, 2003). Also, households with a married or cohabiting head are associated with higher minimum income answers than singles while the evidence for separated, divorced, and widows or widowers is not conclusive across countries. All the household types are associated with higher minimum income than unipersonal households, especially couples with children and extended households (with relatives). These results go in the same line as De Vos & Garner (1991) (age), Garner & de Vos (1995) and Garner & Short (2003) (education), and Danzinger et al. (1984) (female household head).

Using the coefficients derived from the previous estimation, the subjective poverty line is constructed by substituting them in equation (4). Thus, we obtain a different value of the line for each household, depending on its characteristics. In Figure 1 we compare the subjective poverty line by veintiles of per capita income of the country with the minimum income (MIQ) declared by the households. Both variables are expressed in PPP dollars of 2015.

The minimum income increases with household per capita income in all the considered countries, which is consistent with Goedhart et al. (1977) and Danziger et al. (1984). In all the countries, households with income over the median (ventile 10 and over) tend to overestimate the minimum necessary income as it is higher than the subjective poverty line, even after adjusting for all the included controls. Overestimation increases with income and is particularly high for households of the higher deciles. The behavior in the lower half of the distribution is not consistent across countries. In general terms, poorer households declare a minimum income that is close or slightly under the subjective poverty line.

Figure 1. Minimum Income Question (MIQ) and Subjective Poverty Line (SPL) by per capita household income



Notes: Minimum Income Question and Subjective Poverty Line (SPL) expressed in 2015 PPP dollars. Per capita household income in ventiles.
Source: based on household surveys

The comparison between the objective and subjective poverty lines reveals systematic differences. As shown in Table 3, the average subjective poverty line is almost always higher than the objective poverty line, as reported in almost all the previous research. The range of variation of the absolute poverty lines between countries is much smaller than that of subjective poverty lines. The average subjective poverty line is between 8% and 167 % higher than the subjective poverty line, depending on the country, with these extremes corresponding to Paraguay and Ecuador. Only in Peru both thresholds are virtually equal, consistent with previous results for the country (Herrera 2002).

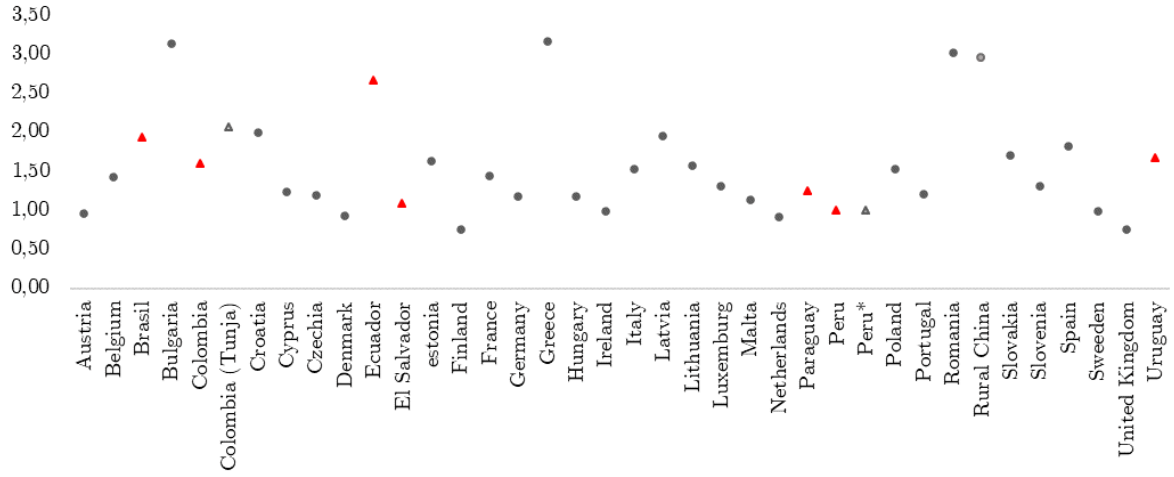
Table 3. Subjective and Objective poverty lines. Average values (2015 PPP dollars).

	Objective - Absolute	Subjective	Subjective/ Objective
Brazil	624	1211	94%
Colombia	726	1157	59%
Ecuador	565	1510	167%
El Salvador	858	926	8%
Paraguay	843	1056	25%
Peru	661	660	0%
Uruguay	918	1539	68%

Source: absolute poverty lines are taken from official indicators for each country, subjective poverty lines are own estimations based on household expenditure surveys.

The subjective poverty lines are on average 60% higher than the official (absolute) ones. This is consistent with the results found for the European Union in which the average difference between the subjective and official lines is 50% (Zelinsky et al., 2022). Figure 2 summarizes the ratios between the subjective and objective poverty lines found in the literature using the minimum income question, including our results. As in the European case, there is a large variation in our data, with the ratios of subjective to official poverty ranging from 1.00 (Peru) to 2.67 (Ecuador).[10] Results for rural China are also reflect higher subjective than official poverty lines, with a ratio closer to the maximum of our range (Wang et al. 2020). In any case, our results are in line with the range found in previous studies.

Figure 2. Ratio between Subjective and Objective poverty lines.



Notes: Ratios of European countries based on Zelinsky et al. (2022), for one-adult households, in dark grey circles. Rural China based on Wang et al. (2020), in light grey

[10] The range for Europe is 0.75 (Finland and the UK) to over 3 (Greece, Romania, and Bulgaria) (Zelensky et al., 2022).

circle. Latin American data in triangles, own estimations in red. Peru* is based on Herrera (2002), original results presented by region, in the figure we present the regional mean. Colombia (Tunja) based on Tobasura and Casas (2017) for the Tunja city of Colombia.

6.2 Subjective and objective poverty prevalence in Latin America

After we estimate the subjective poverty line for each household, we calculate the poverty prevalence. All those households for which income is below the corresponding subjective line will be considered subjectively poor, while those households with income above the subjective line will be considered non-poor in subjective terms. For objective poverty, we consider a household as poor if its income is under the official national poverty line. Note that poverty incidence may be different from the official figures as official poverty measures are calculated based on household surveys, while we are considering expenditure surveys.

The results depicted in Figure 3 indicate that the lowest levels of subjective poverty are reported in Peru, Brazil, and Uruguay with figures between 28 and 33 per cent, and the highest in El Salvador and Colombia, with over 60 per cent of the population considered as subjective poor.[11] These figures are not entirely comparable as the reference years of the surveys differ substantially in a period of important reductions in poverty in the region. While the results from El Salvador are from 2005-2006, the figures from Brazil, Colombia, Peru, and Uruguay refer to 2016-2018.

The ranking of countries is similar to the one that arises considering objective poverty, except for Peru and Ecuador. In the case of Peru, this comes from the very small difference between both indicators, which locates the country in the low range of subjective poverty, but in medium range of objective poverty. In Ecuador, the re-ranking comes from the opposite situation, as the gap between both measures is the highest. Thus, the country has one of the lowest objective poverty rates of the region but one of the highest subjective poverty rates.

The gaps between the prevalence of subjective and objective poverty range from two points in Peru to 38 points in Ecuador. We observe three different situations in terms of this gap: Peru, Paraguay, and El Salvador with small differences between subjective and objective poverty (under ten points); Brazil, Colombia, and Uruguay with gaps around 20 points; and Ecuador with a difference of 38 points. In general terms, and except for Colombia and Ecuador, this relates with the poverty levels: countries with higher poverty rates have smaller differences between the measures.

