Subjective Poverty and Reference-Dependence

Income over Time, Aspirations and Reference Groups

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Abstract

How a person assesses the wellbeing derived from income is often determined as much by its contrast with a reference point as by the level of income itself. In this paper, I use a household survey from Mexico to examine how subjective poverty assessments not only depend on the absolute level of income, but on how it compares to three reference points: the income of a reference group, the level of income that the individual aspired to have accomplished by the current stage of her life, and the income she had three years ago. I find that subjective poverty assessments evidence reference-dependence in the income domain relative to reference groups and aspirations, but not with respect to previous levels of income. Further, the results indicate that 'keeping up with the Joneses" behaviour is a feature only of the upper-middle class, and that the inability to exceed income aspirations increases the probability of subjective poverty regardless of the individual's position in the income distribution.

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1   Introduction

Reference-Utility Theory postulates there are differences in the way individuals value their well-being depending on whether it falls below or above a reference point (Kahneman and Tversky 1992; Koszegi and Rabin 2006). The growing economic literature on status and relative income, corroborates that people care about their relative position, in income and in other domains, and not only with respect to others but relative to own previous experiences and expectations (see Solnick and Hemenway 2005; Johansson-Stenman and Martinsson 2006; Falk and Knell 2004; Carlsson et al. 2007, 2009). In this paper, I examine whether subjective poverty assessments are subject to reference-dependence with respect to three different reference points: the income of a reference group, the level of income the individual aspired to have by the current stage of their life, and the level of income the individual had 3 years ago. The comparison of current income and own past income provides information on whether subjective poverty assessments are influenced by previous episodes of poverty. The comparison of current to aspired income or the level of income of a reference-group, however, captures how the achievement of goals affects whether a person perceives themselve as poor.

There are two main approaches in the literature on reference-dependence. The questionnaire-experimental approach uses choice experiments to elicit individuals' income preferences by asking them to make hypothetical choices between alternative societies with distinct distributional outcomes. Evidence from this approach indicates that relative income is as important as absolute income (Carlsson et al. 2007, 2009; Solnick and Hemenway 2005; Johansson-Stenman and Martinsson 2006). The subjective approach uses inferential methods to explain the determinants of happiness or life satisfaction. Results from this approach tend to give more importance to relative rather than absolute income (Easterlin 2001, 2003, 2004; Clark and Oswald 1996; Blanchflower and Oswald 2004; Clark et al. 2008; Kahneman and Krueger 2006; Gandhi and Knight 2006, 2007). Further, there is some evidence indicating there are differences in the strength of reference group dependence based on the proximity of the reference-group (Festinger 1954; Gastorf and Suls 1978; Falk and Knell 2004).

But positional concerns are not only relevant relative to others. The Theory of Aspirations states that the degree of satisfaction of a person is a function of the gap between what she has and what she aspires to have, where people that achieve their aspirations consider themselves better off (Easterlin 2001; Stutzer 2004). Not only does the magnitude of the gap matters to wellbeing but also the response to changes in that gap. Easterlin (2003) states that as we move along stages of the life cycle, we tend to acquire goods and achieve goals. Achievements change not only our current conditions, but they change our aspirations; more material aspirations arise as previous ones are satisfied. This snowball effect becomes even more evident among the better educated as their aspirations increase more and more rapidly (Easterlin 2003).

I take the subjective approach to examine whether subjective poverty assessments exhibit reference-dependence using a survey conducted in Mexico in 2001. Most of the literature on reference-group dependence has focused on studying developed countries (see Ravallion and Lokshin 2010; and Carlsson et al. 2009 for exceptions). Mexico provides an interesting setting to examine reference-dependence because, even though it is a developing country with a significant prevalence of poverty, the income distribution

is considerably dispersed. In this survey individuals were asked to rate their income relative to the income of a reference group, their income aspirations and their income 3 years ago. The reference-group income gap indicator I use, allows the individual to choose their reference group, and therefore the proximity to that reference group, by rating their relative position with respect to people they coexist with. Easterlin (2003) identified that the magnitude of the gap between what someone has and what they aspired to have, the change in the gap over time, and the achievement of goals (reduction of previously identified gaps) influence people's assessments of wellbeing. To account for this, in addition to the gap with respect to a reference group, an indicator that rates the income gap between what the individual aspired to have achieved by the current stage of their life and their current income is also considered. Further, the literature on poverty is heading towards the incorporation of how previous episodes of poverty affect the prevalence and the depth of poverty at any given time. In order to capture reference-dependence with respect to previous income, I include an indicator of the difference between current and the level of income 3 years ago.

This paper contributes to the literature on poverty by providing evidence that subjective poverty assessments are subject to reference-dependence with respect to others' income and income aspirations, but not with respect to previous levels of income or episodes of poverty. Main findings indicate that when a person's income is below their reference group's income, they are on average more likely to be subjectively poor compared to a person whose income is as good as their reference group's. This result, however, is driven by the middle class (individuals in the third and fourth quintile of expenditure). The main policy implication of reference-dependence influencing subjective poverty assessments among the middle classes being that subjective poverty indicators can be overestimating the poor because individuals are less likely to report their income is sufficient (or to be unsatisfied) when they do not exceed the level of income of their reference group.

These findings also contribute to the literature on reference-dependence in that it provides further evidence that one's relative income position with respect to different reference points correlate with subjective poverty assessment. For instance, subjective poverty assessments of the poor (individuals in the first quintile of expenditure) are influenced more by the inability to achieve income aspirations than by differences with respect to others, whereas for the middle class both reference points can be important. Finally, this paper provides evidence that at a given point in time, the difference between current income and the income observed in previous years does not affect subjective poverty, thus it is unlikely to be dependent upon previous episodes of poverty either. This evidence suggests that individuals are forward looking in their subjective poverty assessments because achievement of aspirations correlates more strongly than the extent to which income compares to the levels attained 3 years ago.

The paper is organized as follows: in section 2, I discuss the dataset, the definition of the relevant variables and descriptive statistics are presented; in section 3; I specify an empirical model; in section 4, I discuss main findings, implications and results. Finally, conclusions are presented in section 5.

2 The survey and descriptive results

2.1 The data

I use the household survey 'Encuesta sobre Bienestar Subjectivo en Mexico' conducted between October and November of 2001 for 1,535 households in 5 states of central and southern Mexico (Oaxaca, Puebla, Veracruz, Tlaxcala and Estado de Mexico) and the Federal District (Mexico City). This stratified random-sample was balanced by household income decile, gender and rural/urban area. Interviewed people fall into all income level categories, though presenting some underrepresentation at the lowest decile of income and overrepresentation on the top national deciles. The sample of 1,535 questionnaires had a response rate of 96 per cent in the household-income and 97 per cent in the personal expenditure question. The response rate for the subjective poverty and reference-income indicators, however, was 86 per cent, which is a considerable reduction from the original sample. For this reason, in Appendix I, I present a series of tests for attrition bias and find no evidence of systematic differences on average in the outcome variables, the reference-income variables and in most some socio-economic characteristics.[1] The survey was conducted by Universidad de las Americas, Puebla using funds from CONACYT.

2.2 The variables

The survey contains general information on household characteristics, household income and variables that allow for different definitions of subjective poverty. It also contains information on ratings regarding the relative position of the respondent with respect to a reference group, their aspirations and previous income. The definitions of the variables are as follows:

Subjective poverty:

I consider two different questions as indicators of subjective poverty. Both of these indicators are derived from the subjective wellbeing and subjective poverty literature; the latter relates to the ability to meet day-to-day expenditures, whereas the former is more comprehensive in the sense that it captures the ability of income to purchase the goods and services that the individual would like to acquire. The first question (Q1) is a slightly modified version of the *Deleeck* question used to compute subjective poverty lines by the Center of Social Policy.[2] It asks 'Taking into account your material needs, do you consider that your level of income is' and there are five possible answers: (1) Insufficient to satisfy your needs; (2) Sufficient to satisfy some of your needs; (3) Sufficient to satisfy a good number of your needs; (4) Sufficient to satisfy the majority of your needs; (5) Sufficient to satisfy all of your needs.

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[1] The outcome variables are two subjective poverty indicators, one of which presents slight underrepresentation in the first category (ranking income as insufficient) and some overrepresentation in the fourth (ranking income as sufficient to satisfy the majority of needs) compared to the original sample. However, the average ranking is not significantly different from the original sample. The tables are in Appendix I.

[2] The *Deleeck* question is as follows, where the respondent has to mark only one category: 'can you make ends meet with the actual net income of your household with great difficulty, difficulty, some difficulty, rather easily, easily or very easily?' The respondents that answered with some difficulty or below usually constitute the sub-sample to construct the poverty line (Van Praag and Flik 1991).

The second question (Q2) is taken from the subjective wellbeing literature,[3] though restricting the domain only to income, as it is the interest to this paper to examine the relationship between income comparisons with respect to different reference points and subjective poverty. The question asks 'How satisfied are you with your level of income?' The seven-option scale is shown in Figure 1. The number of observations in the extreme categories is very low, thus I collapsed the extremely and very unsatisfied (satisfied) categories. Further, in order to avoid specifying a threshold blow which an individual is subjectively poor, I use the entire range of possible values.

