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**Transitions in income poverty and multidimensional wellbeing: An empirical
exploration of Chile, 2006-2009**

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Transitions in income poverty and multidimensional wellbeing:

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Abstract

This paper argues for the value of taking a multidimensional perspective on wellbeing while keeping income as a relevant dimension. It examines the association between income poverty shifts and deprivation in a broader range of indicators of wellbeing. We draw upon a unique Chilean dataset to investigate both 'traditional' dimensions of health, education and housing and then subjective wellbeing. In this respect we go beyond increasingly common measures of life satisfaction to consider psychological wellbeing, empowerment and perceived discrimination. Two different poverty lines are used for income: the poverty and the indigence line, which can be associated with moderate and extreme poverty correspondingly. The paper finds an interesting pattern between income transitions around the two lines and deprivation in the considered dimensions. Spending at least one period out of poverty significantly reduces the probability of being deprived in housing, and the same is valid when the indigence line is used. Income transitions around the poverty line also have a significantly reducing probability effect of being deprived in education, psychological wellbeing and empowerment, but not in health. However, income transitions around the indigence line present the opposite pattern: they significantly reduce the probability of being health deprived (which includes malnourishment) but are non-significant for deprivations in education, psychological wellbeing and empowerment, which are likely to be present anyway at this low end of the income distribution. Finally, staying poor is associated with lower levels of perceived discrimination than transitions into and out of poverty. We argue that this may derive from the nature of discrimination and a reference group effect.

Keywords: income and multidimensional poverty, poverty dynamics, missing dimensions

JEL: I32, D31, O54

Acronyms

ECLAC: Economic Commission for Latin America and the Caribbean (CEPAL in Spanish)

UBN: Unsatisfied Basic Needs

CASEN: Encuesta de Caracterización Socioeconómica Nacional

OPHI: Poverty and Human Development Initiative

MIDEPLAN: Ministerio de Planificación y Cooperación de Chile

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1. Introduction

Chile has experienced strong income growth for several decades. Numerous studies have documented the impressive decrease in income poverty levels that has resulted, persistent high inequality notwithstanding (CEPAL 2000, World Bank 2001, Larrañaga 2009). In fact, Chile has been the first country in the region to halve extreme poverty.¹ However, there is an increasing consensus that poverty is better understood as a multidimensional phenomenon (Sen, 1980, 1992, 1999). In fact, the frequently low correlation of income growth with improvements in other important dimensions is supported by recent empirical work such as Ranis *et al.* (2006), the *Growth Report* (2008), Bourguignon *et al.* (2008), Ruggeri Laderchi *et al.* (2007), as well as by several studies on multidimensional poverty performed at the Oxford Poverty and Human Development Initiative (OPHI) (www.ophi.org.uk).

Recently, OPHI released a new Multidimensional Poverty Index for 104 developing countries (Alkire and Santos, 2010), which will be published in the 2010 Human Development Report.² The evidence points to sizeable mismatches between income poverty and multidimensional poverty, as measured by some indicators of functionings (nutrition, mortality) and of inputs into functionings (education, enrolment, and basic living standards). Yet, even those who argue for a multidimensional approach to poverty measurement acknowledge the importance of income. Even when considered instrumentally, a sufficient amount of income increases the capacity to choose bundles of goods and services that are intrinsically valuable. Moreover, because datasets are usually very limited in terms of the functionings they include, income can sometimes act as a surrogate for dimensions that are not measured, as argued with respect to the Human Development Index.

The limited amount of existing research on multidimensional poverty in Chile, and in Latin American countries in general, typically relies on a standard set of indicators usually associated with the Basic Needs Approach such as schooling and housing indicators – recently employed together with income in a multidimensional study of poverty in Latin America by Santos *et al.* (2010).³ More rarely, they include health status and health access indicators (Olavarria-Gambi 2003). However, recent research identifies a broader set of dimensions of wellbeing (and deprivation) that surface in participatory accounts of poverty and normative analysis (Narayan 2000a, 2000b, 2007, Alkire 2002, Ranis *et al.* 2006, Samman 2007).

Based on such findings, since 2007, the Oxford Poverty and Human Development Initiative (OPHI) has promoted the design of survey modules and collection of data on potential *missing dimensions* of poverty, aspects that arise in the mentioned studies but for

¹ According to Economic Commission for Latin America and the Caribbean (ECLAC) estimates using the Encuesta de Caracterización Socioeconómica Nacional (CASEN) dataset, the poverty incidence was reduced from 38.6 percent in 1990 to 13.7 percent in 2006 and indigence incidence (those below the basic food basket) was reduced from 13 percent to 3.2 percent. This was pointed by Alicia Barsena in the introductory speech to the International Conference on “Multidimensional Poverty Measurement in Latin America”, Santiago de Chile, 13-14 May 2010. However, it is worth noting that the CASEN 2009 estimates indicate a slight increase in poverty and indigence, to 15.1 percent and 3.7 percent correspondingly.

² Unfortunately Chile could not be included in the study due to the lack of internationally comparable dataset that included information on nutrition and child mortality.

³ On the origins of the Basic Needs Approach, see Streeten *et al.*, 1981 and Stewart, 1985. On implementation of the approach in Latin America and the Caribbean, see for example, CEPAL-PNUD, 1989 and Carrasco *et al.* 1997. On a recent discussion of the advantages and disadvantages of the approach, see Feres and Mancero, 2001.

which data is not systematically collected in internationally-comparable survey instruments. The five dimensions are: quality of employment, agency and empowerment, shame and humiliation, violence and psychological wellbeing (see *Oxford Development Studies*, 2007). OPHI has gathered nationally representative household survey data on each of those five dimensions (alongside traditional household survey data) in Chile. The unique resulting dataset allows assessing how income poverty dynamics relates to multidimensional poverty using traditional dimensions but also key subjective dimensions of wellbeing. In this respect, the paper links to ongoing research on the effect of income dynamics on subjective states, though most of this literature considers the effect on satisfaction or happiness only (Brickman *et al.* 1978, Van Praag and Fritjers 1999, Stutzer 2004, Di Tella *et al.* 2007).

In this paper, we seek to link income transitions to three traditional additional dimensions of poverty – health, education and housing – as well as to psychological wellbeing, perceived discrimination and empowerment. The rationale is that these perceptions would seem to be fairly fluid and responsive to shifts in objective conditions. While a great deal of work probes this relationship with respect to life satisfaction and happiness, and finds that they are linked with income shifts, very little work explores a broader range of perceptions.

The paper is organized as follows. Section 2 describes the dataset and justifies the selection of dimensions, indicators and cutoffs used in the study. Section 3 presents and discusses the (preliminary) results and Section 4 provides (preliminary) concluding remarks and future research lines.

2. Dataset and Methodology

2.1 The Dataset

We use Chilean data collected in 2006 from Chile's biannual household survey (CASEN) and in 2009 by Oxford Poverty and Human Development Initiative (OPHI). The latter survey was conducted amongst a nationally-representative subsample of the 2006 sample, and repeated several of the 2006 CASEN modules alongside the "Missing Dimensions".

The respondents in the 2006 and 2009 datasets can be identified as income poor or non-poor in each of these years, given that the full CASEN income module is available at both points in time. They can also be identified as multidimensionally poor in 2009 in a number of traditional dimensions such as education, health and housing as well as in the *missing dimensions*. The panel is composed of 1432 households and a total of 6949 people. Of that total, 6286 people were household members in 2006, 5875 in 2009 and 5212 people in both.

2.2 Selected dimensions

As stated above, this paper seeks to explore links between transitions in income poverty and deprivations in other dimensions of wellbeing. We consider three *traditional* or *objective* dimensions plus three *subjective* dimensions. The three *traditional* dimensions are **Education, Health** and **Living Standards**, the latter measured by housing indicators. These dimensions are universally considered to be important markers of wellbeing. In fact, they are the dimensions included in the Human Development Index (HDI) since 1990, the Human Poverty Index (HPI) since 1997 and the forthcoming Multidimensional Poverty Index (MPI). Moreover, they pertain to many of the Millennium Development

Goals. The three *subjective* dimensions are **Agency and Empowerment**, **Discrimination** and **Psychological Well-Being**. To begin this work, questions to measure these dimensions were assembled, as there are no clear internationally accepted standards (OPHI 2007). We discuss each ‘new’ dimension in turn.

Agency and empowerment are concepts that have gathered increasing attention in the development literature and in policies aimed at poverty reduction owing to their intrinsic and instrumental importance (Alkire, 2007; Ibrahim and Alkire, 2007; Samman and Santos, 2009). As noted by Alkire (2007), the *Voices of the Poor* study found that people greatly value freedom of choice and action, while the Universal Declaration of Human Rights highlights the importance of freedom of expression, conscience religion. Rawls too emphasizes the importance of freedom of movement and choice of occupation (plans for life) and Finnis points to the relevance of authentic self-direction. Agency and empowerment have been conceptualized in many ways. OPHI adheres to the definition articulated by Sen within the capability approach: *agency freedom is freedom to achieve whatever the person, as a responsible agent decides he or she should achieve* (Sen, 1985, p. 206). Empowerment is conceived as the *expansion of agency* (Ibrahim & Alkire, 2007), which requires both agency at the individual level and the institutional preconditions for its exercise.