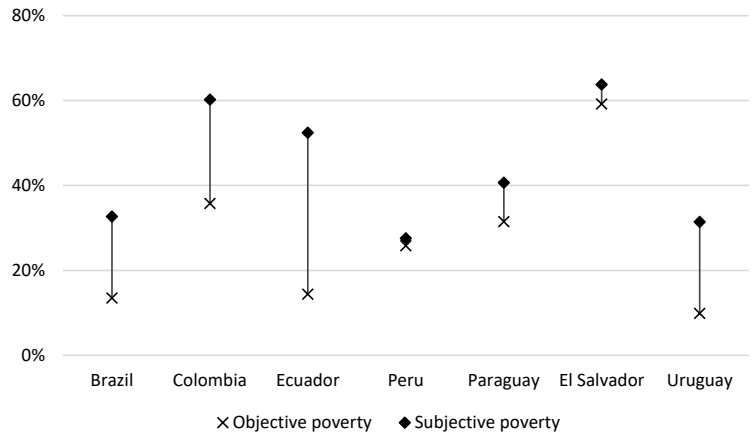
This regularity replicates within countries. As shown in Table A2 of the Appendix, subjective poverty is higher in almost all cases (rural and urban households, white and non-white household heads). Rural and non-white headed households show lower differences between subjective and objective poverty, while suffering from higher poverty rates, both subjective and objective. This can be explained by two different hypotheses. First, poorer households evaluate their situation more accurately in comparison with less poor households. Second, in areas/groups where overall poverty is higher, it is easier for a household to identify as poor.

These results are different from those found for European countries, in which subjective poverty lines are higher for urban than rural areas (Zelinsky et al., 2022). Similarly,

[11] The complete set of results (FGT0, FGT1, and FGT2) is reported in Table A2 of the Appendix.

Mahmood et al. (2018) also identify higher subjective poverty in urban contexts for Pakistan, while objective poverty is higher in rural areas. Several studies show that the relationship between subjective wellbeing and geography is not consistent and can depend on differences in price levels, expectations on minimum income, differences in labor market opportunities, among others (Dolan et al., 2008; Jansky and Kolcunova, 2017; Shucksmith et al., 2009).

Figure 3. Subjective and Objective household poverty.



Source: based on household surveys

In order to further investigate the characteristics of the subjective poor and objective poor, Table 4 presents the comparison of some demographic and socioeconomic characteristics between both populations. For all countries, subjectively poor households are smaller and have less children, as reported in previous studies. Other characteristics, generally related with worse material conditions, as female, inmigrants, and non-white household heads are more prevalent among the objectively poor than among those who identify themselves as poor, although differences are not always significant. For all countries, rural households reprsent a higher share among objectively poor than among subjectively poor. Employment rates tend to be lower among objectively poor households, although the difference is not significant in some countries. The educational level of household heads is higher among subjectively poor households in most countries, except for Brazil and Uruguay where differences are not statistically significant. These data signals the existence of differences of both groups of population, an aspect that is further explored in the following section.

Table 4. Sociodemographic characteristics of objective and subjective poor.

	Brazil			Colombia			Ecuador			El Salvador			Paraguay			Peru			Uruguay		
	Obj. poor	Subj. poor		Obj. poor	Subj. poor		Obj. poor	Subj. poor		Obj. poor	Subj. poor		Obj. poor	Subj. poor		Obj. poor	Subj. poor		Obj. poor	Subj. poor	
Hosehold size	4,2	2,9	*	3,9	3,1	*	4,2	3,3	*	4,6	4,0	*	4,5	3,5	*	4,4	2,8	*	3,7	2,4	*
Number of children (under 12 years old)	1,2	0,6	*	1,0	0,7	*	1,4	0,9	*	1,3	1,1	*	1,5	1,0	*	1,1	0,5	*	0,9	0,3	*
Number of adults (above 65 years old)	0,1	0,2	*	0,3	0,3	*	0,3	0,3	*	0,3	0,3		0,3	0,3		0,6	0,5	*	0,2	0,4	*
% of employed (25-59 years old)	57,1%	63,5%	*	60,6%	65,8%	*	72,0%	74,9%	*	69,8%	70,0%		77,0%	78,1%		73,3%	74,5%		63,8%	70,2%	*
% of urban households	69,8%	84,2%	*	86,1%	88,9%	*	42,1%	65,4%	*	52,4%	59,2%	*	46,7%	55,0%	*	53,7%	62,9%	*	92,5%	83,3%	*
% of households headed by women	46,2%	46,6%		41,3%	39,2%	*	32,1%	29,2%	*	33,6%	33,7%		37,9%	37,1%		27,7%	33,4%	*	61,3%	49,9%	*
% of households headed by a white person	23,3%	35,6%	*	87,3%	88,9%	*	2,8%	3,8%	*				34,6%	50,4%	*	4,4%	3,9%		85,1%	91,0%	*
% of households headed by an inmigrant							0,7%	1,0%		0,6%	0,7%		1,3%	2,5%	*				2,2%	3,0%	
% of women (>18 years old)	53,6%	54,0%		54,3%	52,9%	*	56,5%	53,5%	*	55,6%	55,4%		52,9%	52,9%		48,5%	50,7%	*	54,0%	53,8%	
Maximum years of education of household	9,8	10,0		9,7	10,2	*	8,0	9,4	*	7,7	8,1	*	8,2	8,9	*	8,6	9,0	*	9,2	9,4	

Notes: * indicates that the means are statically different at a 95% confidence interval.

Source: based on household surveys.

6.3 The overlap between subjective and objective poverty

We further explore the ovelap between objective and subjective poverty in Table 5 and Figure 4. Note that, as subjective poverty is larger than objective poverty, people that are identified as poor are generaly poor by both measures or only subjective poor. The major discrepancy between both classifications of poverty arises because a significant proportion of the population is considered non poor under the objective poverty line, but poor according to the subjective criteria (Table 5). This discrepancy involves 21% of the population in Brazil, 27% in Colombia, 38% in Ecuador, 12% in El Salvador, 14% in Paraguay, 11% in Peru and 23% in Uruguay. The other discrepancies, involving those who are classified as poor under the objective threshold but do not regard themselves as being poor, involve less than 5% of the population in all countries, except for El Salador and Peru, where this discrepancies account for 7 and 10% of the population respectively. In El Salvador this discrepancy is related to the high prevalence of poverty and in Peru it is related to the small difference between both lines. In any case, it seems relevant to explore the factors associated to considering oneself as poor -that is, being subjectively poor- when the per capita household income is higher than the absolute poverty line. This question is addressed in the following section.