Figure 1:

1	2	3	4	5	6	7
Extremely Unsatisfied	Very Unsatisfied	Unsatisfied	Same	Satisfied	Very Satisfied	Extremely Satisfied
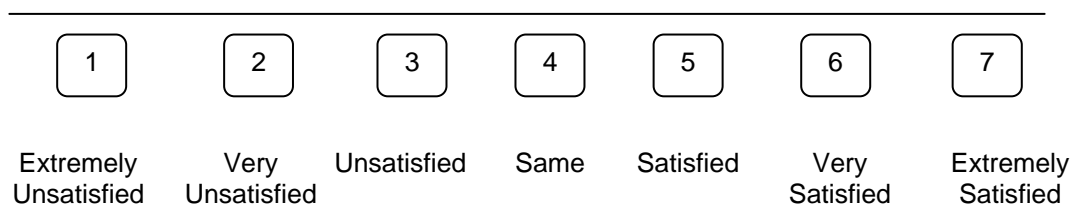
Reference point variables:

Three benchmarks are considered as reference points: (1) the income of a reference group; (2) the level income the respondent aspired to have accomplished by the current stage of their life; and (3) the level of their income 3 years ago. The question for the reference-group gap asks 'How would you rate your income relative to the people you coexist with?' This allows the respondent to choose the reference group that they considers appropriate. The question for aspiration gaps asks 'How would you rate your income relative to what you aspired to have accomplished by this stage of your life?' Finally, the question for historical income gaps asks 'How would you rate your current income relative to your income 3 years ago?' Respondents were asked to use the seven-option rating scale specified in Figure 2 in all three cases. The proportion of respondents in the extremely below and above categories was very small, so I collapsed these with the considerably below and considerably above categories respectively.

Figure 2:

1	2	3	4	5	6	7
Extremely below	Considerably below	Slightly below	As good as	Slightly above	Considerably above	Extremely above

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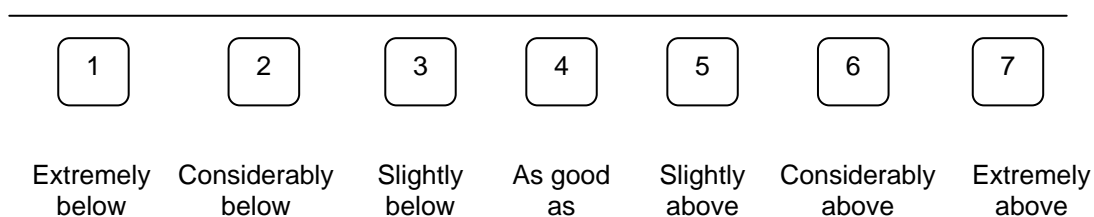
[3] The literature on subjective wellbeing uses life satisfaction indicators to measure welfare (Rojas (2008); Ravallion and Lokshin (2010)). The question and the possible values are essentially the same, except that in my case I restrict the domain to income.

Socio-demographic characteristics:

Dependents: The number of dependents of the household. *Age*: respondent age. *Gender:* indicator variable equal to 1 if male. *Marital status:* indicator variable equal to 1 if single. *Education:* categorical variables for the individual's level of education and father's level of education equal to 1 = illiterate, 2 = elementary education, 3 = secondary education, 4 = high school, 5 = technical degree, 6 = college and 7 = graduate education. *Health*: lifetime health indicator where 1 is excellent health and 5 equals terrible health. *Floor material:* categorical variable equal to 1 if the material used in the floor of their house is soil, 2 if it is hard floor and 3 if it is wood.

Economic variables:

Personal expenditure: monthly expenditure in thousands of pesos of the respondent of the survey. *Remunerated work*: it is an indicator variable equal to 1 if the individual has a remunerated job; *Debt*: it is an indicator variable equal to 1 if the individual acquired debt.

2.3 Subjective poverty and reference-point dependence

Table 1 contains frequencies of the reference-income indicators by category of the subjective poverty variables. There seems to be a correlation between the frequency of reporting income is insufficient and considering current income is below that of the reference group: 43 per cent of the respondents that consider their income insufficient to satisfy their needs state that their level of income is below the people they co-exist with. Further, 48 per cent of those that report their income is sufficient to satisfy all of their needs consider their income is above their reference group. Only 5 per cent of the sample is either extremely or very unsatisfied with their income, nonetheless, among this group 60 per cent rates their income as being below their reference group, whereas 55 per cent of those that are extremely or very satisfied with their income report their income is above their reference group's. But even among those in the unsatisfied category, which contains 30 per cent of the sample, the majority consider income is below their reference group.

Similar results can be observed regarding the income aspirations indicator, where 47 per cent of the respondents that report their income is insufficient, and 67 per cent of those that are extremely or very unsatisfied with their income, consider their income is below what they aspired to have accomplished by the current stage of their lives. Conversely, 55 per cent of the individuals that state their income is sufficient to satisfy all of their needs, and 69 per cent of those that are extremely or very satisfied with their income, report their income is above their aspirations. This suggests that there is a tendency to report income is below either aspirations or the level of income of the reference group when income is considered to be insufficient to satisfy the household's needs, and to switch to considering it is above when it is considered sufficient to satisfy most or all of their needs. Interestingly, regardless of the rating on the income sufficiency question, the majority of the sample considers their income has improved compared to their income 3 years ago. The same holds for the income satisfaction indicator, except for the extremely or very unsatisfied category where 47 per cent report their income is below the level they had 3 years ago.

Table 1: Frequency of reference-income indicators by subjective poverty indicator category

Category	Y Sufficient [a]						Y Satisfaction [b]					
	Below		As Good As		Above		Below		As Good As		Above	
	Freq.	% Freq.	Freq.	% Freq.	Freq.	% Freq.	Freq.	% Freq.	Freq.	% Freq.	Freq.	% Freq.
Reference Group Gap												
1	113	42.97	102	38.78	48	18.25	33	60.00	15	27.27	7	12.73
2	157	29.68	245	46.31	127	24.01	183	44.20	168	40.58	63	15.22
3	30	21.90	63	45.99	44	32.12	30	21.28	81	57.45	30	21.28
4	34	13.08	121	46.54	105	40.38	80	14.98	264	49.44	190	35.58
5	17	13.39	49	38.58	61	48.03	25	14.53	52	30.23	95	55.23
Historical Y Gap												
1	69	26.24	72	27.38	122	46.39	26	47.27	15	27.27	14	25.45
2	108	20.42	158	29.87	263	49.72	118	28.50	121	29.23	175	42.27
3	14	10.22	43	31.39	80	58.39	27	19.15	47	33.33	67	47.52
4	24	9.23	75	28.85	161	61.92	52	9.74	155	29.03	327	61.24
5	19	14.96	22	17.32	86	67.72	11	6.40	32	18.60	129	75.00
Y Aspirations Gap												
1	124	47.15	66	25.10	73	27.76	37	67.27	10	18.18	8	14.55
2	230	43.48	121	22.87	178	33.65	245	59.18	82	19.81	87	21.01
3	33	24.09	42	30.66	62	45.26	53	37.59	48	34.04	40	28.37
4	45	17.31	71	27.31	144	55.38	104	19.48	157	29.40	273	51.12
5	24	18.90	33	25.98	70	55.12	17	9.88	36	20.93	119	69.19

a/ Do you consider your income is: 1 = insufficient, 2 = Sufficient to satisfy some needs, 3 = Sufficient to satisfy most needs, 4 = the majority of needs, 5 = all needs.

b/ How satisfied are you with your level of income? 1 = extremely or very unsatisfied, 2 = unsatisfied, 3 = as satisfied as unsatisfied, 4 = satisfied, 5 = very or extremely satisfied.

2.4 Reference-point gaps and income

In Table 2, frequencies of the reference-income indicators by expenditure quintile are presented. The majority of the sample reports their income is as good as their reference group regardless of the level of expenditure, however, there is a decreasing tendency in the proportion of individuals that consider their income is below the people they co-exist with as expenditure increases. Conversely, the proportion of respondents that state their income is better than their reference group increases from 19.6 per cent in the first quintile, to 45 per cent in the fifth.

For the case of income aspirations, the proportion of respondents that consider their income is below what they had aspired goes from 48 per cent in the first quintile, to 21 per cent in the fifth, whereas the percentage of individuals that report their income is above goes from 23 per cent in the first quintile, to 58 per cent in the fifth. Relative to the level of income attained 3 years ago, the percentage of individuals that consider their income is above increases as the level of expenditure increases, while the proportion of individuals that report their income is below decreases as expenditure rises. This suggests there is a tendency to consider income as being above the 3 distinct reference points as individuals move up in the expenditure distribution.

3 Empirical approach: testing for income reference-dependence

How a person assesses the wellbeing derived from an outcome is often determined as much by its contrast with a reference point as by the intrinsic taste for the outcome itself. In this paper, I conceive poverty as the absence of subjective wellbeing derived from income, and examine how subjective poverty assessments not only depend on the absolute level of income, but on how it compares to different reference points. I acknowledge that the literature on poverty is heading towards a multidimensional approach, however data limitations do not allow me to focus on further dimensions of wellbeing.