Perceptions of discrimination fall within OPHI’s work on the ‘ability to go about without shame’. This module is concerned with the potential stigma of poverty and harm of discrimination. Adam Smith’s oft-cited example of needing a linen shirt in the 18th century England not to be ashamed of appearing in public embodies this idea and is used by Sen to argue that the ability to go about without shame is a relevant basic capability that should figure in the “absolutist core” of notions of absolute poverty (Sen, 1993, pp. 332-333, 1993a, pp. 36-37, cited in Zavaleta, 2007). The *Voices of the Poor* study conducted in 60 countries found that the stigma of poverty is a recurring theme among the poor, with people often trying to conceal their poverty to avoid humiliation and shame (Narayan, 2000a, b, cited in Zavaleta, p. 407). Clearly, experiences of discrimination are important in their own right but can also lower psychological wellbeing at the individual level as well as social cohesion, with possible repercussions in the form of violence.

Finally we consider psychological well-being. This dimension too has been identified as both intrinsically and instrumentally important in the *Voices of the Poor* study, by Ranis, Stewart and Samman (2006) and by Finnis. As detailed by Samman (2007), OPHI’s questionnaire on subjective well being captures perceptions of *meaning in life* and the ability to strive towards excellence in fulfilling this idea, as well as satisfaction with life overall (and with its domains).

It is also worth emphasizing that the selected dimensions are not only important internationally, but also from a Latin American perspective. As mentioned earlier, the Basic Needs Approach, popular in the region since the early 1980s, focuses on indicators of education and living standards. More precisely, it typically considers housing conditions (sanitation, water and type of dwelling), whether school-aged children are attending school and the ‘economic capacity’ of the household (a combined indicator of the educational level of the household head and the dependency ratio). In the particular case of Chile, the role of the Foundation for Overcoming Poverty (Fundación para la Superación de la Pobreza) also emerges as important. Started in 1994 as a Council to the government on ways to overcome poverty, the council was composed of twenty citizens, representing different strata of society and political views. In 1996, the Council was

transformed into a private foundation but retained its the advocacy function with respect to the government.⁴ Quite importantly, the foundation has continued to represent the diverse sectors and political orientations of Chilean society. This Foundation has a holistic view on poverty, derived from a Human Rights approach, and has defined – after a process of discussion between its stakeholders – six dimensions of wellbeing. These are: living a long and healthy life, and experiencing a continuous and quality education, dignified housing, access to more and better labor opportunities, a secure income which allows meeting immediate needs and essential functionings, and being listened to in decision-making processes that affect them directly. The fact that several of the dimensions that OPHI identifies have already been identified as relevant in the Chilean context underscores the importance of scrutinizing them further.

Finally, before moving to the specific selection of indicators and cutoffs within each dimension, it is worth dwelling briefly upon how poverty is defined particularly in those ‘missing dimensions’ that lack clearly accepted thresholds. For the traditional dimensions, we define deprivation in each indicator and dimension based on a normative decision on what we consider to be the minimum level to lead a non-deprived life in the corresponding dimension. We support the selection of our cutoffs in previous work and consensual thresholds. For the non-traditional dimensions, given the absence of consensus, we took a more relative stance upon observation of the distribution of each indicator, considering as deprived those in the bottom of the distribution up to about the lowest quintile. Table 2.1 summarizes the dimensions, indicators and cutoffs.

⁴ <http://www.fundacionpobreza.cl/index.php>

Table 2.1: Summary of Dimensions, Indicators and Cutoffs

Dimension	Indicator	Indicator Cutoff Poor if...
<i>Command over Resources over time</i>	Per capita household income	Below National indigence/poverty lines, distinguishing urban and rural areas.
<i>Housing</i>	Water Electricity Floor People per Room	Surface water No access Dirt floor 3 or more
<i>Education</i>	Maximum achieved level of education	No completed secondary
<i>Health</i>	Whether the person has a long-term health condition or has been seriously ill in the past year and Whether this condition affects a lot his daily life Whether he needs help to do exercise, walk long distances, climb stairs, take a bath, dress up, eat or get out of bed Whether the person is malnourished or at risk of malnutrition	Having a long term health condition or an illness in the past year <i>AND</i> this affects daily activities <u>a lot</u> or the person requires help to perform at least one basic activity, <i>OR</i> the person is at risk of malnutrition or malnourished.
<i>Empowerment</i>	Freedom and control over life (10 point scale)	5 and below on 10 point scale.
<i>Psychological wellbeing</i>	Meaning in life (A three question scale is proposed and the responses are averaged). Satisfaction with life overall. Fulfillment of basic psychological needs of Autonomy, Relatedness, and Competence (For each concept, a three part scale is used and the resulting scores are averaged. The resulting scores for each need are averaged to arrive at a measure of Basic Psychological Needs).	Average score below 3 on 4 point scale (corresponding to whether respondent feels it is 'somewhat true' or 'not at all true' that they have meaning in life). Average score below 3 on 4 point scale (corresponding to the respondent's overall satisfaction with their life). The person is considered deprived if their Basic Psychological Needs score is below 3 (i.e., on average they answered Not at all true or Somewhat true that they possess each need).
<i>Discrimination</i>	Whether perceived discrimination in last 3 months	Has perceived discrimination in last 3 months.

2.2 Selected indicators and cutoffs and basic descriptive statistics

Command over resources: income

Income poverty is determined using per capita household income at each point in time. This is obtained adding up the incomes of all household members, from all possible sources, and dividing them by the household size in each period.⁵ It is worth noting that the CASEN has a very detailed income questionnaire, which enquires about labor incomes from primary and secondary occupation as well as from casual work, income from rent of property and physical capital, utilities, dividends, interest from deposits, remittances, donations, and all sort of government transfers, including pensions, subsidies and family allowances. Moreover, it requests that the interviewed person estimate the quantity of income received in kind forms and production for self-consumption. We consider all income sources for the household's income indicator.

ECLAC usually performs a series of adjustments to the income variables of the CASEN to correct for omission or missing income values as well as for sub-declaration of income. For this first version of the paper, we were not able to incorporate such adjustments.⁶ However, they will be incorporated in subsequent versions of the study. In any case we try different specifications of the transition variables which we think give some robustness to the results. As income cutoffs, we use the poverty lines used by MIDEPLAN for the official poverty estimates, which follow the Cost of Basic Needs Approach typically used in Latin American countries. The cost of the Basic Food Basket constitutes the indigence line, which is then duplicated to obtain the poverty line for urban areas and increased by 75percent to obtain the poverty line for rural areas.

Table 2.2: Income Poverty Lines

		2006	2009
Urban Areas	Indigence Line	23,549	32,067
	Poverty Line	47,099	69,134
Rural Areas	Indigence Line	18,146	24710
	Poverty Line	31,756	43,242

Source: MIDEPLAN Note: All values are in Chilean Pesos (CH\$). In July 2010 CH \$1= US\$ 0.00188. The PPP exchange rate of the Chilean Peso according to World Bank was 288.7 (http://siteresources.worldbank.org/ICPINT/Resources/Table5_7.pdf)

We construct different indicators of poverty transitions. One set of dummy variables denotes being poor in both years (2006 and 2009), poor in 2006 but non-poor in 2009, non-poor in 2006 but poor in 2009 and non-poor in both years. Another set of dummies does the same with respect to the indigence line. A third set of dummies considers a broader set of categories using both poverty lines simultaneously and considering each state in each of

⁵ We use the per capita household income rather than the equivalised income because this is the methodology followed by the Ministerio de Planificación y Cooperación de Chile (MIDEPLAN) for the official income poverty estimates.

⁶ ECLAC uses a special algorithm, which draws upon information from National Accounts as well as from previous CASEN. We were not able to access it or to merge the already adjusted variables into OPHI's database on time for this version.

the two points in time, namely: Indigent-Indigent, Indigent-Poor, Indigent-Non Poor; Poor-Indigent, Indigent-Poor, Poor-Poor, Non Poor-Indigent, Non Poor – Poor, Non Poor – Non Poor.

We also undertake a different approach which first normalizes the income levels in each period by the corresponding poverty line and then takes the harmonic mean, the geometric mean and the arithmetic mean between the two normalized incomes. Note that the normalized harmonic mean of individual i is given by $\mu_i^H = \{(\gamma_{06}/z_{06})^{-1} + (\gamma_{09}/z_{09})^{-1}\}^{-1}$, where γ_{06} and γ_{09} are the per capita household incomes in the two years 2006 and 2009, and z_{06} and z_{09} the corresponding poverty lines. The normalized geometric mean is in turn given by $\mu_i^G = (\gamma_{06}/z_{06})^{1/2}(\gamma_{09}/z_{09})^{1/2}$. The reason to take the harmonic mean and the arithmetic mean is that these means (members of the family of generalized means) penalize for an unequal income distribution over time giving a lower value than the arithmetic mean whenever the two incomes are non equal. When the normalized mean income over time is below 1, the person is considered chronically poor. The use of the mean income as an identification strategy for the chronically poor has been proposed by Jalan and Ravallion (1996, 2000); the use of the general means to penalize for an unequal income distribution over time has been proposed by Foster and Santos (2006).