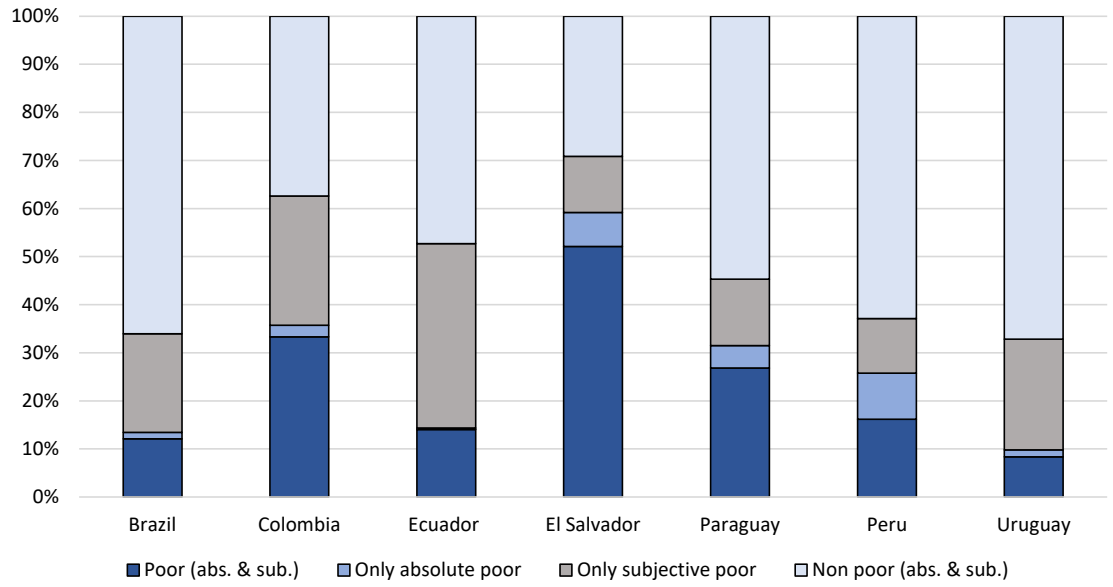
Three groups are identified in terms of poverty overlap. First, a group of countries with low poverty in which the proportion of households that are not poor in both measures is over 60 percent (Brazil, Peru, and Uruguay). Among those deemed as poor, most are only subjective poor in Brazil and Uruguay (59 and 70 percent respectively), and around one third in Peru. The second group refers to countries in which around half of the population is not poor under any measure: Ecuador and Paraguay. However, they are very different in terms of the composition of poverty. In Ecuador most of the poor are only subjective poor (73%) and in Paraguay they only represent 30 percent of the poor, and the majority is poor by both measures (59%). Last, we identifiy a third group in which the non poor population is under 40 percent: Colombia and El Salvador. Again, there are differences among countries. In El Salvador most of the poor (74%) are poor by both measures, reaching 52 of the total population, while in Colombia both types of poverty represent 53 percent of the poor.

Table 5. Subjective and objective poverty overlap

			Objective poverty		
			Poor	Non Poor	*Total*
Brazil	Subjective poverty	Poor	12%	21%	*33%*
		Non Poor	1%	66%	*67%*
		Total	*13%*	*87%*	*100%*
Colombia	Subjective poverty	Poor	33%	27%	*60%*
		Non Poor	2%	37%	*40%*
		Total	*36%*	*64%*	*100%*
Ecuador	Subjective poverty	Poor	14%	38%	*52%*
		Non Poor	0%	47%	*48%*
		Total	*14%*	*86%*	*100%*
El Salvador	Subjective poverty	Poor	52%	12%	*64%*
		Non Poor	7%	29%	*36%*
		Total	*59%*	*41%*	*100%*
Paraguay	Subjective poverty	Poor	27%	14%	*41%*
		Non Poor	5%	55%	*59%*
		Total	*31%*	*69%*	*100%*
Peru	Subjective poverty	Poor	16%	11%	*28%*
		Non Poor	10%	63%	*72%*
		Total	*26%*	*74%*	*100%*
Uruguay	Subjective poverty	Poor	8%	23%	*31%*
		Non Poor	1%	67%	*69%*
		Total	*10%*	*90%*	*100%*

Source: based on household surveys

Figure 4. Subjective and objective poverty overlap



Source: based on household surveys

The overlap structure is similar between rural and urban areas, although the prevalence of subjective and objective poverty differs (see Table A3 in the Appendix). The only exception is Colombia, where the most prevalent situation in rural households is to be poor by both measures, while in urban households, as in the total population, the most prevalent situation is to be identified as non-poor by both measures. In the second most important category we find discrepancies between regions in three countries.

Subjective and objective poverty are related to household per capita income. In the case of objective poverty this relation is straightforward, as poverty arises from the comparison of per capita income with a poverty line. Subjective poverty is also related to income, as seen in the previous section, at least at the individual level.[12] Figure 5 plots subjective and objective poverty by household per capita income ventiles. As expected, average objective poverty is 100 percent for the poorer ventiles, drops sharply around the ventil that corresponds to the national poverty line, and is then 0 for the richer ventiles. The exceptions to this shape correspond to countries in which the official poverty line changes by some characteristics of the household (i.e. region in Colombia, number of members in Uruguay). In these countries, the relationship between poverty and per capita income can be non-linear.

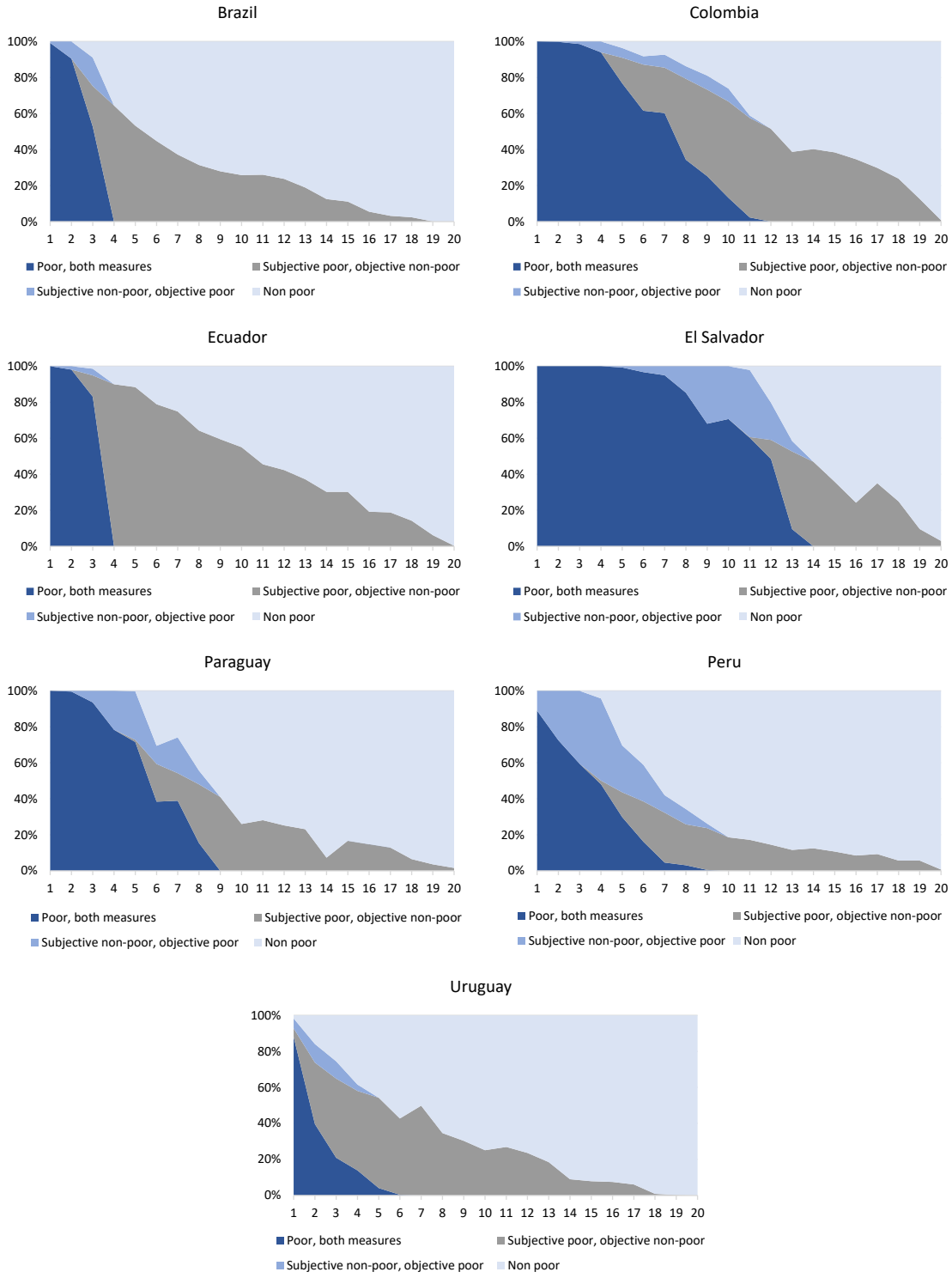
Subjective poverty depicts a more continuous shape, always downward sloped. Subjective poverty is relevant in almost all the per capita income distribution: average subjective poverty is only under 10 percent for the richer 30 percent of the population in Brazil, the top 25 percent in Peru and Uruguay, 15 percent in Paraguay, and only in the last decile for Colombia, Ecuador, and El Salvador. Furthermore, subjective poverty at the median of the distribution is high in all countries, and higher than objective poverty (except for El Salvador). In four countries subjective poverty at the median is between