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Table 2: Frequency of reference-income indicators by expenditure quintile

Indicator	1		2		3		4		5	
	Freq.	% Freq.	Freq.	% Freq.	Freq.	% Freq.	Freq.	% Freq.	Freq.	% Freq.
Reference Group Gap										
Below	107	38.21	86	28.96	88	28.03	38	17.84	32	15.09
As Good As	118	42.14	129	43.43	145	46.18	105	49.30	83	39.15
Above	55	19.64	82	27.61	81	25.80	70	32.86	97	45.75
Historical Y Gap										
Below	66	23.57	59	19.87	52	16.56	32	15.02	25	11.79
As Good As	104	37.14	83	27.95	89	28.34	45	21.13	49	23.11
Above	110	39.29	155	52.19	173	55.10	136	63.85	138	65.09
Y Aspirations Gap										
Below	135	48.21	113	38.05	97	30.89	66	30.99	45	21.23
As Good As	78	27.86	75	25.25	88	28.03	50	23.47	42	19.81
Above	67	23.93	109	36.70	129	41.08	97	45.54	125	58.96
Expenditure *(thousands of pesos)*										
No. Obs.	280		297		314		213		212	
Mean Expenditure	0.365		0.855		1.687		3.170		7.953	
Std. Dev.	0.136		0.159		0.305		0.577		4.273	

Consider the utility derived from income (or indirect utility) as the underlying variable of interest. We can allow indirect utility to be the result of a continuous mapping from the level of income into utility space, as well as a function of the distance of current income to a reference point. Following, Koszegi and Rabin (2006), utility would be of the following form:

$$u_i^*(y|r) = m(y_i) + \delta[m(y_i) - m(r_i)]$$

Where y_i is individual *i's* level of income, r_i is i's reference level of income, and δ is some parameter. Let's assume for simplicity that indirect utility is linear in parameters, and that the individual derives wellbeing from comparison of income to more than one reference point, in this case, with respect to the level of income of a reference group (rg_i), the level the individual had aspired to have accomplished by the current stage of her life (a_i), and her income 3 years ago ($y_{i,t-3}$). Then we can specify the indirect utility function as follows:

$$u_i^*(y|r, a, y_{t-3}) = \alpha_1 y_i + \sum_{k=1}^{3} \delta_k [y_i - r_i^k] \quad \text{where } r_i^1 = rg_i; r_i^1 = a_i; r_i^3 = y_{i,t-3}.$$

In the data, however, the actual utility derived from income is unobserved, instead a rating of income satisfaction or sufficiency is available on a scale of 1 to 5, which is increasing in the wellbeing derived from income. An ordered probability model makes it is possible to estimate the parameters of an assumed utility function, where an additive random error term is introduced to capture unobserved individual heterogeneity. Define u_i as the observed utility from income, such that:

$$u_i = m \quad if \quad \theta_{m-1} \leq u_i^*(y|r) \leq \theta_m$$

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where $m=\{1,2,3,4,5\}$, $\theta_0 = -\infty$, $\theta_6 = \infty$, and $u_i^*(y|r,a,y_{t-3}) = \alpha_1 y_i + \sum_{k=1}^{3} \delta_k[y_i - r_i^k] + \varepsilon_i$. Then, the probability that the wellbeing derived from income takes value m is given by:

$$P[u_i = m|y,r,a,y_{t-3}] = P[\theta_{m-1} \leq u_i^*(y|r,a,y_{t-3}) \leq \theta_m]$$

$$= P[\theta_{m-1} \leq \alpha_1 y_i + \sum_{k=1}^{3} \delta_k[y_i - r_i^k] + \varepsilon_i \leq \theta_m]$$

$$= F(\theta_{m-1} - \alpha_1 y_i + \sum_{k=1}^{3} \delta_k[y_i - r_i^k] + \varepsilon_i)$$

$$- F(\theta_m - \alpha_1 y_i + \sum_{k=1}^{3} \delta_k[y_i - r_i^k] + \varepsilon_i)$$

Where $F(\cdot)$ is some cumulative density function. The marginal effect of the gap between the actual level of income and the reference point k would be given by:

$$\frac{\partial P[u_i = m|y,r,a,y_{t-3}]}{\partial[y_i - r_i^k]} = \delta_k[F(\theta_{m-1} - \alpha_1 y_i + \sum_{k=1}^{3} \delta_k[y_i - r_i^k]) - F(\theta_m - \alpha_1 y_i + \sum_{k=1}^{3} \delta_k[y_i - r_i^k])]$$

Further, Reference-Utility Theory indicates that there are differences in how individuals value the wellbeing derived from an outcome depending on whether it falls below or above a reference point (Kahneman and Tversky 1992; Koszegi and Rabin 2006). Thus, it is of interest not only to obtain the marginal effect of the gap between the actual level of income and the reference point, but to test for differences between being above or below the reference point. A further limitation of the data consists on only observing ratings of how current income compares to the income of the reference point, and not the actual value of the gap nor the reference point itself. So, in order to test for differences between positive and negative gaps, instead of comparing the wellbeing derived from income holding the reference point constant, I can only compare the average wellbeing of those that reported their income was below (or above) the reference point with the average wellbeing of those that reported their income was 'as good as' the reference point.

In order to test for differences in subjective poverty between those above and below the reference point, and using proxies for the income gaps with respect to the three different reference points, the probability that utility takes the value m is given by:

$$P[u_i = m|y,G,X,E] = P[\alpha_1 y_i + \delta_N^k NegG_i + \delta_P^k PosG_i + \varepsilon_i]$$

where: $NegG_i$ is a $(1 \times k)$ vector containing indicator variables equal to 1 if income is below the 'as good as' category, and 0 otherwise, and $PosG_i$ is a $(1 \times k)$ vector containing indicator variables equal to 1 if the rating is above the 'as good as' category, and 0 otherwise, where k is equal to 3 referring to the income gap with respect to reference-group, income aspirations, and income 3 years ago.

In what follows I present the results for two different subjective poverty indicators, income satisfaction and income sufficiency to satisfy basic needs. In order to avoid the results being subject to the choice of the poverty threshold, instead of dichotomizing these variables into poor and not poor, I take the entire range of values and estimate the probability of subjective poverty as the likelihood that an individual is unsatisfied with their income, or considers their income insufficient to satisfy their needs.

4 Are subjective poverty assessments reference-dependent? Econometric analysis and results

As mentioned in the previous section, there are two main limitations in the data: actual wellbeing is unobserved, and neither is the income of the reference group, income aspirations or the level of income 3 years ago. The first concern is addressed by using an ordered probability model on two categorical indicators of the wellbeing derived from income: income satisfaction and income sufficiency. The second limitation, is addressed by using categorical ratings on how income compares to different reference points as proxies for the distance (or gap) to the reference point. Further, it has been documented that in developing countries, individuals do not have a well defined concept of income, which causes measurement error (Ravallion and Pradhan 2000). In order to address this, instead of including the level of income in the empirical model, I use expenditure; and assume that the error with which own income and the income of the reference point is processed by the individual affects own income in the same proportion as it affects other's, aspired or past income.

I use an *Ordered Linear Probability Model* to estimate the probability of subjective poverty, though in Appendix II, I present estimates of an *Ordered Probit* which are essentially the same, though for ease of interpretation in the core of the paper I use the linear results. The error term accounts only for unobserved heterogeneity, so in order to control for observed heterogeneity I include some socio-economic characteristics. The equation to be estimated is then:

$$P[u_i^h = m|y,r,a,y_{t-3}] = P[\alpha_1 y_i + \delta_N^k NegG_i + \delta_P^k PosG_i + \beta X_i + \pi E_i + \varepsilon_i]$$

where: u_i^h is a categorical variable taking values from 1 to 5, where h indicates subjectively poverty measured by Qh. Using two different indicators of subjective poverty allows testing for robustness to framing effects. The variables $NegG_i$ and $PosG_i$ are $(1 \times k)$ vectors containing indicator variables equal to 1 if income is below the 'as good as' category for the former and above for the latter, and 0 otherwise, where k is equal to 3 referring to the income gap with respect to reference-group, income aspirations, and past income. The vector X_i contains control variables on the socio-economic characteristics specified in section 2. The vector E_i consists of two variables controlling for the state of mind of the individual at the time of the survey. These variables are the first and second principal components constructed from dummy variables of the individuals' mood based upon the ABS scale.[4]

The empirical approach is descriptive, in the sense that it is not this paper's goal to establish causality from relative income assessments to subjective poverty, or to determine the magnitude of the effect of reference-dependence on subjective poverty. The objective is to examine, conditional on some socio-economic characteristics, if there exists a relation between subjective poverty assessments and reference-dependence, and to test for average differences in the probability of subjective poverty

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[4] The emotion variables are the first and second principal component of 10 dummy variables associated to Mood and Emotional State on the ABS scale. These dummies are equal to 1 if the individual answered yes to being (a) interested in something; (b) tired; (c) proud; (d) alone, far away from others; (e) content because of achievements; (f) bored; (g) at the top of the world; (h) depressed; (i) things are going as they want; (j) angry and critiqued; and 0 otherwise.

depending on whether the respondent's income falls above or below the three reference points considered. Thus, the underlying identification assumption for the validity of the tests is that there are no differences in the likelihood of stating that income is above, as good as, or below the reference point due to omitted variable or measurement error bias.