As summarized in Table 2.3, in the panel we observe 5.5 percent of people indigent in 2006 and 10.6 percent in 2009, and 14.8 percent of people as poor but non-indigent in 2006 and 23.8 percent in 2009. Note that these results differ significantly from those reported officially. MIDEPLAN reports that 3.2 percent of people were indigent in 2006 and 3.7 percent in 2009, and that 10.5 percent of people were poor but non-indigent in 2006 and 11.4 percent in 2009. The sources of difference are various. First of all, as clarified before, we have not corrected for omissions and sub-declaration (this will be incorporated in a subsequent version of the paper). Secondly, our estimates refer to the people that form the panel, which is a reduced sample from the total CASEN one (5212 people overall) and in itself is not nationally representative. Thirdly, because we are working with the panel and household composition changes over time, we are not using the sampling weights.

Table 2.3: Indigence and Poverty Incidence in the Panel

Condition\Year	2006	2009
Indigent	5.5%	10.6%
Poor, non-indigent	14.8%	23.8%

Source: own estimates using OPHI-CASEN panel survey.

What transitions have taken place? Table 2.4 presents the percent of population in each of the different possible categories. In line with the increase in poverty observed in the panel from 2006 to 2009, we see that 22.35 percent of the people in the panel were non-poor in 2006 but became poor in 2009, 8 percent followed the reverse pattern and 12.2 percent were poor in both years. When looking only into the extreme poor – those below the indigence line – we see that 8.7 percent of non indigents in 2006 fell below the indigence line in 2009, 3.6 percent followed the reverse pattern and 1.92 were indigent in both points in time. We also consider the transitions between categories using both poverty lines. Interestingly, 6 percent of the people in the panel seem to have experienced a drastic income fall, as they

went from being non-poor to being indigent, while the reverse pattern was followed only by 2.1 percent of people.

When looking into chronicity in income poverty using an aggregate function rather than a counting-approach, we see that 30.5 percent of people in the panel have a harmonic mean income over time below the poverty line (Table 2.5). As inequality in income over time is less penalized, the incidence is logically reduced, 21.2 percent of the people in the panel have an average income over time below the poverty line. The incidence is obviously much smaller when the indigence line is used instead.

Table 2.4: Income Transitions

	Frequencies	Percent
<i>Into and out of Poverty¹</i>		
Poor – Poor	638	12.24
Poor – Non Poor	423	8.12
Non Poor – Poor	1,165	22.35
Non Poor - Non poor	2,986	57.29
<i>Total</i>	<i>5,212</i>	<i>100</i>
<i>Into and out of Indigence</i>		
Indigent – Indigent	100	1.92
Indigent –Non Indigent	187	3.59
Non Indigent –Indigent	454	8.71
Non Indigent – Non Indigent	4,471	85.78
<i>Total</i>	<i>5,212</i>	<i>100</i>
<i>Considering both Lines²</i>		
Indigent – Indigent	100	1.92
Indigent – Poor	76	1.46
Poor – Indigent	140	2.69
Poor – Poor	322	6.18
Indigent – Non Poor	111	2.13
Non Poor – Indigent	314	6.02
Non Poor – Poor	851	16.33
Poor – Non Poor	312	5.99
Non Poor - Non Poor	2,986	57.29
<i>Total</i>	<i>5,212</i>	<i>100</i>

Note: In (1) poverty includes those who are below the indigence line.
 In (2), because we consider both lines at the same time, the ‘poor’ refer to those that are poor but non indigent.

Table 2.5: Income Transitions

	Frequencies	Percent
<i>Below the Poverty Line</i>		
Harmonic Mean Income	1,590	30.51
Geometric Mean Income	1,415	27.15
Arithmetic Mean Income	1,107	21.24
<i>Below the Indigence Line</i>		
Harmonic Mean Income	433	8.31
Geometric Mean Income	346	6.64
Arithmetic Mean Income	184	3.53

Housing: access to basic services and quality

To determine deprivation in the housing dimension, we consider two indicators that are related to access to basic services: access to drinking water and access to electricity. Following the MDG's definition of safe drinking water (also implemented in the MPI) we consider someone to be deprived in access to water if the water source is surface water (river/dam/lake/pond/stream) or another.⁷ Electricity is not an MDG indicator, nor an UBN indicator, but it is closely related to MDG7 (Achieve Environmental Sustainability).

We would have liked to consider toilet facilities and the type of cooking fuel, but this information is not available in the survey. We also consider two indicators that reflect the quality of the dwelling: the flooring material and the extent of overcrowding. We consider someone to be deprived in flooring if he/she lives in a house with earthen floor, and someone to be living in overcrowded circumstances if he/she lives in a house with three or more people per room. Earthen floor is neither an MDG indicator nor a UBN one, yet it is closely related to the MDG 7; it has been included in the MPI. The overcrowding indicator is not a key MDG indicator, but it is considered as one of the additional socio-economic indicators for country evaluations (within the target of achieving adequate shelter for all, UNDP, 2003) and it is one of the UBN indicators. These four indicators are available both in 2006 and 2009.

We take a union approach to define deprivation in the housing dimension and consider someone to be deprived if he/she is deprived in at least one of the four indicators (water, electricity, floor and people per room). We also estimate a different indicator for 2006 which also incorporates the asset indicator, and again consider someone to be deprived if he/she is deprived in one or more of the indicators.

Table 2.6 presents the transitions for each housing indicators. It can be seen that deprivation levels are very low in general. There has been a reduction in the percentage of people in the panel deprived in water (from 3.4 percent to 2.1 percent) as well as in flooring (from 1.1 percent to 0.42 percent). Deprivation in electricity remained constant at 0.84 percent and there was an increase in overcrowding, from 1.75 percent to 2.1 percent. In 2006 5.95 percent of people in the panel were deprived in at least one of the four indicators (water, electricity, floor or room). This was reduced to 1.46 percent in 2009.

⁷ The categories considered in the survey are piped water, dug well (*pozò o noria*), surface water or other.

Table 2.6: Deprivation transitions in housing variables

(a) Water				(b) Electricity			
2009	Non-Deprived	Deprived	<i>Total</i>	2009	Non-Deprived	Deprived	<i>Total</i>
2006				2006			
Non-Deprived	95.97%	0.64%	<i>96.61%</i>	Non-Deprived	98.53%	0.63%	<i>99.16%</i>
Deprived	1.91%	1.48%	<i>3.39%</i>	Deprived	0.63%	0.21%	<i>0.84%</i>
<i>Total</i>	<i>97.88%</i>	<i>2.12%</i>	<i>100%</i>	<i>Total</i>	<i>99.16%</i>	<i>0.84%</i>	<i>100%</i>

(c) Floor				(d) Overcrowding			
2009	Non-Deprived	Deprived	<i>Total</i>	2009	Non-Deprived	Deprived	<i>Total</i>
2006				2006			
Non-Deprived	98.7%	0.17%	<i>98.89%</i>	Non-Deprived	96.65%	1.61%	<i>98.25%</i>
Deprived	0.86%	0.25%	<i>1.11%</i>	Deprived	1.26%	0.49%	<i>1.75%</i>
<i>Total</i>	<i>99.58%</i>	<i>0.42%</i>	<i>100%</i>	<i>Total</i>	<i>97.9%</i>	<i>2.10%</i>	<i>100%</i>

(e) Housing Indicator			
2009	Non-Deprived	Deprived	<i>Total</i>
2006			
Non-Deprived	93.48%	0.58%	<i>94.05%</i>
Deprived	5.07%	0.88%	<i>5.95%</i>
<i>Total</i>	<i>98.54%</i>	<i>1.46%</i>	<i>100%</i>

Health: objective and subjective indicators

In the case of health we construct an indicator on the basis of five questions. One question asks whether the person has a long-term health condition (such as blindness, death, difficulty talking, difficulty moving, mental or intellectual handicap, or a psychiatric illness). Another question asks whether the person received treatment for hypertension, diabetes, respiratory infection, cancer, heart attack, chronic kidney insufficiency, or other. A third question asks whether the mentioned health condition (of either of the two previous questions) affects the person's daily life a lot, fairly, little or nothing. Finally, a fourth question asks whether the person usually needs help to perform exercise, walk long distances, climb stairs, take a bath, dress up, eat or get up from bed. There is also a question regarding the nutrition of children, pregnant women and elderly (people over 60 years). They are asked whether the person is malnourished or at risk of malnutrition. With these five questions, we define someone as being health deprived if he/she reports to having either a long-term health condition or to having received treatment in the past year for any of the mentioned illnesses *and* that this condition affects his daily activities a lot *or* that he/she needs help to perform at least one of the mentioned activities. The person is also considered deprived if he/she is malnourished or at risk of malnutrition.⁸ As shown in Table 2.7, 3.76 percent of people in the sample were health deprived in 2009 according to this definition.