[12] As previously mentioned, the Easterlin Paradox states that income is positively correlated with subjective wellbeing at the individual level, but this relation disappears at the aggregate level, which could be partially explained by inequality (Oishi & Kesebir, 2015).

one fifth and one fourth of the households (Brazil, Paraguay, Peru, and Uruguay), it represents half of the households in Ecuador, and two thirds in Colombia and El Salvador. This suggests that the objective poverty measure might be missing relevant information on poverty, and underestimating its prevalence, at least in terms of the public perception of poverty.

Note that, in almost all cases, in the poorer ventiles objective poverty is higher than subjective poverty, and the opposite happens with richer households. Thus, the sign and magnitude of the gap between subjective and objective poverty depends on household per capita income.

Figure 5. Subjective and Objective poverty by per capita household income



Notes: Per capita household income in ventiles
Source: based on household surveys

To further illustrate the correlation and overlapping of subjective and objective poverty we calculate two additional measures. The first one is the Cramer V correlation between both types of measure (see Santos and Villatoro, 2018), which is defined as the product of matches minus product of mismatches adjusting for the marginal distribution of the variables. The other measure is the redundancy measure R^0 proposed by Alkire and

Ballon (2012), which shows the matches between deprivations in both measures, as a proportion of the minimum of the two poverty measures (Table 6). Details about both measures are presented in section 4. As expected, the correlation between both measures is relatively high, ranging from 0.42 in Ecuador to 0.61 in Paraguay and El Salvador. The values of the R0 indicate that most households which are poor under the lowest measure of poverty (absolute) are also poor under the subjective measure of poverty. The figures of redundancy range from 0.63 in Peru to 0.98 in Ecuador. In this last case, almost all households classified as poor in absolute terms are also poor in subjective terms, although the opposite does not hold (as the Cramer's V coefficient indicates).

Table 6. Cramer's V and Redundancy measure for objective and subjective poverty

	Cramer's V	R0
Brazil	0.50	0.89
Colombia	0.51	0.94
Ecuador	0.42	0.98
El Salvador	0.61	0.88
Paraguay	0.61	0.84
Peru	0.46	0.63
Uruguay	0.44	0.92

Source: based on household surveys

7. Being income non poor but feeling poor: determinants

The discrepancies between objective and subjective povery prevalence may derive from poor indivuals under the objective approach who do not identify themselves as poor, or from non poor individuals under the objective approach who feel that they have less than what they need. As discussed in the previous section, in our selected Latin American countries, a significant proportion of non objectively poor households, lye below the subjective poverty line. Given the relevance of this situation, we explore the factors associated to considering poor -that is, being subjectively poor- when the per capita household income is higher than the objective poverty line.

We focus on the universe of households which are non poor under the objective poverty measure, and run Probit regressions for subjective poverty in each country. The dependent variable takes the value 1 when the household is classified as poor under the subjective measure and 0 otherwise, given that it is non poor under the objective threshold. As explanatory variables, we choose not to include variables considered in the estimation of the subjective poverty threholds, to get a more clear picture of the factors purely associated to the detected divergences in classifications. As independent variables, we explore variables previuosly studied as determinants of subjective poverty. The first set of variables are personal characteristics of household members: if the household head is unemployed, informal, has health insurance or is inmigrant, and if there is a retired person in the household. The second set of variables refers to housing tenure and conditions, as well as an asset index. The indexes of housing characteristics and assest are both calculated based on Principal Component Analysis (PCA). The housing conditions index includes the number of rooms, if the household has electricity, if the household has drinking water inside the dwelling, if it has sanitation and if it has electricity or gas for cooking. The asset index considers binary variables which reflect the ownership of specific assets (refrigerator, television, DVD, microwave, computer, car, motorcycle, internet, air conditioning and washing machine). The third set of

determinants refers to the structure of expenditure of the household, taking advantage of the expenditure datasets. In particular, we include a binary variable that indicates if the households spends more than what the households earns (in monthly basis). Finally, we include binary variables which indicate if the household is beneficiary of some specific social programs, such as conditional cash transfer programs, labor inclusion programs or non-contributory pensions.

Our main results are presented in Table A.4. The coefficients of the variables reflecting personal charactersitics of household members are presented in Figure 6. As expected, among non objective poor households, the probability of subjective poverty increases when the household head is unemployed, although the coefficient is not significat in the case of Paraguay, and only weakly significant in the case of Uruguay. The same happens in some countries when the household head is an informal worker, although this result does not hold for Paraguay and Peru. This result suggests the association between subjective poverty and the economic insecurity derived from unemployment spells or informal jobs.