Table 3 presents results for the two subjective poverty indicators. Columns (1) and (3) contain the results where the individual's relative position improves relative to the reference point as the gap indicator increases (according to the scale presented in Figure 2), whereas columns (2) and (4) contain the results allowing for differences between being above or below the reference point, where the category 'as good as' is the baseline. Appendix III contains results of the tests for differences between those extremely (above) or considerably below (above) and those slightly below (above) each reference point. The tests for differences in the probability of subjective poverty within negative and positive gaps were generally insignificant, except for income aspirations gaps in the probability of being satisfied with the level of income. So, in what follows, I present results allowing only for different parameters if income is above or below the reference point.

First, I estimate the probability of being subjectively poor restricting the marginal change across categories of the gap indicators to be equal across all ranges (Columns (1) and (3) in Table 3). The results indicate that as the individual's relative income position with respect to their reference group or their income aspirations improves, the likelihood that their income is sufficient to satisfy their needs, or that they are satisfied with their level of income increase. Contrastingly, the relative position of income with respect to past levels of income does not significantly correlate with subjective poverty assessments, suggesting that subjective poverty is not sensitive to previous episodes of income poverty. When I allow for differences based upon the relative position of income, however, the inability to exceed the level of income observed 3 years ago significantly decreases the probability of income satisfaction. This implies that subjective poverty assessments are reference-dependent because, conditional on the level of income (or in this case expenditure), the utility derived from income increases as income relative to other's improves, and as income aspirations are fulfilled.

There are differences in subjective poverty assessments depending on whether current income is above or below reference points.[5] Results indicate that an individual is equally less likely to consider their income is sufficient when their income is below their reference group's income, as they are more likely to consider their income is sufficient when it is above, and this holds for income satisfaction as well. This result suggests that conditional on expenditure, education, the rest of the control variables, a person's subjective poverty assessment is correlates with how their income compares to others'. This result holds even when the gap with respect to income aspirations is being controlled for, such that differences with respect to other's influence subjective poverty assessments in addition to their potential role in forming income aspirations.

If these results held for the entire income distribution, a person that is poor and is above the people they co-exist with, which are also likely to be poor, would be as likely to consider their income is sufficient as a person who is in the upper classes, which is not a

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5 Appendix III contains estimates allowing for differences between being extremely or below (above), compared to slightly below (above), and the tests indicate no significant differences across categories, thus the estimates presented only differentiate between positive and negative gaps.

desirable feature to observe in poverty indicators. To examine whether results are being driven by specific segments of the expenditure distribution, in Table 4, I present estimates by expenditure quintile. In particular, I find that the middle class, individuals in the third and fourth quintiles of expenditure, are significantly less likely to be satisfied with their income (or consider their income is sufficient) when their income is below their reference group. This is consistent with findings of 'Keeping up with the Joneses'' from developed countries (Johansson-Stenman et al. 2002 in Sweden; Solnick and Hemenway 1998 in the US). The difference in the probability of being subjectively poor when income is above the people they co-exist with, however, is being driven by individuals in the first and second quintiles of income. The first quintile is the only case in which being above other's income increases the probability that an individual considers their income is sufficient, though this result is weak (only significant at the 90 per cent level). In the case of income satisfaction, this result is driven by those in the second quintile of expenditure, and the difference is significant at the 99 per cent confidence level.

Interestingly, the probability that income is sufficient is on average significantly lower when income is below aspirations relative to when it is equally as good, whereas there are no differences when income exceeds aspirations. Results further indicate that subjective wellbeing derived from income increases at a decreasing rate as the relative position with respect to aspirations improves: it is on average higher when income aspirations are fulfilled relative to when income is below, compared to the case when aspirations are exceeded. Results by income quintile differ considerably across the two indicators of subjective poverty. The difference in the probability of considering income sufficient between those whose income is below and equally as good aspirations is driven by the upper-middle class, whereas the differences for income satisfaction hold regardless of the expenditure quintile. When income is above aspirations, however, the differences in income satisfaction are driven by those in the third quintile of expenditure, who are significantly more likely to be satisfied with their income if it has exceeded the level they had aspired to accomplish by the current stage of their lives.

The extent to which income compares to the levels attained 3 years ago does not influence the decision to report income as insufficient, whereas income satisfaction is significantly lower when income is below. Though for either indicator, there are no significant differences for any specific segment of the expenditure distribution. There is likely to be attenuation bias in the income gap with respect to previous income because a time span of 3 years might not be enough to attain significantly different levels of income. A year before the period of time that the survey was conducted, there was a change in political regime, and throughout the 3 years before the survey there was very little economic growth in Mexico, making it unlikely that economic conditions at the microeconomic level had changed considerably.

The evidence of reference-dependence for the first quintile of expenditure, which contains the segment of the population below the national poverty line, suggests that subjective poverty assessments of the poor are influenced more by the inability to achieve income aspirations than by differences with respect to others. Reference-group dependence among individuals with low income levels, particularly when exceeding the level of income of their reference group positively relates to the utility they derive from income, is not a desirable feature to observe in poverty indicators, nonetheless this evidence is weak. Conversely, the finding that income satisfaction decreases when

income is below aspirations is quite strong, though the poor are likely to have low income aspirations to begin with, and not being able to accomplish the aspired level of income is an aspect of relative deprivation that it is desirable for a subjective poverty indicator to capture.

Reference-dependence influencing subjective poverty assessments among the upper and middle classes suggests that subjective poverty indicators can be overestimating the poor because individuals are less likely to report their income is sufficient, or to be satisfied with their level of income, due to behaviour consistent with 'Keeping up with the Joneses'' findings in developed countries (Johansson-Stenman et al. 2002 in Sweden; Solnick and Hemenway 1998 in the US). These findings are further supported by the work of Ravallion and Lokshin (2010) and Carlsson et al. (2009) who evidence that non-poor classes in developing countries are equally likely to care about their relative position with respect to others as individuals in developed countries. In the income aspirations dimension, respondents are less likely to be satisfied with their income if income aspirations are not fulfilled, but this holds regardless of the quintile of expenditure (except for the 3rd quintile). This suggests that over time, individuals' subjective poverty assessments are forward instead of backward looking; the inability to accomplish the aspired level of income goal strongly correlates with subjective poverty assessments, even if short term improvements in income (with respect to 3 years ago) do not seem to be as relevant.

Table 3: Full-sample estimates of subjective poverty a/

	Y Sufficient		Y Satisfaction	
	(1)	(2)	(3)	(4)
Reference Group Gap	0.144***		0.186***	
(1=Ext. Below, 7=Ext. above)	(0.039)	-	(0.038)	-
Historical Y Gap	-0.032		0.048	
(1=Ext. Below, 7=Ext. above)	(0.037)	-	(0.036)	-
Y Aspirations Gap	0.141***		0.272***	
(1=Extremely. Below, 7=Extremely. above)	(0.035)	-	(0.034)	-
RG Negative Gap		-0.213***		-0.231***
(1= Ext. Below, Below, Slightly Below)	-	(0.078)	-	(0.078)
RG Positive Gap		0.207**		0.245**
(1= Ext. Above, Above, Slightly Above)	-	(0.083)	-	(0.068)
Historical Y Negative Gap		-0.017		-0.205**
(1= Ext. Below, Below, Slightly Below)	-	(0.097)	-	(0.093)
Historical Y Positive Gap		-0.039		0.018
(1= Ext. Above, Above, Slightly Above)	-	(0.080)	-	(0.071)
Y Aspirations Negative Gap		-0.276***		-0.530***
(1= Ext. Below, Below, Slightly Below)	-	(0.088)	-	(0.081)
Y Aspirations Positive Gap		0.032		0.160**
(1= Ext. Above, Above, Slightly Above)	-	(0.091)	-	(0.075)
Personal Expenditure [b/]	0.046**	0.046***	0.027***	0.028***
(thousands of pesos)	(0.012)	(0.013)	(0.009)	(0.009)
Constant	0.804**	1.924***	1.420***	3.685***
	(0.354)	(0.326)	(0.313)	(0.282)
N	1316	1316	1316	1316
R^2	0.201	0.2032	0.3091	0.3121

a/ Regression results include all control variables. Full results are presented in Appendix II.

b/ The exchange rate in 2001 was approximately 9.3 Mexican Pesos per US$.

Note: Robust Standard Errors in Parentheses.