⁸ Clearly a nutritional indicator that is not based on the weight and height of the person is far from ideal. Yet, given that the information is available and that the frequencies look reasonable for the case of Chile, we decided to incorporate this information given the core importance that the nutritional status has as a functioning.

As an alternative, we also construct an indicator which considers all household members as deprived if at least one person in the household is health deprived as defined above. This assumes that there may be negative externalities deriving from a person being health deprived in the household. We find that 12.4 percent of people lived in a household in which someone was health-deprived in 2009.

As a further alternative, we consider a self-rated health indicator in which the person expresses his/her level of health in a scale 1 to 5 (Very good, Good, Regular, Bad, Very Bad). We consider someone to be health deprived subjectively if he/she declares having bad or very bad health, and find that 8.7 percent of people in the sample rated their health as bad or very bad in 2009 (Table 2.7). As with the objective indicator, we also define an alternative indicator which considers all household members as health deprived in a subjective way if at least one household member that reports bad or very bad health. Overall 8.9 percent of people live in a household in which someone rates his or her health as bad or very bad.

None of these health variables are UBN indicators, as they are usually not available in household surveys. The MDGs consider nutrition. They also consider other health indicators such as child mortality and those specific to certain population subgroups, such as maternal health. We do not count with such information in this survey.

Table 2.7: Deprivation in health, objective and subjective

2009	Percent
Individual Health Deprivation	3.76%
Living in a household where there is someone deprived in health	12.38%
Individual Health Deprivation – Subjective (Self-Rated)	8.77%
Living in a household where there is someone deprived in health (Subjective – Self Rated)	8.91%

Education: maximum level achieved and child enrolment

Within this dimension we consider two indicators: the maximum level of education achieved and children’s attendance at school. Educational levels are high in Latin America. Most countries in the region have achieved universal primary education. We therefore consider someone to be (individually) deprived in education if he/she is 20 years or older and has less than a complete secondary education. For the analysis on deprivation in education we dropped from the sample 7.7 percent of observations (375 people) that had an inconsistent answer in the panel, reporting a higher level of education in 2006 than in 2009. Ignoring those observations, we see that in Table 2.8, Panel (a), that 32 percent of people of 20 years or older had not completed secondary education in 2006, and this fell to 25.8 percent in 2009.

As a complement, we also created a composite indicator which incorporates information on the school attendance of children between 6 and 15 years of age. Combining the information on educational level with that on school attendance, we consider all household members as education deprived if none of them has completed secondary education or there is at least a school age child not attending school. In 2006, 21.2 percent of people lived in a household

where no one had completed secondary school or there was a child not attending school. This fell to 13.06 in 2006.

Table 2.8: Transitions in Deprivation in Education

(a) Education of the Individual				(b) Education of the Household			
2009	Non-Deprived	Deprived	<i>Total</i>	2009	Non-Deprived	Deprived	<i>Total</i>
2006				2006			
Non-Deprived	67.52%	0%	67.52%	Non-Deprived	73.27%	5.54%	78.80%
Deprived	6.67%	25.81%	32.48%	Deprived	13.67%	7.43%	21.20%
<i>Total</i>	74.19%	25.81%	100%	<i>Total</i>	86.94%	13.06%	100%

Psychological Well-Being

To measure psychological wellbeing, we draw on three distinct aspects: Meaning in Life, the Basic Psychological Needs and Life Satisfaction. Meaning in life has been identified repeatedly as a predictor of psychological health as well as a key determinant of wellbeing in other dimensions of life. Many scales conflate both the presence of meaning and the search for meaning; here we draw upon the former only as this aspect has been linked to positive psychological outcomes. We use a three-item scale to measure Meaning, which assesses the extent to which the respondent perceives having meaning in life along a four-point scale. We consider all those people who report that it is “not at all true” or just “somewhat true” that they have meaning in life to be deprived according to this indicator – which places 21.65 percent of our sample in this category.

The second indicator we draw upon refers to the Basic Psychological Needs of relatedness, competence and autonomy. Respondents are presented with three-item scales for each concept, which seek to elicit the extent to which they perceive having each need and then the resulting scores are averaged to elicit a composite. We identify as deprived in each need the share of people responding “not at all true” or just “somewhat true” on average. The resulting shares of deprived people in our sample are 14.54 percent (Competence), 19.64 (Autonomy) and 18.43 (Relatedness). Finally, we average the scores for the resulting scales across the three needs to come up with an aggregate score of Basic Psychological Needs. To assess deprivation, we again used the same threshold (of those selecting “not at all true” or “somewhat true”, on average). This suggested that 21.82 percent of our sample were deprived in Basic Psychological Needs in 2009.

The third indicator we considered is overall life satisfaction, in which respondents select their level of satisfaction with their lives on a 4 point scale. Such scales are commonly used in surveys of subjective wellbeing. We calculate that 24.33 percent of respondents were deprived in life satisfaction in 2009 using this indicator.

Finally, we average these three indicators to obtain a summary measure of overall psychological health and, using the same threshold, identify 15.07 percent of the sample as being deprived in this dimension in 2009.

Empowerment

Our data on empowerment focuses on respondents' perceptions of their ability to bring about change. In particular, we draw upon one indicator, selected from a series of indicators that were tested. It is a 'ladder' question that measures respondents' overall perceptions of their freedom of choice and control over their lives – an indicator originally derived from the World Values Survey. The ladder has ten steps; we define respondents as deprived if they place themselves at step five or below. In 2009, 5 percent of respondents identified themselves as deprived according to this indicator.

Discrimination

To measure discrimination, we rely upon the perceptions of the respondent. Respondents were asked whether they had experienced any form of discrimination within the last three months, and to identify the frequency on a scale of between 'yes, almost always' to 'no, rarely or never'. People were categorized as deprived according to this indicator/dimension if they reported having experienced any level of discrimination in the last three months: 18.55 percent of our sample were deprived according to this criteria.

Control Variables

To evaluate the association between income transitions and deprivation in the different dimensions we use a set of control variables. These are the age, gender, the size of their household, indigenous status, whether the household is located in an urban or rural zone and his or her employment category (inactive, unemployed, employee or employer). In our sample 76 percent of people live in an urban area, 50.4 percent are males, 7.9 percent belong to an indigenous group, the mean age is 33.7 years and the average household size is 4.1 members. 33.7 percent of people in the sample are inactive, 3.4 percent are unemployed, 1.65 percent are employers and 9.11 percent are self-employed. The remaining 52 percent is employed either in the private or public sector (or in a public firm).

3. Results

Table 3.1 summarizes the regression results for the variables on the income transitions. Full regression results are contained in the Appendix. We estimate the impact of income poverty transitions over deprivation in the three objective and the three subjective wellbeing indicators. Clearly, we do not intend to infer causality as these are simple probit regressions. We merely conduct a preliminary exploration of associations between monetary indicators of poverty transitions and deprivation in relevant dimensions of wellbeing.

In the regressions, we consider the deprivation indicators detailed in Section 2.2. These are as follows: deprivations in housing (being deprived in one or more of drinking water, electricity, floor and room); in health (suffering from a long-term condition or an illness that affects daily life a lot or requires being helped to conduct basic activities, or being malnourished or at risk of malnutrition); in education (not having completed secondary education); in psychological wellbeing (having reported an average score of 'Somewhat true' or 'Not at all true' in the questions on meaning, autonomy, relatedness and competence, and a score in the bottom half of the life satisfaction ladder); in empowerment (having reported a

step of 5 or lower in a 10 ladder step of levels of freedom of choice); and in social inclusion (having experienced discrimination in the past 3 months). All deprivations refer to 2009.

For each indicator of deprivation we estimate nine different models using the different specifications of the income transition variables detailed in Section 2.2. Results are fairly intuitive and consistent across the different estimated models. Note that the sample sizes of the regressions of the objective wellbeing indicators are much bigger than those of the subjective ones because the questions on subjective well-being, empowerment and discrimination were administered only to one interviewed person per household, typically the household head.

We describe the results by model, looking across the different deprivation indicators. All of the models control for gender, age, living in an urban area, belonging to an indigenous group and category of employment. In **Model 1** the base category is being poor both in 2006 and 2009, and the included categories correspond to those respondents that were non-poor at both points in time, poor in 2006 but non-poor in 2009 and *vice versa*. Note that, in these regressions, being poor includes those who were indigent. In general, we can see that passing at least one period out of income poverty significantly reduces the probability of being deprived in the different dimensions. More specifically, being non-poor in both periods obviously has the highest reducing impact. This is the case for deprivations in housing, education, psychological wellbeing and empowerment. It is not the case for health, which is understandable. Health problems are not linearly associated with income. While having an income above the poverty line can finance adequate treatments and preventive health care, it is obviously not a sufficient condition. Poverty status has the reverse effect on the perceived experience of discrimination – because the effect of income transitions on this indicator differs from the others, we discuss it separately below.