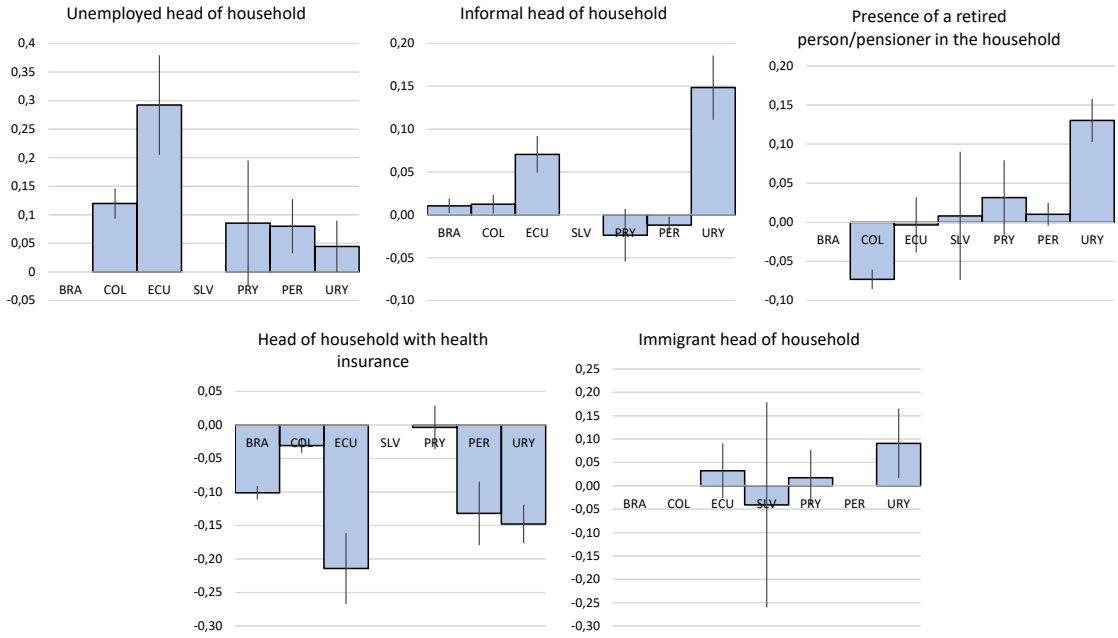
The effect of the presence of a retired person or pensioner in the households does not show a clear pattern across countries. It is not significant in Ecuador, El Salvador, Paraguay and Peru, and presents opposite signs in Colombia and Uruguay. In the former, the presence of a retired person is associated with a lower probbablity of being subjectively poor, which is consistent with the idea of the effect of a more permanent or secure income. The result corresponding to Uruguay is puzzling, given the relative high value of pensions when compared to labor income in this country. A simple comparison of objective and subjective poverty incidence by age group in this country indicates that the incidence of subjective poverty is very high among older people, and the contrary happens with objective poverty (see Figure A.1). This result for older people in the Uruguayan case deserves further research.

In general terms, the probability of subjective poverty is lower in households whose head has health insurance, again a sign of economic security or lower risk of catastrophic expenses as a factor associated with not feeling poor. Only in Paraguay this result is not statistically significant.

Additionally, in Uruguay the presence of an immigrant household head is associated with a higher probability of subjective poverty.[13] The presence of an immigrant household head is not significant in Ecuador, Paraguay and El Salvador. It is interesting to notice that the immigrant background is only significant in the country which can be considered as more developed in our sample. The result for Uruguay is aligned with previous studies that investigate the association between migrant status and subjective poverty in developed countries, which reported that migrants are more likely than non-migrants to perceive an inability to make ends meet (Ayllón & Fusco 2017; Buttler 2013).

[13] In Uruguay around 2.5% of population are immigrants in the years close to the survey.

Figure 6. Household characteristics. Marginal effects for the probability of being poor under subjective approach, among households non poor under the objective approach.

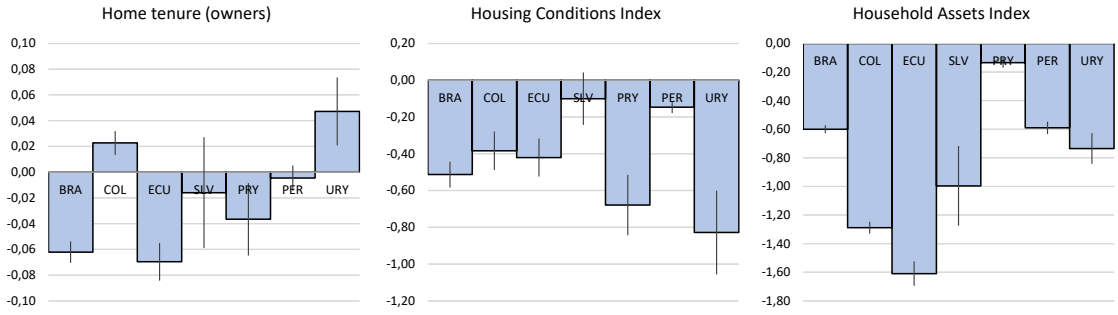


Source: based on household surveys

Following previous studies, we also explore the role of housing tenure, housing conditions and assets on subjective poverty (Figure 7). Households that own their house and have already paid for it present a lower probability of being subjective poor Brazil, Ecuador and Paraguay, as expected. The effect is not significant in El Salvador and Peru, and contrary to expectations, it presents a positive sign for Colombia and Uruguay. Colombia and Uruguay are the countries with the lowest proportion of homeowners in our sample (figure A.2). Results for Colombia and Uruguay appear counter-intuitive, and deserve further exploration. In the case of Uruguay, when we add controls for age brackets in the regression, the coefficient of home ownership becomes not significant. As discussed above, the incidence of subjective poverty is very high among older people (see Figure A.1), who are also more likely to be homeowners. In the case of Colombia, when the variable that reflects if the household spends more than it earns is excluded from the regression, the effect of home ownership becomes negative as expected. So the counterintuive results for these countries seem to be driven by the combined effects of home ownership with other variables: in the case of Uruguay, with the age of the household head, and in the case of Colombia, with the variable that reflects if expenditures are higher than earnings. A more thorough understanding of the underlying phenomena requires further research.

The composite index of housing conditions is associated with lower subjective poverty in all countries, except for El Salvador. On the same vein, a higher household asset index is associated with lower levels of subjective poverty, and the magnitude of this effect is important for all our considered countries.

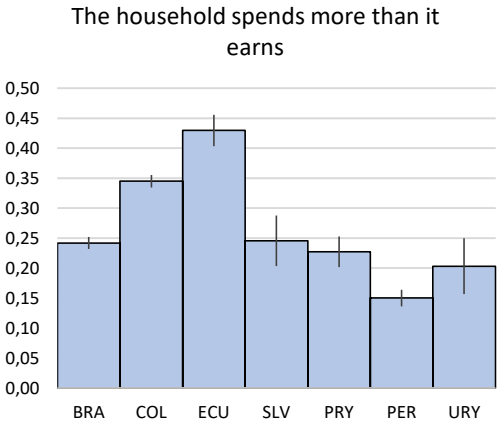
Figure 7. Housing, assets and savings. Marginal effects for the probability of being poor under subjective approach, among households non poor under the objective approach



Source: based on household surveys

Expenditure also shapes the pereception of poverty. In the seven countries, households with total expenditure exceeding their total income have a higher probability of considering themselves as poor (figure 8). It is important to recall that we are selecting households above the objective poverty line, which implies that this impalance should not be associated with subsistence consumption. However, we cannot identify if this perception is driven by an exceptional or permanent imbalance. In any case, variables asociated with subjective poverty are again related to security in the relation between income and consumption.