*** p-value< 0.01, ** p-value < 0.05, * p-value< 0.1.

Table 4: Results by expenditure quintile a/

	Y Sufficient					Y Satisfaction				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
RG Negative Gap (1 = Ext. Below, Below, Slightly Below)	-0.143 (0.128)	0.005 (0.180)	-0.730*** (0.162)	0.120 (0.182)	-0.525* (0.283)	-0.028 (0.142)	-0.013 (0.178)	-0.463*** (0.170)	-0.568** (0.231)	-0.291 (0.235)
RG Positive Gap (1 = Ext. Above, Above, Slightly Above)	0.458* (0.241)	0.205 (0.191)	0.195 (0.173)	0.071 (0.202)	0.155 (0.212)	0.090 (0.193)	0.464*** (0.134)	0.244 (0.154)	0.098 (0.178)	0.029 (0.164)
Historical Y Negative Gap (1 = Ext. Below, Below, Slightly Below)	-0.105 (0.152)	-0.024 (0.228)	-0.074 (0.226)	0.227 (0.271)	0.088 (0.382)	-0.286 (0.173)	-0.177 (0.183)	-0.259 (0.226)	-0.054 (0.278)	-0.200 (0.276)
Historical Y Positive Gap (1 = Ext. Above, Above, Slightly Above)	-0.191 (0.155)	-0.146 (0.186)	-0.048 (0.168)	0.174 (0.209)	-0.118 (0.207)	-0.062 (0.163)	-0.076 (0.143)	0.110 (0.179)	0.027 (0.212)	-0.229 (0.187)
Y Aspirations Negative Gap (1 = Ext. Below, Below, Slightly Below)	-0.196 (0.143)	-0.271 (0.185)	-0.012 (0.206)	-0.504** (0.235)	0.208 (0.303)	-0.556*** (0.164)	-0.518*** (0.166)	-0.091 (0.199)	-0.893*** (0.221)	-0.739*** (0.262)
Y Aspirations Positive Gap (1 = Ext. Above, Above, Slightly Above)	0.199 (0.247)	0.062 (0.203)	0.087 (0.188)	0.030 (0.247)	0.132 (0.238)	0.322 (0.223)	0.086 (0.148)	0.361** (0.180)	0.019 (0.196)	0.075 (0.199)
Personal Expenditure b/ (thousands of pesos)	0.720* (0.417)	0.349 (0.455)	-0.295 (0.226)	0.006 (0.135)	0.014 (0.018)	-0.003 (0.450)	-0.188 (0.403)	-0.114 (0.226)	-0.068 (0.138)	0.028* (0.015)
Constant	2.482*** (0.524)	0.739 (0.780)	2.646** (1.034)	2.486*** (0.899)	1.310 (0.989)	4.793*** (0.658)	2.723*** (0.596)	3.351*** (0.781)	4.894*** (0.858)	3.476*** (0.832)
N	280	297	314	213	212	280	297	314	213	212
R^2	0.333	0.182	0.265	0.225	0.388	0.364	0.360	0.308	0.463	0.395

a/ Regression results include all control variables. Full results are presented in Appendix II.

b/ The exchange rate in 2001 was approximately 9.3 Mexican Pesos per US$.

Note: Robust Standard Errors in Parentheses.

*** p-value< 0.01, ** p-value < 0.05, * p-value< 0.1.

Some caveats:

The validity of the tests conducted above relies on there not being any differences in unobservable characteristics influencing the decision to rate income as being above, or below the reference point relative to being 'as good as', such that comparisons still hold. If the poor are more likely to choose their reference group from a tighter distribution than the middle or upper class, then they would perhaps be more likely to report their income is as good as others', thus less likely to consider they are above or below their reference group. Also, a tighter distribution would imply that the availability of goods and services in the community would be somewhat homogeneous, thus making them more likely to consider their income is sufficient, biasing the coefficients downwards. However, the tests conducted in this paper mainly compare the average likelihood of subjective poverty across three different categories: being above, as good as or below the reference group. Thus a downward bias would be proportional to the three categories, affecting the absolute magnitude of the effect, and not relative to other categories.

In the case of aspirations, if those that are better off are adjusting their aspirations more rapidly, they would be more likely to consider their current income is below what they had aspired by this stage of their lives. Also, if they are adjusting their aspirations more rapidly, they would be demanding more and more expensive goods and services which would make them less likely to consider their income sufficient or to be satisfied with their income. However unless, the speed of adjustment of aspirations increases the probability of considering income is below aspirations in a different proportion as it decreases the probability of considering it is above aspirations, the downward bias would not affect the validity of the tests.

5 Conclusions

The literature on status and relative income has found that wellbeing depends on absolute income, as much as it depends on the relative income position, not only with respect to others but compared to income expectations and previous experiences. Most of the literature that has taken the subjective approach has focused on the relation between life satisfaction or happiness and reference-dependence, however, not much work has taken interest on how subjective poverty assessments can be influenced by the way income compares to reference points. In this paper, I examined the relation between subjective poverty and reference-dependence with respect to three reference points: the income of a reference group, the level of income that the individual had aspired to have accomplished by the current stage of their life, and the income they had 3 years ago.

I found that subjective poverty assessments are reference-dependent with respect to the level of income of the people individuals co-exist with and to income aspirations, but not relative to previous levels of income. These findings however seem to be driven by specific segments of the expenditure distribution: those in the lower expenditure quintiles are more likely to be satisfied with their income (or consider their income is sufficient) when they exceed the level of income of their reference group, while the upper-middle classes are less likely to be satisfied with their income (or consider it is sufficient) when they do not exceed both, others' income or income aspirations. The main policy implication of these findings is that subjective poverty indicators can be overestimating the poor because individuals in the middle class are more likely to report their income is insufficient, or to be unsatisfied with their income, when their income aspirations have not fulfilled or they have been unable to exceed the level of income of the people they co-exist with.

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Appendix I: Attrition Tests

Table 5: Tests for differences in proportions, in-sample vs. out-of sample

Variable	Freq.	Difference
Y Sufficient (average)	2.432	0.156
	(0.116)	(0.121)
Y Sufficient	0.291	-0.09**
(=1 if Insufficient)	(0.039)	(0.040)
Y Sufficient	0.350	0.051
(=1 if Sufficient to satsfy some needs)	(0.041)	(0.043)
Y Sufficient	0.119	-0.01
(=1 if Sufficient to satsfy a good number of your needs)	(0.028)	(0.029)
Y Sufficient	0.111	0.085***
(=1 if Sufficient to satsfy the majority needs)	(0.027)	(0.029)
Y Sufficient	0.126	-0.03
(=1 if Sufficient to satsfy all needs)	(0.028)	(0.029)
Y Satisfaction (average)	3.181	0.087
	(0.084)	(0.090)
Y Satisfaction	0.080	-0.03*
(=1 if Extremely or Very Unsatisfied)	(0.019)	(0.020)
Y Satisfaction	0.277	0.036
(=1 if Unsatisfied)	(0.031)	(0.034)
Y Satisfaction	0.126	-0.01
(=1 if As satisfied as unsatisfied)	(0.023)	(0.025)
Y Satisfaction	0.409	-0.00
(=1 if Satisfied)	(0.034)	(0.037)
Y Satisfaction	0.106	0.024
(=1 if Extremely or Very Satisfied)	(0.021)	(0.023)

Note: Tests conducted regressing each variable as a function of an indicator variable equal to 1 if in-sample, and 0 otherwise. Standard Errors in parentheses.
*** p-value< 0.01, ** p-value < 0.05, * p-value< 0.1.

Table 6: Tests for average differences, in-sample vs. out-of sample

Variable	Mean	Difference
Reference Group Gap	4.135	-0.08
(1=Ext. Below, 7=Ext. above)	(0.080)	(0.085)
Historical Y Gap	4.444	0.047
(1=Ext. Below, 7=Ext. above)	(0.078)	(0.083)
Y Aspirations Gap	4.026	0.100
(1=Extremely. Below, 7=Extremely. above)	(0.086)	(0.091)
Personal Expenditure	2.175	0.292
(thousands of pesos)	(0.404)	(0.413)
Age	36.11	-0.52
	(1.144)	(1.203)
ABS Scale First Principal Component	65.38	0.741
	(1.747)	(1.881)
ABS Scale Second Principal Component	58.98	2.665
	(1.789)	(1.906)

Note: Tests conducted regressing each variable as a function of an indicator variable equal to 1 if in-sample, and 0 otherwise. Standard Errors in parentheses. *** p-value< 0.01, ** p-value < 0.05, * p-value< 0.1.