Movement out of poverty from 2006 to 2009 has a strong reducing impact on the probability of being deprived in housing, education and psychological wellbeing. It also has a mildly significant dampening effect on the probability of being health deprived. Moreover, the size of the coefficient of this variable is in all cases higher than that of the variable that accounts for the opposite pattern (falling into poverty between 2006 and 2009), suggesting the more beneficial effect of a recent non-impoverished period than one further away in time. The dummy that indicates having fallen into poverty has a significant effect (compared to the case of being poor in both periods) in reducing the probability of deprivation in housing and education only.

Model 2 uses an analogous set of dummy variables to Model 1 but using the indigence rather than the poverty line. In other words, these regressions examine the effect of transitions into and out of extreme income poverty, defined as not being able to afford the basic food basket. Results for deprivation in housing conditions are similar as in Model 1, although the coefficients have a bigger size, which is intuitive, as we are looking at transitions into and out of the very bottom of the income distribution. Interestingly, results for health and education are somehow reversed than those found in Model 1. While in Model 1 transitions into and out of poverty were non-significant for health and highly significant for education, Model 2 indicates that transitions into and out of indigence are highly significant for health but non-significant for education. This suggests that at very low levels of income, passing at least one period above the indigence line does make a difference

for health outcomes, reducing the probability of being health deprived (recall that health deprivation includes the indicator on malnutrition). On the contrary, for people at this bottom end, being above or below the indigence line does not make a difference in terms of the educational level achieved: most likely they will not be able to achieve and finish secondary school anyway. The effect on psychological wellbeing is only mildly significant for being above the indigence line in both time periods or moving out of poverty (from 2006 to 2009). The lower significance level suggests that, as with the case of education, people at the lower tail of the income distribution experience deprivation in psychological wellbeing and they would need a larger shift to be non-deprived in this dimension. Shifts out and into indigence are non-significant for empowerment either. We think that the same explanation as with education and psychological wellbeing applies.⁹

As a test of robustness, **Model 3** considers all possible transitions using both the indigence and the poverty lines at the same time, so that now the population is divided in three rather than two: the indigent, the poor but non-indigent, and the non-poor. The base category is the case in which the person was indigent both in 2006 and in 2009. In this set of dummy variables, being ‘poor’ refers to being poor but non-indigent, so for example the dummy named “Indigent-Poor” indicates that the person was below the indigence line in 2006 and above the indigence line but below the poverty line in 2009. In line with the results in Model 1 and 2, the biggest and most significant impact is given by the cases in which the person had at least one period out of poverty. Such transitions have a significant reducing probability effect on being deprived in housing and health. However, the variables are non-significant for deprivation in Education, Psychological Wellbeing and Empowerment but they have the predicted negative sign in most cases. We think that the lack of significance is due to the smaller number of people in each transition group given the further categorization within the group of poor people (by distinguishing the group of poor but non-indigent, we are adding six further categories to all the possible transition groups, and so the number of observations in each transition group is small, as presented in Table 2.4).

Models 4 to 6 use the dummy variables that identify people as chronically poor when their harmonic, geometric and arithmetic mean incomes over time, respectively, below the poverty lines. **Models 7 to 9** do the same but using the indigence line. The results are consistent with those already elaborated. However, note that because the three different means put different penalties upon inequality in the person’s income distribution between the two periods, some of those identified as chronically poor using the harmonic mean are not considered chronically poor when using the geometric mean (which penalizes inequality less) and that even fewer would be considered poor in moving to an arithmetic mean. In other words, those with an arithmetic mean income below the poverty line represent a core set of poor over time. Models 4 to 6 indicate that having a harmonic, geometric or arithmetic mean income over time below the poverty line significantly increases the probability of being deprived in housing, education, psychological wellbeing and empowerment. Consistently with what we found in Model 1, this is not the case for health.

⁹ We also performed the same regressions using the education indicator at the household level (which considers everyone as poor if no one has completed secondary school education or there are children not attending school). In terms of health, we performed similar regressions using self-rated health but found in general no significant associations with income poverty transitions.

In general, the coefficient of Model 6, which uses the arithmetic mean, is greater than that in Models 4 and 5, which is consistent with the fact that the arithmetic means identifies a core of poor over time (ie: even without penalizing for an unequal distribution of income over time, their mean income is below the poverty line). Again, consistent with the pattern found in Model 2, the results of Models 7 to 9 suggest that having a mean income over time below the indigence line increases the probability of deprivation in housing and –for the core set of poor (ie. using the arithmetic mean) – it also increases the probability of being deprived in health, and mildly increases the probability of experiencing deprivation in psychological wellbeing. However, it has no significant effect on the probability of deprivation in education and empowerment, most likely because a greater income shift would be needed to be non-deprived in these dimensions.

As noted above, the case of discrimination merits special mention as the results might initially appear to be counter-intuitive: those in poverty in both periods tend to report *less* discrimination than those moving into poverty or those moving out of poverty, with those who are non poor in both periods experiencing the least discrimination. We believe that this finding may be linked to the fact that the experience of discrimination is inherently relational; it refers to how people perceive that others regard them. We posit that as people move out of poverty, their frame of reference broadens such that they come into contact with people that they might not meet otherwise, and that as a result, they are more likely to perceive discrimination than people who stay poor (or indigent). Along similar lines, those who enter poverty may perceive discrimination because they attribute their downward trajectory to this in some way, or because they undergo a change in circumstances in which their peer group changes – and they felt that this group is judging them negatively. We will aim to substantiate this hypothesis through more in-depth scrutiny of the data of those did and did not feel that they were discriminated against.

Table 3.1: Probit Regression Results of the Income Transition Variables on deprivation in the six considered dimensions

Income Transition Categories between 2006 and 2009	2009 Deprivation in...					
	Objective Wellbeing			Subjective Wellbeing		
	Housing	Health	Education	Psychological Wellbeing	Empowerment	Social Integration
Model 1 (base category: Poor in both periods)^a						
Non Poor in both	-0.766***	-0.161	-0.558***	-0.856***	-0.562***	0.360**
Non Poor – Poor	-0.402**	-0.238	-0.340***	-0.330	0.018	0.278*
Poor – Non Poor	-0.646**	-0.332*	-0.373***	-0.627**	-0.290	0.551**
Model 2 (base category: Indigent in both periods)						
Non-Indigent in both	-1.073***	-0.750***	-0.225	-0.780*	-0.465	0.619*
Non Indigent – Indigent	-0.740**	-0.875***	-0.011	-0.211	-0.170	0.438
Indigent – Non Indigent	-0.760*	-0.958**	0.032	-0.998*	-0.496	0.264
Model 3 (base category: Indigent in both periods)^b						
Indigent – Poor	-0.437	-0.629	0.339	-0.391	-0.270	-0.280
Indigent – Non Poor	-1.004*	-0.315**	-0.238	dropped ⁵	-0.679	0.681
Poor – Indigent	-0.506	-0.650*	0.249	0.088	-0.288	-0.084
Poor – Poor	-0.716*	-0.807**	0.188	-0.275	-0.094	0.686*
Poor – Non Poor	-1.141***	-0.820**	-0.160	-0.588	-0.341	0.885**
Non Poor – Indigent	-0.866**	-0.969***	-0.162	-0.341	-0.143	0.652*
Non Poor – Poor	-0.862***	-0.765**	-0.140	-0.567	-0.114	0.510
Non Poor – Non Poor	-1.232***	-0.742***	-0.365*	-1.023**	-0.701*	0.636*
Model 4 (base category: non chronically poor)	0.478***	0.010	0.306***	0.512***	0.404***	-0.095
Chronically Poor (harmonic mean income below the poverty line)						
Model 5 (base category: non chronically poor)	0.458***	0.034	0.338***	0.572***	0.344***	-0.137
Chronically Poor (geometric mean income below the poverty line)						
Model 6 (base category: non chronically poor)	0.557***	0.211*	0.419***	0.585***	0.310***	-0.253*
Chronically Poor (arithmetic mean income below the poverty line)						
Model 7 (base category: non chronically indigent)	0.395**	0.204	0.115	0.430*	0.080	-0.241
Chronically Indigent (harmonic mean income below the indigence line)						
Model 8 (base category: non chronically indigent)	0.406*	0.289*	0.020	0.517**	0.126	-0.237
Chronically Indigent (geometric mean income below the indigence line)						
Model 9 (base category: non chronically indigent)	0.754***	0.622***	0.112	0.626*	0.338	-0.576**
Chronically Indigent (arithmetic mean income below the indigence line)						
Sample Size	5212	5212	4524	988	1424	1416
Chi2 (minimum and maximum of the 9 models)	112-127	163-221	999-1015	47-73	22-72	33-56
P Value	(PV<1%)	(PV<1%)	(PV<1%)	(PV<1%)	(PV<1%)	(PV<1%)

Notes: All the models include the following control variables: age, gender, area (urban vs. rural), household size, whether the person belongs to an indigenous group and employment category (unemployed, inactive, self-employed and employer; employee is the base category). In Models 1-3 the first category refers to the income category in 2006, whereas the second refers to the income category in 2009. For example: Indigent – Non Indigent means that the person was Indigent in 2006 but not in 2009. In (a) the ‘Poor’ category includes the indigent one. In (b) the ‘Poor’ category refers to being poor but non-indigent. ***: significant at the 1%, **: significant at the 5%, *: significant at the 10%.⁵: the variable is dropped in this regression because it perfectly predicts the outcome, that is all those who were indigent in 2006 and moved out of poverty in 2009 are non-deprived in the Psychological Wellbeing Indicator.