Figure 8. Expenditure. Marginal effects for the probability of being poor under subjective approach, among households non poor under the objective approach



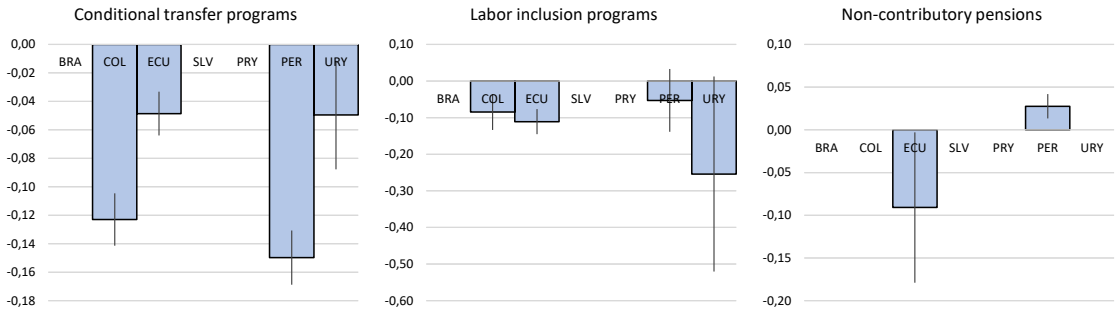
Source: based on household surveys

The literature has also discussed the role of social welfare in subjective wellbeing, referring to the concept of welfare stigma. This stigma reflects the disutility or psychological cost from taking up welfare benefits, associated to the prevalence of negative opinions concerning beneficiaries' deservingness and worth as citizens (Besley and Coate, 1992). If the idea of "undeserving poor" is widespread in a certain society, beneficiaries may be affected by these negative social attitudes and have feelings of social exclusion, leading to a greater tendency to perceive themselves as poor. But at the same time, monetary transfers can also help beneficiaries to have similar consumption patterns as the rest of the population, increase income security, and contribute to the fulfillment of material needs, leading to the opposite effect. This implies that the question

about the potential effect of these transfers on subjective wellbeing remains an open empirical question (Roelen, 2020). We test the presence of this stigma in relation to subjective poverty, considering different policy interventions targeted to the poor: conditional cash transfer programs, labor inclusion programs and non-contributory pensions. Our results indicate that receiving a conditional cash transfer and, to a lesser extent, being a beneficiary of a labor inclusion program are associated to lower subjective poverty in those countries where this link can be tested (figure 9). The only exception is the case of non-contributory pensions in Peru, which is associated to a greater probability of being subjective poor.

There are other potential explanations of this result besides the absence of stigma. They are consistent with previous evidence that indicates that beneficiaries of social programs tend not to consider this income when answering the Minimum Income Question. Early studies of subjective poverty (Kapteyn et al. 1988) reported that respondents only know approximately their income and answer the MIQ question based on estimates of their actual income. These authors argue that respondents neglect some sources of income, like benefit transfers, when answering the MIQ question. If respondents use an estimate of their actual income as a reference point for their minimum income, not accounting for all their income could bias downward their reported minimum incomes. This would imply that beneficiaries could have lower subjective poverty lines, and thus, lower subjective poverty than similar households that do not receive these programs, due to the bias in their responses.

Figure 9. Social assistance. Marginal effects for the probability of being poor under subjective approach, among households non poor under the objective approach.



Source: based on household surveys

8. Final comments

Poverty studies in the Economics field are dominated by the objective approach, and within this approach, by monetary measures of poverty. Given the strong technical assumptions needed for the setting of an objective poverty threshold, there is a case for complementing the analysis originated by expert-derived poverty thresholds with views which consider the insider's perspectives and people's perceptions about their own poverty status. The combination of both approaches has the potential to provide a more comprehensive view of poverty and exclusion.

Since the early beginnings of the study of subjective poverty (Van Praag, 1968), the literature in this area has grown significantly and findings from subjective-based measures have broadened our understanding about poverty. Most of this literature is focused on developed countries. In Latin America, some recent expenditure surveys

include the question about the minimum income needed for the household to make ends meet. This information allows to derive a poverty line in the income space, defined as the income level at which some critical level of subjective welfare is reached. Taking advantage of this information, we compare monetary objective and subjective measures of poverty in seven Latin American countries and analyze potential divergencies between both poverty profiles.

Our results support previous findings about higher subjective thresholds than those based objective income approaches. Consequently, the levels of deprivation under the subjective approach are higher. At the same time, in our selected Latin American countries, a significant proportion of those households which are not poor under the objective poverty threshold, lye below the subjective poverty line. The factors associated to considering oneself as poor when the per capita household income is higher than the objective poverty line are basically linked to situations reflecting economic insecurity, such as unemloyment spells, informality, and lack of health insurance. On the same line, housing tenure, the characteristics of the dwelling and other assets are also relevant determinants of subjective poverty among objective non poor population. The existence of a margin or possibility to cope with unexpected shocks seems to be a key factor for this discrepancy. This result, also found in previous studies, is entirely to be expected in a context of high insecurity and economic fluctuations such as the one that characterizes Latin American countries. Those households with spendings higher than their incomes present a higher probability of considering themselves as poor even if their incomes are above the objective poverty line. In contexts of incomplete financial markets and borrowing constraints, this result is also expected. Receiving a conditional cash transfer or being a beneficiary of a labor inclusion program are associated with lower subjective poverty in those countries where this link can be tested.

We are aware that intercountry comparissons are risky because cultural differences may drive different impression on what the “minimum income question” refers to, but we emphasize that results consistent across countries and point to the relevance of economic insecurity in subjective poverty. We claim that subjective poverty measures may provide additional information to objective income measures, complementing the traditional analyisis and helping to understand how individuals evalute their well-being. In Latin America, the information considered by the respondents to asses their economic status seems to go beyond their expenditure or income considered separtedely. The payoffs of economic security seem to be relevant in Latin American societies.

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Appendix

Table A.1. Estimation of subjective poverty lines. Dependent variable: MIQ (log)

	Brazil 2017 - 2018	**Colombia 2016-2017**	**Ecuador 2013-2014**	**El Salvador 2005-2006**	**Paraguay 2011-2012**	**Peru 2018**	**Uruguay 2016-2017**
Household income (logs)	0.398***	0.059***	0.290***	0.066***	0.088***	0.310***	0.163***
	(0.004)	(0.002)	(0.005)	(0.007)	(0.012)	(0.006)	(0.014)
Number of members	0.025***	0.025***	0.004*	0.044***	0.042***	0.008***	0.027***
	(0.002)	(0.002)	(0.003)	(0.006)	(0.006)	(0.003)	(0.007)
Age of household head	0.012***	0.017***	0.021***	0.024***	0.024***	0.017***	0.021***
	(0.001)	(0.001)	(0.001)	(0.003)	(0.004)	(0.001)	(0.002)
Square of age of household head	-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)
Female household head	-0.034***	-0.022***	-0.085***	-0.054*	-0.020	-0.036***	-0.076***
	(0.005)	(0.005)	(0.011)	(0.028)	(0.023)	(0.010)	(0.013)
Non-white household head	-0.046***	-0.029***	-0.059***	-	-0.210***	-0.022	-0.061***
	(0.005)	(0.006)	(0.019)		(0.022)	(0.019)	(0.020)
Urban	0.147***	0.351***	0.192***	0.253***	0.240***	0.226***	0.115***
	(0.006)	(0.012)	(0.007)	(0.023)	(0.021)	(0.009)	(0.015)
Marital status of household head							
Single	-	-	-	-	-	-	-
Union	-	0.049***	0.085***	0.098**	0.106***	-0.017	0.055
		(0.008)	(0.018)	(0.039)	(0.037)	(0.020)	(0.035)
Married	-	0.157***	0.089***	0.223***	0.155***	0.040**	0.057***
		(0.009)	(0.018)	(0.037)	(0.036)	(0.020)	(0.018)
Separated/divorced	-	0.018**	0.057***	0.048	0.074	0.029*	0.029
		(0.007)	(0.014)	(0.036)	(0.047)	(0.017)	(0.019)
Widow	-	0.076***	0.030*	0.053	0.069	-0.005	0.036
		(0.010)	(0.017)	(0.039)	(0.044)	(0.018)	(0.025)
Houshold type							
Unipersonal	-	-	-	-	-	-	-
Single-parent	0.050***	0.051***	0.105***	0.219***	0.032	0.075***	0.154***
	(0.010)	(0.008)	(0.016)	(0.048)	(0.043)	(0.015)	(0.024)
Couple without children	0.112***	0.073***	0.048**	0.180***	0.018	-0.008	0.207***
	(0.009)	(0.010)	(0.020)	(0.058)	(0.051)	(0.019)	(0.022)
Couple with children	0.127***	0.086***	0.121***	0.209***	0.082*	0.101***	0.280***
	(0.010)	(0.009)	(0.018)	(0.049)	(0.043)	(0.018)	(0.027)
Extended (non-relatives)	0.069***	0.154***	0.115***	0.285***	0.213***	0.036	0.184***
	(0.024)	(0.013)	(0.034)	(0.067)	(0.058)	(0.028)	(0.056)
Extended (relatives)	0.074***	0.062***	0.099***	0.214***	0.059	0.022	0.192***
	(0.010)	(0.009)	(0.017)	(0.046)	(0.043)	(0.016)	(0.028)
Education (years)							
No education	-	-	-	-	-	-	-
1 year	0.004	0.071***	-0.000	0.070	0.089	0.075***	-0.078
	(0.013)	(0.016)	(0.029)	(0.050)	(0.138)	(0.022)	(0.072)
2 years	-0.009	0.121***	0.062***	0.090**	0.138	0.092***	0.037
	(0.016)	(0.014)	(0.021)	(0.040)	(0.134)	(0.020)	(0.058)
3 years	-0.002	0.148***	0.086***	0.150***	0.177	0.139***	0.006
	(0.013)	(0.013)	(0.019)	(0.043)	(0.131)	(0.020)	(0.048)