Table 7: Tests for differences in proportions, in-sample vs. out-of sample

Variable	Freq.	Difference
Gender	0.456	0.100***
(=1 if Male)	(0.033)	(0.036)
Illiterate	0.037	-0.01
(=1 if Illiterate)	(0.012)	(0.013)
Elementary	0.223	-0.04
(=1 if Elementary Education)	(0.028)	(0.030)
Secondary	0.176	0.025
(=1 if Secondary Education)	(0.026)	(0.028)
High School	0.204	-0.00
(=1 if High School Education)	(0.027)	(0.029)
Technical	0.106	0.019
(=1 Technical College or Associate)	(0.021)	(0.023)
Bachelor's	0.237	0.015
(=1 College or some College)	(0.029)	(0.031)
Graduate	0.013	0.000
(=1 Graduate Education)	(0.008)	(0.008)
RG Negative Gap	0.275	-0.00
(1= Ext. Below, Below, Slightly Below)	(0.032)	(0.035)
RG No Gap	0.383	0.056
(1= As good as RG)	(0.035)	(0.038)
RG Positive Gap	0.340	-0.04
(1= Ext. Above, Above, Slightly Above)	(0.034)	(0.037)
Historical Y Negative Gap	0.196	-0.01
(1= Ext. Below, Below, Slightly Below)	(0.028)	(0.030)
Historical Y No Gap	0.308	-0.02
(1= As good as RG)	(0.032)	(0.035)
Historical Y Positive Gap	0.494	0.046
(1= Ext. Above, Above, Slightly Above)	(0.035)	(0.038)
Y Aspirations Negative Gap	0.351	-0.00
(1= Ext. Below, Below, Slightly Below)	(0.034)	(0.037)
Y Aspirations No Gap	0.292	-0.03
(1= As good as RG)	(0.033)	(0.035)
Y Aspirations Positive Gap	0.356	0.044
(1= Ext. Above, Above, Slightly Above)	(0.034)	(0.037)

Note: Tests conducted regressing each variable as a function of an indicator variable equal to 1 if in-sample, and 0 otherwise. Standard Errors in parentheses. *** p-value< 0.01, ** p-value < 0.05, * p-value< 0.1.

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Appendix II: Full Results and Robustness Checks

Table 8: Linear Probability Full-Sample Estimates of Subjective Poverty a/

| | Full-Sample | | | | By Expenditure Quintile | | | | | | | | | |
| | Y Sufficient | | Y Satisfaction | | Y Sufficient | | | | | Y Satisfaction | | | | |
	(1)	(2)	(3)	(4)	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Reference Group Gap (1=Ext. Below. 7=Ext. above)	0.144*** (0.039)	-	0.186*** (0.038)	-	-	-	-	-	-	-	-	-	-	-
Historical Y Gap (1=Ext. Below, 7=Ext. above)	-0.032 (0.037)		0.048 (0.036)		-	-	-	-	-	-	-	-	-	-
Y Aspirations Gap (1=Extremely. Below, 7=Extremely. above)	0.141*** (0.035)		0.272*** (0.034)		-	-	-	-	-	-	-	-	-	-
RG Negative Gap (1= Ext. Below, Below. Slightly Below)	-	-0.213*** (0.078)	-	-0.231*** (0.078)	-0.143 (0.128)	0.005 (0.180)	-0.730*** (0.162)	0.120 (0.182)	-0.525* (0.283)	-0.028 (0.142)	-0.013 (0.178)	-0.463*** (0.170)	-0.568** (0.231)	-0.291 (0.235)
RG Positive Gap (1= Ext. Above, Above, Slightly Above)	-	0.207** (0.083)	-	0.245** (0.068)	0.458* (0.241)	0.205 (0.191)	0.195 (0.173)	0.071 (0.202)	0.155 (0.212)	0.090 (0.193)	0.464*** (0.134)	0.244 (0.154)	0.098 (0.178)	0.029 (0.164)
Historical Y Negative Gap (1= Ext. Below, Below, Slightly Below)	-	-0.017 (0.097)	-	-0.205** (0.093)	-0.105 (0.152)	-0.024 (0.228)	-0.074 (0.226)	0.227 (0.271)	0.088 (0.382)	-0.286 (0.173)	-0.177 (0.183)	-0.259 (0.226)	-0.054 (0.278)	-0.200 (0.276)
Historical Y Positive Gap (1= Ext. Above, Above, Slightly Above)	-	-0.039 (0.080)	-	0.018 (0.071)	-0.191 (0.155)	-0.146 (0.186)	-0.048 (0.168)	0.174 (0.209)	-0.118 (0.207)	-0.062 (0.163)	-0.076 (0.143)	0.110 (0.179)	0.027 (0.212)	-0.229 (0.187)
Y Aspirations Negative Gap (1= Ext. Below, Below, Slightly Below)	-	-0.276*** (0.088)	-	-0.530*** (0.081)	-0.196 (0.143)	-0.271 (0.185)	-0.012 (0.206)	-0.504** (0.235)	0.208 (0.303)	-0.556*** (0.164)	-0.518*** (0.166)	-0.091 (0.199)	-0.893*** (0.221)	-0.739*** (0.262)
Y Aspirations Positive Gap (1= Ext. Above, Above, Slightly Above)	-	0.032 (0.091)	-	0.160** (0.075)	0.199 (0.247)	0.062 (0.203)	0.087 (0.188)	0.030 (0.247)	0.132 (0.238)	0.322 (0.223)	0.086 (0.148)	0.361** (0.180)	0.019 (0.196)	0.075 (0.199)
Personal Expenditure b/ (thousands of pesos)	0.046** (0.012)	0.046*** (0.013)	0.027*** (0.009)	0.028*** (0.009)	0.720* (0.417)	0.349 (0.455)	-0.295 (0.226)	0.006 (0.135)	0.014 (0.018)	-0.003 (0.450)	-0.188 (0.403)	-0.114 (0.226)	-0.068 (0.138)	0.028* (0.015)
Elementary (=1 if Elementary Education)	-0.21 (0.205)	-0.217 (0.206)	0.029 (0.185)	0.034 (0.190)	-0.237 (0.226)	0.069 (0.396)	-0.974 (0.705)	0.246 (0.367)	-1.032 (0.812)	-0.246 (0.319)	0.172 (0.395)	0.041 (0.383)	0.484 (0.554)	-0.976** (0.470)
Secondary (=1 if Secondary Education)	-0.05 (0.213)	-0.061 (0.214)	0.217 (0.192)	0.212 (0.197)	-0.165 (0.265)	0.053 (0.395)	-0.712 (0.717)	0.313 (0.396)	-0.763* (0.409)	-0.156 (0.353)	0.294 (0.398)	0.284 (0.363)	0.567 (0.558)	-0.296 (0.300)
High School (=1 if High School Education)	0.108 (0.230)	0.091 (0.231)	0.205 (0.201)	0.170 (0.204)	-0.310 (0.308)	0.246 (0.445)	-0.258 (0.738)	0.436 (0.412)	-0.894** (0.351)	-0.264 (0.390)	0.277 (0.413)	0.166 (0.399)	0.860 (0.572)	-0.538* (0.290)
Technical (=1 Technical College or Associate)	-0.00 (0.233)	-0.017 (0.235)	0.051 (0.207)	0.028 (0.211)	0.289 (0.367)	0.019 (0.436)	-0.453 (0.750)	0.049 (0.468)	-1.360*** (0.362)	-0.157 (0.416)	0.216 (0.429)	-0.222 (0.414)	0.948** (0.571)	-0.770*** (0.290)
Bachelor's (=1 College or some College)	0.161 (0.232)	0.137 (0.233)	0.213 (0.204)	0.170 (0.207)	0.460 (0.381)	0.216 (0.457)	-0.628 (0.738)	0.466 (0.414)	-0.572* (0.312)	0.434 (0.415)	0.209 (0.434)	-0.037 (0.405)	0.697 (0.547)	-0.381* (0.225)
Graduate (=1 Graduate Education)	0.462** (0.363)	0.448*** (0.367)	0.375 (0.279)	0.347 (0.283)	-	-	-	-0.345 (0.478)	-	-	-	-	0.021 (0.720)	-