4. Conclusions

In this paper, we looked at the association between transitions into and out of income poverty and deprivation in six dimensions of wellbeing considered in the literature as both intrinsically and instrumentally important. Three dimensions are objectively measured and traditionally used in multidimensional poverty assessments: housing (measured by access to drinking water, electricity, non-dirt floor and extent of overcrowding), health (measured objectively by being affected in daily life activities by an illness or experiencing risk or actual malnutrition) and education (measured by not having completed a secondary education). The other three dimensions are subjective and are usually missing from poverty assessments, yet identified by the poor themselves as relevant aspects of life: psychological wellbeing (measured by meaning in life, basic psychological needs, and life satisfaction), empowerment (measured by perceived freedom of choice over one's life) and discrimination (measured by having perceived discriminated in the past three months).

This is a first draft of the paper and in a next version we will pursue further analysis as we detail below. However, so far, we can draw three main preliminary conclusions. In the first place, income is certainly a relevant variable. Being out of poverty at least in one period of the two under analysis or – equivalently – counting with a mean income over time that is above the poverty line significantly reduces the probability of being deprived in indicators of housing, education, psychological wellbeing and empowerment. It does not reduce the probability of being health deprived. However, quite interestingly, being out indigence (extreme income poverty) at least in one period of the two under analysis or – equivalently – counting with a mean income over time that is above the indigence does have a significantly reducing probability effect on being health deprived (as well as on being deprived in housing indicators). This suggests that at the very lower end of the income distribution, small income shifts can be strongly associated with health problems, including malnutrition. On the other hand, such shifts have no significant effect on deprivation in education, psychological wellbeing and empowerment, suggesting that larger income shifts are required to avoid deprivation in these dimensions. The effects on the subjective variables are particularly interesting as these have been less explored in the literature. These results reinforce the idea that a sufficiently high income level, while not being intrinsically important, is associated with a sense of power and choice that people value.

However, the second key result is that despite the recognition of its importance, being non-deprived in income is not perfectly related to a lack of deprivation in other dimensions. The size of the coefficient varies greatly across regressions but in most of them, the absolute value is below 1. In a subsequent version of the paper, we will study the size of the marginal effects at different points of the distribution to quantify more accurately the impact of such transitions. The lack of a one-to-one correspondence lies at the core of the motivation for a multidimensional perspective on poverty measurement. By going beyond static associations between income and other dimensions, but rather looking at transitions, our results reinforce this argument. Once more, it seems that it is indeed important to consider achievements in important dimensions of wellbeing rather than to accept income as a good enough proxy. Thirdly, we think that the results on perceptions of discrimination are quite interesting and innovative. Our results suggest that those individuals experiencing these fluctuations are

more aware likely to perceive discrimination than those who are trapped below the poverty (or indigence) line, a finding that we explain in terms of shifts in reference groups.

In a subsequent version of this paper we plan to incorporate the income adjustments traditionally made by CEPAL in CASEN datasets to correct for omissions and under-declaration of income, and perform the same regressions and compare results for robustness checks. Secondly, we will analyze in detail the marginal effects of the income transition variables. Finally, given that we are not aiming at causality results but rather associations, we may also perform the reverse regressions, looking at the impact of deprivation in the six selected dimensions on the income transitions.

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Appendix

HOUSING

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
urban	-0.923*** (0.12)	-0.842*** (0.11)	-0.920*** (0.12)	-0.890*** (0.11)	-0.887*** (0.11)	-0.891*** (0.10)	-0.817*** (0.10)	-0.814*** (0.10)	-0.820*** (0.10)
hh_size_09	-0.005 (0.03)	-0.002 (0.03)	-0.014 (0.03)	0.003 (0.04)	0.004 (0.03)	0.002 (0.04)	0.013 (0.03)	0.018 (0.03)	0.005 (0.03)
age_09	0.016*** (0.00)	0.015*** (0.00)	0.016*** (0.00)	0.015*** (0.00)	0.015*** (0.00)	0.015*** (0.00)	0.014*** (0.00)	0.014*** (0.00)	0.014*** (0.00)
male	-0.072 (0.11)	-0.054 (0.11)	-0.064 (0.11)	-0.064 (0.11)	-0.066 (0.11)	-0.065 (0.11)	-0.061 (0.11)	-0.059 (0.11)	-0.052 (0.11)
indigenous	0.337* (0.14)	0.293 (0.15)	0.300 (0.15)	0.330* (0.14)	0.322* (0.14)	0.323* (0.14)	0.323* (0.14)	0.333* (0.14)	0.312* (0.14)
inactive	-0.092 (0.13)	-0.048 (0.13)	-0.094 (0.13)	-0.070 (0.13)	-0.061 (0.13)	-0.067 (0.13)	-0.033 (0.13)	-0.030 (0.13)	-0.034 (0.13)
unemployed	-0.120 (0.29)	-0.008 (0.29)	-0.089 (0.29)	-0.105 (0.29)	-0.083 (0.29)	-0.108 (0.29)	-0.023 (0.29)	-0.018 (0.29)	0.008 (0.29)
employer	0.498 (0.28)	0.431 (0.27)	0.485 (0.28)	0.468 (0.27)	0.451 (0.27)	0.466 (0.27)	0.415 (0.27)	0.415 (0.27)	0.406 (0.27)
self_emplo~d	0.224 (0.16)	0.233 (0.15)	0.203 (0.16)	0.243 (0.15)	0.238 (0.15)	0.227 (0.15)	0.267 (0.15)	0.263 (0.15)	0.244 (0.15)
poor_00	-0.766*** (0.15)								
poor_01	-0.402** (0.15)								
poor_10	-0.646** (0.24)								
indg_00		-1.073*** (0.22)							
indg_01		-0.740** (0.26)							
indg_10		-0.760* (0.31)							
indg_poor			-0.437 (0.39)						
indg_npoor			-1.004* (0.40)						
poor_indg			-0.506 (0.33)						
poor_poor			-0.716* (0.28)						
poor_npoor			-1.141*** (0.34)						
npoor_indg			-0.866** (0.29)						
npoor_poor			-0.862*** (0.25)						
npoor_npoor			-1.232*** (0.24)						
ch_poor_hm				0.478*** (0.11)					
ch_poor_geo					0.458*** (0.11)				
ch_poor_m						0.557*** (0.12)			
ch_indige~hm							0.395** (0.15)		
ch_indigen~o								0.406* (0.17)	
ch_indige~m									0.754*** (0.19)
_cons	-1.714*** (0.25)	-1.337*** (0.32)	-1.229*** (0.32)	-2.467*** (0.22)	-2.447*** (0.22)	-2.455*** (0.22)	-2.400*** (0.21)	-2.420*** (0.22)	-2.386*** (0.22)
Observacio~s	5212	5212	5212	5212	5212	5212	5212	5212	5212
PseudoR2	0.180	0.175	0.189	0.168	0.165	0.172	0.152	0.152	0.162
LogLikelih~d	-325.18	-327.49	-321.71	-330.10	-331.31	-328.44	-336.29	-336.62	-332.34
Chi2	111.85	125.86	128.35	108.40	113.99	122.58	105.25	107.69	116.70