4 years	0.009	0.179***	0.107***	0.141***	0.193	0.157***	-0.005
	(0.012)	(0.014)	(0.021)	(0.048)	(0.132)	(0.023)	(0.048)
5 years	0.070***	0.244***	0.152***	0.179***	0.180	0.191***	0.022
	(0.010)	(0.011)	(0.024)	(0.053)	(0.133)	(0.017)	(0.057)
6 years	0.081***	0.284***	0.173***	0.216***	0.283**	0.209***	0.101**
	(0.012)	(0.014)	(0.014)	(0.035)	(0.130)	(0.020)	(0.042)
7 years	0.116***	0.314***	0.185***	0.325***	0.335**	0.274***	0.199***
	(0.014)	(0.013)	(0.027)	(0.076)	(0.136)	(0.026)	(0.054)
8 years	0.110***	0.312***	0.242***	0.345***	0.382***	0.291***	0.268***
	(0.014)	(0.014)	(0.022)	(0.056)	(0.137)	(0.023)	(0.046)
9 years	0.163***	0.374***	0.270***	0.331***	0.433***	0.362***	0.229***
	(0.011)	(0.014)	(0.019)	(0.038)	(0.132)	(0.022)	(0.045)
10 years	0.156***	0.348***	0.233***	0.290***	0.370***	0.360***	0.317***
	(0.017)	(0.016)	(0.024)	(0.073)	(0.138)	(0.029)	(0.053)
11 years	0.220***	0.465***	0.255***	0.380***	0.424***	0.462***	0.318***
	(0.017)	(0.011)	(0.026)	(0.080)	(0.140)	(0.017)	(0.054)
12 years	0.278***	0.493***	0.352***	0.587***	0.500***	0.550***	0.360***
	(0.010)	(0.026)	(0.017)	(0.038)	(0.132)	(0.028)	(0.048)
13 years	0.397***	0.645***	0.405***	0.876***	0.622***	0.616***	0.420***
	(0.018)	(0.021)	(0.033)	(0.121)	(0.144)	(0.027)	(0.057)
14 years	0.443***	0.514***	0.452***	0.889***	0.593***	0.643***	0.524***
	(0.020)	(0.018)	(0.022)	(0.074)	(0.142)	(0.020)	(0.054)
15 years	0.430***	0.582***	0.566***	0.788***	0.674***	0.740***	0.487***
	(0.020)	(0.013)	(0.026)	(0.052)	(0.138)	(0.034)	(0.053)
16 years	0.576***	0.636***	0.594***	0.972***	0.734***	0.792***	0.506***
	(0.012)	(0.014)	(0.024)	(0.112)	(0.137)	(0.020)	(0.051)
17 years	-	0.688***	0.629***	1.171***	0.841***	0.907***	0.588***
		(0.020)	(0.034)	(0.054)	(0.147)	(0.037)	(0.060)
18 years or more	-	0.948***	0.739***	1.416***	1.017***	1.024***	0.645***
		(0.012)	(0.035)	(0.113)	(0.141)	(0.029)	(0.058)
Constant	3.856***	11.968***	3.675***	3.814***	11.898***	3.770***	7.527***
	(0.036)	(0.030)	(0.045)	(0.095)	(0.220)	(0.057)	(0.141)
Observations	58,037	85,945	28,970	4,380	5,145	33,900	6,880
R-squared	0.475	0.270	0.436	0.366	0.336	0.433	0.361

Standard errors in parentheses // *** p<0.01, ** p<0.05, * p<0.1

Source: based on household surveys

Table A.2. Estimation of subjective poverty lines. Dependent variable: MIQ (log)

		Objective					Subjective				
			Region		Ethnicity			Region		Ethnicity	
		Total	Urban	Rural	White	Non-white	Total	Urban	Rural	White	Non-white
Brazil	FGT0	13%	11%	29%	7%	18%	33%	32%	38%	26%	38%
	FGT1	5%	4%	12%	2%	7%	11%	10%	13%	8%	13%
	FGT2	2%	2%	6%	1%	4%	5%	5%	6%	4%	6%
Colombia	FGT0	36%	34%	50%	35%	46%	60%	59%	67%	59%	68%
	FGT1	15%	15%	20%	14%	21%	28%	27%	32%	27%	34%
	FGT2	9%	9%	11%	9%	14%	17%	17%	20%	17%	22%
Ecuador	FGT0	14%	9%	27%	11%	14%	52%	50%	58%	52%	52%
	FGT1	5%	3%	9%	3%	5%	22%	20%	27%	23%	22%
	FGT2	2%	1%	5%	2%	3%	13%	11%	16%	14%	13%
El Salvador	FGT0	59%	49%	76%			64%	60%	70%		
	FGT1	33%	25%	45%			33%	29%	39%		
	FGT2	23%	17%	33%			22%	19%	27%		
Paraguay	FGT0	31%	24%	43%	19%	49%	41%	37%	47%	36%	48%
	FGT1	14%	9%	21%	7%	23%	17%	14%	23%	13%	23%
	FGT2	8%	5%	14%	4%	15%	10%	8%	15%	7%	15%
Peru	FGT0	26%	19%	43%	28%	26%	28%	24%	37%	27%	28%
	FGT1	9%	6%	15%	9%	9%	9%	8%	13%	9%	9%
	FGT2	4%	3%	7%	4%	4%	5%	4%	6%	5%	5%
Uruguay	FGT0	10%	11%	4%	9%	18%	31%	31%	32%	31%	34%
	FGT1	3%	3%	2%	3%	6%	9%	9%	9%	9%	10%
	FGT2	2%	2%	1%	2%	3%	4%	4%	4%	4%	5%