Dad Elementary (=1 if Elementary Education)	-0.062 (0.097)	-0.061 (0.097)	-0.024 (0.089)	-0.030 (0.089)	0.147 (0.146)	-0.294 (0.210)	0.082 (0.256)	-0.486* (0.287)	0.767* (0.413)	0.007 (0.150)	-0.067 (0.178)	-0.062 (0.220)	-0.096 (0.259)	0.908** (0.454)
Dad Secondary (=1 if Secondary Education)	-0.092 (0.127)	-0.083 (0.126)	0.012 (0.111)	0.019 (0.111)	0.243 (0.245)	-0.354 (0.264)	-0.081 (0.296)	-0.526 (0.329)	0.874* (0.456)	0.236 (0.241)	-0.208 (0.256)	0.172 (0.262)	-0.337 (0.297)	1.085** (0.490)
Dad High School (=1 if High School Education)	0.351** (0.176)	0.359** (0.178)	0.259* (0.139)	0.272** (0.139)	0.119 (0.541)	0.315 (0.356)	0.107 (0.399)	0.144 (0.423)	0.804 (0.495)	0.028 (0.331)	0.365 (0.289)	0.004 (0.332)	0.085 (0.344)	0.995* (0.505)
Dad Technical (=1 Technical College or Associate)	0.0386 (0.199)	0.091 (0.202)	0.144 (0.169)	0.241 (0.171)	-1.056*** (0.352)	-0.035 (0.543)	0.004 (0.485)	-0.154 (0.608)	1.104** (0.433)	-0.974* (0.583)	-0.490 (0.393)	-0.056 (0.426)	0.139 (0.381)	1.359*** (0.496)
Dad Bachelor's (=1 College or some College)	0.140 (0.157)	0.161 (0.156)	0.008 (0.148)	0.042 (0.147)	0.011 (0.398)	0.796 (0.486)	0.445 (0.371)	-0.580 (0.350)	1.119** (0.456)	0.373 (0.423)	0.716*** (0.275)	0.372 (0.346)	-0.367 (0.319)	0.674 (0.518)
Dad Graduate (=1 Graduate Education)	0.235 (0.488)	0.284 (0.484)	0.313 (0.295)	0.373 (0.315)	-	1.587*** (0.426)	0.730 (0.482)	-1.769*** (0.605)	0.897 (0.682)	-	2.129*** (0.347)	0.168 (0.560)	-1.116** (0.534)	1.215* (0.636)
Lifetime Health (=1 if Lifetime Health is Very Good)	0.316*** (0.151)	0.311*** (0.152)	-0.007 (0.120)	-0.027 (0.124)	-0.021 (0.284)	0.304 (0.374)	0.723** (0.340)	-0.271 (0.353)	0.838*** (0.308)	-0.626* (0.350)	-0.078 (0.269)	0.316 (0.410)	-0.620** (0.310)	0.416* (0.218)
Lifetime Health (=1 if Lifetime Health is Good)	0.027 (0.135)	0.023 (0.137)	-0.091 (0.108)	-0.116 (0.111)	-0.194 (0.226)	0.273 (0.328)	0.249 (0.314)	-0.216 (0.308)	-0.201 (0.301)	-0.727** (0.296)	-0.108 (0.208)	0.288 (0.400)	-0.514* (0.287)	-0.008 (0.218)
Lifetime Health (=1 if Lifetime Health is Regular)	0.094 (0.147)	0.085 (0.148)	-0.156 (0.123)	-0.191 (0.124)	-0.046 (0.247)	0.127 (0.363)	0.267 (0.332)	-0.154 (0.351)	-0.143 (0.327)	-0.766** (0.302)	-0.027 (0.244)	0.049 (0.413)	-0.377 (0.288)	-0.331 (0.301)
Lifetime Health (=1 if Lifetime Health is Bad, Very Bad, Terrible)	0.016 (0.332)	0.062 (0.346)	-0.069 (0.318)	-0.019 (0.359)	-0.305 (0.337)	-0.703 (0.445)	-0.026 (0.536)	-1.265** (0.554)	1.955*** (0.509)	-0.939* (0.481)	-0.122 (0.756)	-0.317 (0.532)	-0.269 (0.528)	0.684 (0.739)
Age	-0.00 (0.003)	-0.000 (0.003)	-0.003 (0.002)	-0.003 (0.002)	-0.014*** (0.005)	0.004 (0.007)	0.001 (0.007)	0.001 (0.007)	0.017** (0.008)	-0.012* (0.006)	0.003 (0.005)	-0.003 (0.005)	-0.009 (0.008)	0.007 (0.007)
Gender (=1 if Male)	0.063 (0.072)	0.078 (0.072)	-0.050 (0.064)	-0.019 (0.064)	0.256* (0.148)	0.108 (0.167)	0.040 (0.146)	-0.093 (0.185)	-0.094 (0.220)	-0.074 (0.153)	0.024 (0.129)	0.000 (0.139)	0.066 (0.157)	0.046 (0.163)
Marital Status (=1 if Single)	0.039 (0.083)	0.030 (0.083)	-0.063 (0.073)	-0.084 (0.074)	-0.064 (0.153)	0.336** (0.189)	-0.136 (0.173)	0.260 (0.190)	-0.170 (0.236)	-0.065 (0.168)	0.233 (0.150)	-0.163 (0.156)	-0.447** (0.183)	-0.112 (0.213)
Paid Job (=1 if Remunerated Job)	0.015 (0.087)	0.021 (0.087)	0.028 (0.076)	0.043 (0.077)	-0.313** (0.150)	0.151 (0.184)	0.357** (0.190)	-0.035 (0.318)	0.029 (0.377)	0.105 (0.166)	0.117 (0.147)	0.073 (0.167)	-0.179 (0.230)	0.062 (0.294)
Floor Material (=1 if Concrete Floor)	-0.486*** (0.130)	-0.494*** (0.135)	-0.005 (0.296)	-0.065 (0.300)	-0.181 (0.258)	-0.431** (0.254)	0.017 (0.329)	-1.557*** (0.575)	-	0.113 (0.412)	0.172 (0.312)	0.197 (0.975)	-2.915*** (0.586)	-
Floor Material (=1 if Wood)	-0.089 (0.073)	-0.082 (0.073)	-0.001 (0.062)	0.0038 (0.063)	-0.170 (0.145)	0.291 (0.177)	0.094 (0.150)	-0.389** (0.194)	-0.788*** (0.233)	0.090 (0.146)	0.066 (0.136)	-0.012 (0.132)	-0.304* (0.169)	-0.078 (0.200)
Debt (=1 if has debt)	-0.158* (0.083)	-0.167** (0.083)	-0.221*** (0.078)	-0.236*** (0.076)	-0.210 (0.186)	-0.132 (0.227)	-0.128 (0.174)	0.020 (0.187)	-0.241 (0.200)	-0.248 (0.191)	-0.083 (0.187)	0.005 (0.177)	-0.304* (0.179)	-0.342** (0.165)
Dependents (number of dependents)	-0.039 (0.024)	-0.043* (0.024)	-0.019 (0.019)	-0.028 (0.020)	-0.004 (0.043)	0.001 (0.051)	-0.102** (0.049)	-0.023 (0.073)	-0.056 (0.064)	-0.006 (0.042)	0.014 (0.042)	-0.066 (0.043)	-0.019 (0.063)	-0.089 (0.057)
ABS Scale First Principal Component	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)	0.004** (0.002)	0.003 (0.003)	0.007*** (0.002)	0.003 (0.003)	0.004 (0.003)	0.003 (0.002)	0.006*** (0.002)	0.008*** (0.002)	0.003 (0.003)	0.005 (0.003)
ABS Scale Second Principal Component	0.004*** (0.001)	0.004*** (0.001)	0.007*** (0.001)	0.007*** (0.001)	0.001 (0.002)	0.010*** (0.003)	0.002 (0.002)	0.002 (0.003)	0.013*** (0.004)	0.007** (0.003)	0.013*** (0.002)	0.006** (0.002)	0.008** (0.003)	0.005 (0.003)
Constant	0.804** (0.354)	1.924*** (0.326)	1.420*** (0.313)	3.685*** (0.282)	2.482*** (0.524)	0.739 (0.780)	2.646** (1.034)	2.486*** (0.899)	1.310 (0.989)	4.793*** (0.658)	2.723*** (0.595)	3.351*** (0.781)	4.894*** (0.858)	3.476*** (0.832)
N	1316	1316	1316	1316	280	297	314	213	212	280	297	314	213	212
R²	0.201	0.2032	0.3091	0.3121	0.333	0.182	0.265	0.225	0.388	0.364	0.360	0.308	0.463	0.395