HEALTH	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
urban	0.177* (0.09)	0.182* (0.09)	0.182* (0.09)	0.174* (0.09)	0.171 (0.09)	0.157 (0.09)	0.169 (0.09)	0.169 (0.09)	0.171 (0.09)
hh_size_09	-0.042* (0.02)	-0.047* (0.02)	-0.048* (0.02)	-0.041 (0.02)	-0.041 (0.02)	-0.049* (0.02)	-0.043* (0.02)	-0.042* (0.02)	-0.052* (0.02)
age_09	0.025*** (0.00)	0.026*** (0.00)	0.026*** (0.00)	0.025*** (0.00)	0.025*** (0.00)	0.026*** (0.00)	0.025*** (0.00)	0.026*** (0.00)	0.026*** (0.00)
male	-0.125 (0.08)	-0.124 (0.08)	-0.124 (0.08)	-0.124 (0.08)	-0.125 (0.08)	-0.131 (0.08)	-0.127 (0.08)	-0.127 (0.08)	-0.128 (0.08)
indigenous	0.234 (0.12)	0.229 (0.12)	0.229 (0.12)	0.231 (0.12)	0.231 (0.12)	0.229 (0.12)	0.231 (0.12)	0.235 (0.12)	0.227 (0.12)
inactive	-0.246** (0.09)	-0.249** (0.09)	-0.246** (0.09)	-0.244** (0.09)	-0.247** (0.09)	-0.267** (0.09)	-0.255** (0.09)	-0.257** (0.09)	-0.265** (0.09)
unemployed	0.060 (0.19)	0.099 (0.18)	0.089 (0.18)	0.058 (0.18)	0.053 (0.18)	0.009 (0.18)	0.035 (0.18)	0.029 (0.18)	0.045 (0.19)
employer	-0.049 (0.21)	-0.042 (0.21)	-0.044 (0.21)	-0.037 (0.21)	-0.037 (0.21)	-0.030 (0.21)	-0.042 (0.21)	-0.042 (0.21)	-0.047 (0.21)
self_emplo~d	0.003 (0.11)	-0.009 (0.11)	-0.005 (0.11)	-0.001 (0.11)	-0.004 (0.11)	-0.021 (0.11)	-0.009 (0.11)	-0.011 (0.11)	-0.019 (0.11)
poor_00	-0.161 (0.11)								
poor_01	-0.238 (0.13)								
poor_10	-0.332* (0.17)								
indg_00		-0.750*** (0.22)							
indg_01		-0.875*** (0.25)							
indg_10		-0.958** (0.34)							
indg_poor			-0.629 (0.41)						
indg_npoor			-1.315** (0.45)						
poor_indg			-0.650* (0.31)						
poor_poor			-0.807** (0.28)						
poor_npoor			-0.820** (0.26)						
npoor_indg			-0.969*** (0.27)						
npoor_poor			-0.765** (0.24)						
npoor_npoor			-0.742*** (0.23)						
ch_poor_hm				0.010 (0.08)					
ch_poor_geo					0.034 (0.08)				
ch_poor_m						0.211* (0.09)			
ch_indige~hm							0.204 (0.13)		
ch_indigen~o								0.289* (0.13)	
ch_indige~_m									0.622*** (0.17)
_cons	-2.521*** (0.22)	-1.949*** (0.30)	-1.951*** (0.30)	-2.677*** (0.18)	-2.678*** (0.18)	-2.684*** (0.18)	-2.689*** (0.18)	-2.703*** (0.18)	-2.689*** (0.18)
Observacio~s	5212	5212	5212	5212	5212	5212	5212	5212	5212
PseudoR2	0.127	0.132	0.134	0.124	0.124	0.127	0.125	0.127	0.132
LogLikelih~d	-729.48	-724.84	-723.10	-731.82	-731.75	-729.15	-730.50	-729.43	-725.23
Chi2	203.80	201.78	221.07	163.42	165.38	177.45	198.94	206.90	212.99

EDUCATION	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
urban	-0.666*** (0.05)	-0.607*** (0.05)	-0.670*** (0.05)	-0.644*** (0.05)	-0.647*** (0.05)	-0.643*** (0.05)	-0.597*** (0.05)	-0.593*** (0.05)	-0.594*** (0.05)
hh_size_09	0.033* (0.02)	0.049*** (0.01)	0.034* (0.02)	0.041** (0.01)	0.040** (0.01)	0.039** (0.01)	0.054*** (0.01)	0.056*** (0.01)	0.054*** (0.01)
age_09	0.042*** (0.00)	0.040*** (0.00)	0.042*** (0.00)	0.041*** (0.00)	0.041*** (0.00)	0.041*** (0.00)	0.040*** (0.00)	0.040*** (0.00)	0.040*** (0.00)
male	-0.141** (0.05)	-0.133** (0.05)	-0.141** (0.05)	-0.136** (0.05)	-0.136** (0.05)	-0.135** (0.05)	-0.131** (0.05)	-0.131** (0.05)	-0.131** (0.05)
indigenous	-0.111 (0.09)	-0.110 (0.09)	-0.104 (0.09)	-0.111 (0.09)	-0.107 (0.09)	-0.106 (0.09)	-0.108 (0.09)	-0.104 (0.09)	-0.107 (0.09)
inactive	-0.200*** (0.05)	-0.171** (0.05)	-0.199*** (0.05)	-0.191*** (0.05)	-0.190*** (0.05)	-0.190*** (0.05)	-0.158** (0.05)	-0.154** (0.05)	-0.155** (0.05)
unemployed	0.038 (0.12)	0.100 (0.12)	0.034 (0.12)	0.050 (0.12)	0.059 (0.12)	0.054 (0.12)	0.121 (0.12)	0.132 (0.12)	0.131 (0.12)
employer	-0.373 (0.20)	-0.393* (0.19)	-0.372 (0.20)	-0.383 (0.20)	-0.390* (0.20)	-0.379 (0.20)	-0.397* (0.19)	-0.397* (0.19)	-0.396* (0.19)
self_emplo~d	0.099 (0.08)	0.130 (0.08)	0.099 (0.08)	0.110 (0.08)	0.108 (0.08)	0.103 (0.08)	0.140 (0.08)	0.142 (0.08)	0.140 (0.08)
poor_00	-0.558*** (0.07)								
poor_01	-0.340*** (0.08)								
poor_10	-0.373*** (0.10)								
indg_00		-0.225 (0.15)							
indg_01		-0.011 (0.17)							
indg_10		0.032 (0.19)							
indg_poor			0.339 (0.22)						
indg_npoor			-0.238 (0.22)						
poor_indg			0.249 (0.20)						
poor_poor			0.188 (0.17)						
poor_npoor			-0.160 (0.18)						
npoor_indg			-0.162 (0.18)						
npoor_poor			-0.140 (0.16)						
npoor_npoor			-0.365* (0.16)						
ch_poor_hm				0.306*** (0.05)					
ch_poor_geo					0.338*** (0.05)				
ch_poor_m						0.419*** (0.06)			
ch_indige~hm							0.115 (0.08)		
ch_indigen~o								0.020 (0.09)	
ch_indige~_m									0.112 (0.12)
_cons	-1.274*** (0.12)	-1.591*** (0.19)	-1.469*** (0.19)	-1.826*** (0.10)	-1.826*** (0.10)	-1.836*** (0.10)	-1.819*** (0.10)	-1.821*** (0.10)	-1.817*** (0.10)
Observacio~s	4524	4524	4524	4524	4524	4524	4524	4524	4524
PseudoR2	0.244	0.235	0.245	0.239	0.240	0.243	0.233	0.232	0.233
LogLikelih~d	-1956.21	-1980.70	-1954.95	-1969.16	-1966.51	-1959.41	-1985.67	-1986.58	-1986.19
Chi2	1005.82	1015.72	1008.51	1010.30	1006.00	996.00	1004.22	999.98	1000.43

PSYCH.WELLB.	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
urban	-0.027 (0.13)	0.099 (0.13)	-0.025 (0.14)	0.032 (0.13)	0.028 (0.13)	0.062 (0.13)	0.122 (0.13)	0.123 (0.13)	0.130 (0.13)
hh_size_09	-0.017 (0.03)	0.014 (0.03)	-0.014 (0.03)	-0.002 (0.03)	-0.001 (0.03)	-0.005 (0.03)	0.018 (0.03)	0.019 (0.03)	0.009 (0.03)
age_09	0.000 (0.00)	-0.001 (0.00)	-0.000 (0.00)	-0.000 (0.00)	0.000 (0.00)	-0.000 (0.00)	-0.001 (0.00)	-0.001 (0.00)	-0.001 (0.00)
male	-0.155 (0.12)	-0.142 (0.11)	-0.182 (0.12)	-0.135 (0.12)	-0.146 (0.12)	-0.136 (0.12)	-0.130 (0.11)	-0.127 (0.11)	-0.114 (0.11)
indigenous	0.379* (0.17)	0.384* (0.17)	0.404* (0.18)	0.352* (0.18)	0.369* (0.17)	0.379* (0.17)	0.361* (0.17)	0.360* (0.17)	0.353* (0.17)
inactive	0.355** (0.13)	0.431*** (0.13)	0.349** (0.13)	0.377** (0.13)	0.376** (0.13)	0.395** (0.13)	0.447*** (0.13)	0.448*** (0.13)	0.464*** (0.13)
unemployed	0.651** (0.24)	0.741** (0.23)	0.658** (0.24)	0.676** (0.24)	0.710** (0.23)	0.721** (0.23)	0.784*** (0.22)	0.782*** (0.23)	0.847*** (0.23)
employer	-0.185 (0.36)	-0.293 (0.35)	-0.156 (0.37)	-0.285 (0.36)	-0.289 (0.36)	-0.286 (0.36)	-0.347 (0.35)	-0.352 (0.36)	-0.342 (0.35)
self_emplo~d	-0.090 (0.15)	-0.037 (0.15)	-0.077 (0.16)	-0.076 (0.15)	-0.076 (0.15)	-0.060 (0.15)	-0.042 (0.15)	-0.038 (0.15)	-0.041 (0.15)
poor_00	-0.856*** (0.16)								
poor_01	-0.330 (0.17)								
poor_10	-0.627** (0.23)								
indg_00		-0.780* (0.35)							
indg_01		-0.211 (0.38)							
indg_10		-0.998* (0.47)							
indg_poor			-0.391 (0.52)						
poor_indg			0.088 (0.45)						
poor_poor			-0.275 (0.40)						
poor_npoor			-0.588 (0.40)						
npoor_indg			-0.341 (0.39)						
npoor_poor			-0.567 (0.37)						
npoor_npoor			-1.023** (0.36)						
ch_poor_hm				0.512*** (0.11)					
ch_poor_geo					0.572*** (0.11)				
ch_poor_m						0.585*** (0.12)			
ch_indige~hm							0.430* (0.17)		
ch_indigen~o								0.517** (0.18)	
ch_indige~_m									0.626* (0.26)
_cons	-0.485 (0.34)	-0.582 (0.46)	-0.322 (0.47)	-1.373*** (0.29)	-1.390*** (0.29)	-1.365*** (0.29)	-1.396*** (0.28)	-1.398*** (0.28)	-1.360*** (0.28)
Observacio~s	988	988	967	988	988	988	988	988	988
PseudoR2	0.094	0.074	0.099	0.079	0.084	0.080	0.061	0.063	0.060
LogLikelih~d	-360.16	-368.28	-355.28	-366.43	-364.39	-365.73	-373.27	-372.54	-373.67
Chi2	73.03	56.91	76.34	59.14	60.75	59.02	47.78	48.86	47.30