Source: based on household surveys

Table A.3. Subjective and objective poverty overlap, by region

			Objective poverty					
			Poor			Non-poor		
			Urban	Rural	Total	Urban	Rural	Total
Brazil	Subjective poverty	Poor	10.0%	23.9%	12.0%	20.5%	11.9%	19.3%
		Non-poor	0.8%	5.7%	1.5%	68.7%	58.5%	67.3%
Colombia	Subjective poverty	Poor	31.9%	46.0%	33.3%	27.5%	21.1%	26.8%
		Non-poor	2.2%	4.0%	2.4%	38.3%	28.8%	37.4%
Ecuador	Subjective poverty	Poor	8.7%	25.9%	14.1%	41.1%	32.3%	38.3%
		Non-poor	0.1%	0.8%	0.3%	50.2%	41.0%	47.3%
El Salvador	Subjective poverty	Poor	44.1%	65.6%	52.1%	15.8%	4.6%	11.7%
		Non-poor	5.2%	10.3%	7.1%	34.8%	19.5%	29.1%
Paraguay	Subjective poverty	Poor	20.4%	36.7%	26.8%	16.4%	9.9%	13.8%
		Non-poor	3.7%	6.1%	4.7%	59.5%	47.3%	54.7%
Peru	Subjective poverty	Poor	11.9%	27.5%	16.3%	12.0%	9.6%	11.4%
		Non-poor	7.2%	15.5%	9.5%	68.8%	47.5%	62.9%
Uruguay	Subjective poverty	Poor	9.2%	4.3%	8.4%	22.2%	27.3%	23.0%
		Non-poor	1.7%	0.1%	1.4%	67.0%	68.3%	67.2%

Source: based on household surveys

Table A.4. Dependent variable: Probability of being subjectively poor, within those households that are not objectively poor (marginal effects)

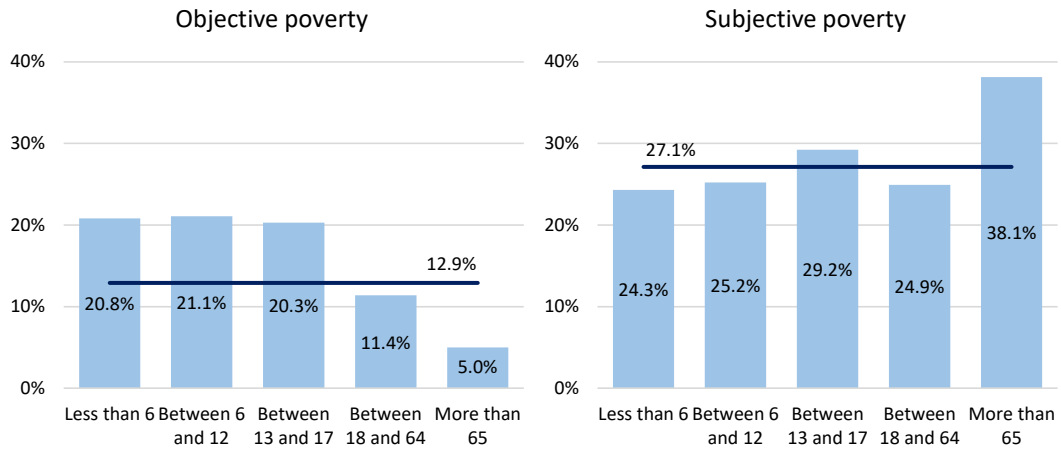
	Brazil	Colombia	Ecuador	El Salvador	Paraguay	Peru	Uruguay
Characteristics of the people in the household							
Unemployed head of household	-	0.120***	0.292***	-	0.086	0.080***	0.045*
		(0.014)	(0.045)		(0.056)	(0.024)	(0.023)
Informal head of household	0.011**	0.012**	0.071***	-	-0.024	-0.012**	0.149***
	(0.004)	(0.006)	(0.011)		(0.016)	(0.005)	(0.019)
Presence of a retired person/pensioner in the home	-	-0.073***	-0.003	0.008	0.032	0.010	0.130***
		(0.006)	(0.018)	(0.042)	(0.024)	(0.007)	(0.014)
Head of household with health insurance	-0.101***	-0.031***	-0.214***	-	-0.004	-0.132***	-0.148***
	(0.005)	(0.006)	(0.027)		(0.017)	(0.024)	(0.015)
Immigrant head of household	-	-	0.032	-0.041	0.017	-	0.091**
			(0.030)	(0.112)	(0.030)		(0.038)
Housing and household characteristics							
Home tenure (owners)	-0.062***	0.023***	-0.070***	-0.016	-0.037**	-0.005	0.047***
	(0.004)	(0.005)	(0.007)	(0.022)	(0.014)	(0.005)	(0.014)
Housing Conditions Index	-0.513***	-0.384***	-0.421***	-0.101	-0.679***	-0.146***	-0.829***
	(0.036)	(0.053)	(0.053)	(0.073)	(0.084)	(0.017)	(0.116)
Household Assets Index	-0.600***	-1.288***	-1.610***	-0.996***	-0.135***	-0.590***	-0.735***
	(0.014)	(0.021)	(0.043)	(0.142)	(0.018)	(0.022)	(0.055)
Expenditure variables							
The household spends more than it earns	0.242***	0.345***	0.430***	0.246***	0.227***	0.150***	0.203***
	(0.005)	(0.005)	(0.013)	(0.022)	(0.013)	(0.007)	(0.024)
Social programs							
Conditional transfer programs	-	-0.123***	-0.049***	-	-	-0.150***	-0.050**
		(0.009)	(0.008)			(0.010)	(0.019)
Labor inclusion programs	-	-0.085***	-0.111***	-	-	-0.053	-0.254*
		(0.025)	(0.017)			(0.044)	(0.136)

Non-contributory pensions	-	-	-0.091**	-	-	0.028***	-
			(0.045)			(0.007)	
Regional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	48,394	55,508	23,389	1,855	3,527	24,730	5,905

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

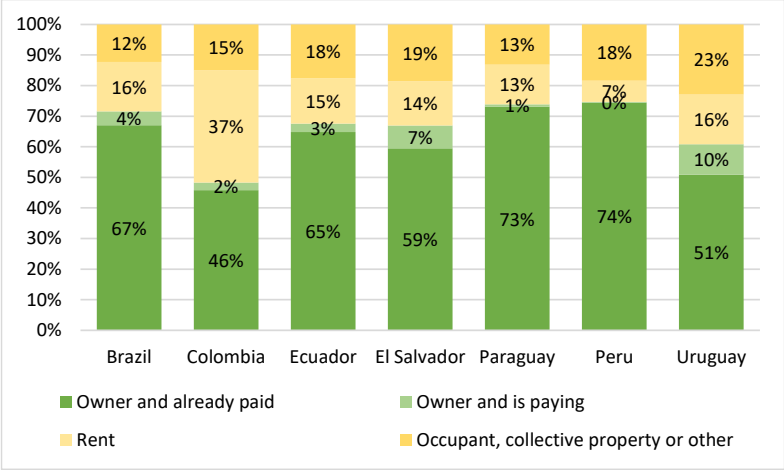
Source: based on household surveys

Figure A.1 Objective and Subjective poverty by age group in Uruguay



Source: based on household surveys

Figure A.2 Home tenure among in Latin America



Source: based on household surveys