EMPOWERMENT	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
urban	-0.342*** (0.09)	-0.245** (0.08)	-0.342*** (0.09)	-0.287*** (0.08)	-0.275** (0.08)	-0.257** (0.08)	-0.232** (0.08)	-0.233** (0.08)	-0.232** (0.08)
hh_size_09	0.002 (0.02)	0.028 (0.02)	0.003 (0.02)	0.015 (0.02)	0.019 (0.02)	0.021 (0.02)	0.033 (0.02)	0.033 (0.02)	0.029 (0.02)
age_09	0.006 (0.00)	0.004 (0.00)	0.006 (0.00)	0.005 (0.00)	0.005 (0.00)	0.005 (0.00)	0.004 (0.00)	0.004 (0.00)	0.005 (0.00)
male	0.072 (0.08)	0.101 (0.08)	0.071 (0.08)	0.097 (0.08)	0.095 (0.08)	0.099 (0.08)	0.102 (0.08)	0.102 (0.08)	0.105 (0.08)
indigenous	-0.083 (0.14)	-0.067 (0.14)	-0.085 (0.14)	-0.083 (0.14)	-0.081 (0.14)	-0.073 (0.14)	-0.073 (0.14)	-0.072 (0.14)	-0.076 (0.14)
inactive	-0.065 (0.10)	0.034 (0.09)	-0.066 (0.10)	-0.016 (0.10)	0.007 (0.10)	0.027 (0.10)	0.059 (0.09)	0.058 (0.09)	0.055 (0.09)
unemployed	-0.011 (0.19)	0.163 (0.19)	0.009 (0.19)	0.053 (0.19)	0.113 (0.19)	0.131 (0.19)	0.214 (0.19)	0.208 (0.19)	0.226 (0.19)
employer	-0.418 (0.23)	-0.480* (0.23)	-0.410 (0.23)	-0.466* (0.23)	-0.476* (0.23)	-0.481* (0.23)	-0.493* (0.23)	-0.494* (0.23)	-0.494* (0.23)
self_emplo~d	-0.041 (0.10)	0.019 (0.10)	-0.039 (0.10)	-0.022 (0.10)	-0.007 (0.10)	-0.003 (0.10)	0.029 (0.10)	0.028 (0.10)	0.020 (0.10)
poor_00	-0.562*** (0.12)								
poor_01	0.018 (0.13)								
poor_10	-0.290 (0.17)								
indg_00		-0.465 (0.29)							
indg_01		-0.170 (0.31)							
indg_10		-0.496 (0.35)							
indg_poor			-0.270 (0.42)						
indg_npoor			-0.679 (0.39)						
poor_indg			-0.288 (0.38)						
poor_poor			-0.094 (0.33)						
poor_npoor			-0.341 (0.33)						
npoor_indg			-0.143 (0.32)						
npoor_poor			-0.114 (0.31)						
npoor_npoor			-0.701* (0.30)						
ch_poor_hm				0.404*** (0.08)					
ch_poor_geo					0.344*** (0.08)				
ch_poor_m						0.310*** (0.09)			
ch_indige~hm							0.080 (0.13)		
ch_indigen~o								0.126 (0.14)	
ch_indige~_m									0.338 (0.21)
_cons	-0.258 (0.23)	-0.341 (0.35)	-0.120 (0.36)	-0.821*** (0.19)	-0.821*** (0.19)	-0.814*** (0.19)	-0.819*** (0.19)	-0.821*** (0.19)	-0.815*** (0.19)
Observacio~s	1424	1424	1424	1424	1424	1424	1424	1424	1424
PseudoR2	0.041	0.018	0.043	0.027	0.023	0.020	0.013	0.014	0.015
LogLikelih~d	-810.70	-830.64	-809.53	-822.60	-826.35	-829.03	-834.32	-834.13	-833.22
Chi2	69.65	29.65	71.83	45.30	38.12	32.65	22.12	22.52	24.46

DISCRIM.	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
urban	0.088 (0.09)	0.064 (0.09)	0.093 (0.09)	0.066 (0.09)	0.071 (0.09)	0.076 (0.09)	0.058 (0.09)	0.056 (0.09)	0.054 (0.09)
hh_size_09	-0.027 (0.02)	-0.028 (0.02)	-0.022 (0.03)	-0.034 (0.02)	-0.032 (0.02)	-0.027 (0.02)	-0.036 (0.02)	-0.037 (0.02)	-0.029 (0.02)
age_09	0.009* (0.00)	0.009* (0.00)	0.008* (0.00)	0.009* (0.00)	0.009* (0.00)	0.008* (0.00)	0.009* (0.00)	0.009* (0.00)	0.009* (0.00)
male	0.071 (0.09)	0.069 (0.09)	0.070 (0.09)	0.074 (0.09)	0.076 (0.09)	0.078 (0.09)	0.076 (0.09)	0.073 (0.09)	0.067 (0.09)
indigenous	-0.429** (0.14)	-0.410** (0.14)	-0.426** (0.14)	-0.414** (0.14)	-0.415** (0.14)	-0.417** (0.14)	-0.415** (0.14)	-0.417** (0.14)	-0.409** (0.14)
inactive	-0.177 (0.11)	-0.195 (0.11)	-0.189 (0.11)	-0.199 (0.11)	-0.194 (0.11)	-0.185 (0.11)	-0.201 (0.11)	-0.205 (0.11)	-0.201 (0.11)
unemployed	-0.341 (0.20)	-0.376 (0.20)	-0.309 (0.20)	-0.381 (0.20)	-0.375 (0.20)	-0.339 (0.20)	-0.388* (0.20)	-0.392* (0.20)	-0.424* (0.20)
employer	0.014 (0.24)	0.042 (0.24)	0.020 (0.24)	0.032 (0.24)	0.032 (0.24)	0.030 (0.24)	0.040 (0.24)	0.043 (0.24)	0.036 (0.24)
self_emplo~d	-0.198 (0.11)	-0.186 (0.11)	-0.179 (0.11)	-0.205 (0.11)	-0.203 (0.11)	-0.190 (0.11)	-0.208 (0.11)	-0.210 (0.11)	-0.196 (0.11)
poor_00	0.360** (0.13)								
poor_01	0.278* (0.14)								
poor_10	0.551** (0.19)								
indg_00		0.619* (0.28)							
indg_01		0.438 (0.30)							
indg_10		0.264 (0.34)							
indg_poor			-0.280 (0.41)						
indg_npoor			0.681 (0.39)						
poor_indg			-0.084 (0.36)						
poor_poor			0.686* (0.33)						
poor_npoor			0.885** (0.33)						
npoor_indg			0.652* (0.32)						
npoor_poor			0.510 (0.29)						
npoor_npoor			0.636* (0.28)						
ch_poor_hm				-0.095 (0.09)					
ch_poor_geo					-0.137 (0.09)				
ch_poor_m						-0.253* (0.10)			
ch_indige~hm							-0.241 (0.14)		
ch_indigen~o								-0.237 (0.15)	
ch_indige~_m									-0.576** (0.21)
_cons	0.385 (0.25)	0.138 (0.36)	0.098 (0.36)	0.760*** (0.21)	0.761*** (0.21)	0.760*** (0.22)	0.764*** (0.22)	0.764*** (0.22)	0.753*** (0.22)
Observacio~s	1416	1416	1416	1416	1416	1416	1416	1416	1416
Grad.Liber~d	12	12	17	10	10	10	10	10	10
PseudoR2	0.033	0.031	0.043	0.026	0.026	0.029	0.027	0.026	0.030
LogLikelih~d	-627.98	-629.02	-621.26	-632.57	-632.06	-630.08	-631.69	-631.97	-629.66
Chi2	42.45	40.47	56.10	33.20	33.93	37.47	34.47	33.91	39.47