b/ The exchange rate in 2001 was approximately 9.3 Mexican Pesos per US$.
Note: Robust Standard Errors in Parentheses.
*** p-value< 0.01, ** p-value < 0.05, * p-value<0.1.

Table 9: Ordered probit estimates of subjective poverty a/

	Full-Sample				By Expenditure Quintile									
	Y Sufficient		Y Satisfaction		Y Sufficient					Y Satisfaction				
	(1)	(2)	(3)	(4)	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Reference Group Gap (1=Ext. Below. 7=Ext. above)	0.141***	-	0.202**	-	-	-	-	-	-	-	-	-	-	-
	(0.036)		(0.042)											
Historical Y Gap (1=Ext Below, 7=Ext above)	-0.029	-	0.075*	-	-	-	-	-	-	-	-	-	-	-
	(0.035)		(0.039)											
Y Aspirations Gap (1=Extremely. Below, 7=Extremely. above)	0.122***	-	0.282***	-	-	-	-	-	-	-	-	-	-	-
	(0.033)		(0.039)											
RG Negative Gap (1= Ext. Below, Below, Slightly Below)		-0.227***		-0.214**	-0.234	-0.003	-0.772***	0.175	-0.541**	0.029	0.008	-0.441**	-0.653**	-0.323
		(0.077)		(0.084)	(0.160)	(0.163)	(0.161)	(0.181)	(0.266)	(0.163)	(0.193)	(0.175)	(0.261)	(0.271)
RG Positive Gap (1= Ext. Above, Above, Slightly Above)		0.185**		0.292***	0.564**	0.167	0.191	0.051	0.165	0.111	0.572***	0.297*	0.142	0.145
		(0.073)		(0.075)	(0.252)	(0.164)	(0.153)	(0.198)	(0.202)	(0.210)	(0.159)	(0.163)	(0.213)	(0.205)
Historical Y Negative Gap (1= Ext. Below, Below, Slightly Below)		-0.029		-0.209**	-0.175	-0.033	-0.045	0.175	0.120	-0.330	-0.207	-0.276	-0.161	-0.175
		(0.095)		(0.100)	(0.202)	(0.205)	(0.219)	(0.267)	(0.351)	(0.201)	(0.199)	(0.234)	(0.308)	(0.299)
Historical Y Positive Gap (1= Ext. Above, Above, Slightly Above)		-0.046		0.072	-0.201	-0.134	-0.088	0.172	-0.100	-0.026	-0.061	0.231	0.072	-0.142
		(0.074)		(0.075)	(0.175)	(0.156)	(0.158)	(0.208)	(0.195)	(0.175)	(0.161)	(0.176)	(0.245)	(0.224)
Y Aspirations Negative Gap (1= Ext. Below, Below, Slightly Below)		-0.229***		-0.527***	-0.191	-0.223	0.004	-0.501**	0.287	-0.626***	-0.565***	-0.084	-1.011***	-0.860***
		(0.084)		(0.086)	(0.170)	(0.170)	(0.196)	(0.232)	(0.295)	(0.175)	(0.189)	(0.200)	(0.268)	(0.309)
Y Aspirations Positive Gap (1= Ext. Above, Above, Slightly Above)		0.033		0.174**	0.163	0.075	0.134	0.007	0.152	0.402*	0.108	0.367**	0.034	0.058
		(0.082)		(0.082)	(0.258)	(0.182)	(0.174)	(0.237)	(0.232)	(0.243)	(0.172)	(0.178)	(0.235)	(0.247)
Personal Expenditure b/ (thousands of pesos)	0.042**	0.042***	0.031***	0.032***	0.831	0.335	-0.300	0.029	0.014	0.063	-0.168	-0.080	-0.135	0.036*
	(0.012)	(0.012)	(0.010)	(0.011)	(0.533)	(0.401)	(0.212)	(0.131)	(0.019)	(0.499)	(0.464)	(0.232)	(0.166)	(0.018)
Elementary (=1 if Elementary Education)	-0.252	-0.254	0.026	0.039	-0.425	0.037	-0.932	0.397		-0.113	0.028	0.098	0.365	0.663
	(0.208)	(0.210)	(0.201)	(0.207)	(0.339)	(0.352)	(0.713)	(0.492)		(0.387)	(0.439)	(0.362)	(0.570)	(0.483)
Secondary (=1 if Secondary Education)	-0.070	-0.077	0.239	0.245	-0.304	0.050	-0.659	0.374	0.312	-0.036	0.266	0.380	0.594	0.441
	(0.212)	(0.215)	(0.206)	(0.211)	(0.366)	(0.347)	(0.721)	(0.500)	(0.702)	(0.417)	(0.447)	(0.346)	(0.585)	(0.457)
High School (=1 if High School Education)	0.030	0.010	0.191	0.167	-0.622	0.169	-0.254	0.541	0.038	-0.217	0.207	0.222	0.881	0.139
	(0.226)	(0.228)	(0.215)	(0.219)	(0.415)	(0.391)	(0.741)	(0.505)	(0.701)	(0.454)	(0.464)	(0.381)	(0.589)	(0.494)
Technical (=1 Technical College or Associate)	-0.063	-0.076	0.046	0.026	0.098	-0.004	-0.476	0.077	-0.366	0.003	0.166	-0.200	0.978*	0.703*
	(0.230)	(0.232)	(0.222)	(0.226)	(0.436)	(0.385)	(0.750)	(0.551)	(0.737)	(0.472)	(0.475)	(0.401)	(0.591)	(0.424)
Bachelor's (=1 College or some College)	0.061	0.036	0.238	0.203	0.188	0.160	-0.654	0.569	0.381	0.724	0.209	-0.008	0.691	1.228**
	(0.229)	(0.231)	(0.219)	(0.223)	(0.434)	(0.407)	(0.743)	(0.507)	(0.693)	(0.483)	(0.483)	(0.392)	(0.559)	(0.499)
Graduate (=1 Graduate Education)	0.340	0.326	0.407	0.402	-	-	-	-0.102	0.947	-	-	-	-0.247	1.012*
	(0.330)	(0.333)	(0.316)	(0.319)				(0.559)	(0.751)				(0.766)	(0.571)
Dad Elementary (=1 if Elementary Education)	-0.024	-0.025	-0.018	-0.019	0.346*	-0.348*	0.103	-0.561*	0.757*	0.062	-0.062	-0.130	-0.113	1.229**
	(0.096)	(0.096)	(0.093)	(0.094)	(0.192)	(0.190)	(0.248)	(0.289)	(0.414)	(0.161)	(0.201)	(0.224)	(0.311)	(0.623)
Dad Secondary (=1 if Secondary Education)	-0.069	-0.062	0.008	0.020	0.335	-0.400*	-0.077	-0.526	0.844*	0.362	-0.251	0.111	-0.510	1.219*
	(0.120)	(0.120)	(0.119)	(0.119)	(0.283)	(0.233)	(0.282)	(0.321)	(0.453)	(0.257)	(0.300)	(0.271)	(0.353)	(0.635)
Dad High School (=1 if High School Education)	0.320**	0.326**	0.301**	0.320*	0.332	0.141	0.075	0.096	0.829	0.089	0.578	-0.134	-0.017	1.629***
	(0.162)	(0.162)	(0.155)	(0.154)	(0.544)	(0.301)	(0.366)	(0.407)	(0.507)	(0.373)	(0.366)	(0.317)	(0.405)	(0.628)
Dad Technical (=1 Technical College or Associate)	0.076	0.123	0.215	0.301	-0.953**	-0.075	0.068	-0.380	1.082**	-0.977	0.493	-0.095	0.361	0.729
	(0.179)	(0.181)	(0.187)	(0.191)	(0.452)	(0.448)	(0.464)	(0.551)	(0.433)	(0.640)	(0.450)	(0.432)	(0.516)	(0.631)
Dad Bachelor's (=1 College or some College)	0.116	0.133	0.020	0.059	0.137	0.643	0.397	-0.670*	1.072**	0.492	0.777**	0.353	-0.433	1.450*
	(0.145)	(0.145)	(0.159)	(0.159)	(0.437)	(0.427)	(0.351)	(0.353)	(0.457)	(0.455)	(0.332)	(0.366)	(0.380)	(0.834)
Dad Graduate (=1 Graduate Education)	0.297	0.335	0.423	0.493	-	-	0.804*	-9.389***	0.855	-	11.15***	0.109	-1.261***	0.503
	(0.469)	(0.467)	(0.370)	(0.388)			(0.460)	(0.618)	(0.681)		(0.411)	(0.533)	(0.634)	(0.332)
Lifetime Health (=1 if Lifetime Health is Very Good)	0.340**	0.340**	-0.018	-0.037	0.075	0.281	0.750**	-0.261	0.845***	-0.743*	-0.034	0.236	-0.801**	-0.079
	(0.141)	(0.142)	(0.137)	(0.139)	(0.340)	(0.341)	(0.311)	(0.353)	(0.306)	(0.396)	(0.314)	(0.391)	(0.390)	(0.275)
Lifetime Health (=1 if Lifetime Health is Good)	0.102	0.101	-0.152	-0.178	-0.097	0.347	0.322	-0.204	-0.171	-0.867***	-0.127	0.223	-0.794**	-0.436
	(0.129)	(0.129)	(0.120)	(0.122)	(0.281)	(0.299)	(0.293)	(0.303)	(0.286)	(0.322)	(0.244)	(0.380)	(0.357)	(0.350)
Lifetime Health (=1 if Lifetime Health is Regular)	0.167	0.161	-0.203	-0.237*	-0.003	0.241	0.357	-0.098	-0.096	-0.939***	-0.024	-0.016	-0.523	0.286
	(0.141)	(0.142)	(0.120)	(0.135)	(0.306)	(0.330)	(0.350)	(0.313)	(0.316)	(0.350)	(0.277)	(0.363)	(0.376)	(0.744)
Lifetime Health (=1 if Lifetime Health is Bad, Very Bad, Terrible)	-0.088	-0.033	-0.306	-0.254	-0.994*	-0.782	-6.90***	-8.710***	9.856***	-1.083*	-0.305	-8.170***	-0.376	0.008
	(0.401)	(0.418)	(0.361)	(0.392)	(0.593)	(0.545)	(0.531)	(0.560)	(0.657)	(0.593)	(0.852)	(0.556)	(0.662)	(0.009)
Age	-0.001	-0.001	-0.002	-0.002	-0.019***	0.002	-0.000	-0.000	0.019***	-0.011	0.004	-0.001	-0.008	0.047
	(0.003)	(0.003)	(0.003)	(0.003)	(0.006)	(0.006)	(0.006)	(0.008)	(0.007)	(0.006)	(0.006)	(0.006)	(0.009)	(0.194)
Gender (=1 if Male)	0.064	0.079	-0.051	-0.022	0.297*	0.139	0.091	-0.148	-0.132	-0.083	0.018	0.003	0.074	-0.218
	(0.066)	(0.066)	(0.068)	(0.068)	(0.172)	(0.148)	(0.135)	(0.179)	(0.213)	(0.164)	(0.143)	(0.145)	(0.183)	(0.255)
Marital Status (=1 if Single)	0.023	0.015	-0.067	-0.086	-0.166	0.301*	-0.152	0.265	-0.198	-0.056	0.242	-0.172	-0.533**	0.024
	(0.077)	(0.077)	(0.079)	(0.079)	(0.180)	(0.166)	(0.165)	(0.179)	(0.226)	(0.191)	(0.165)	(0.159)	(0.216)	(0.326)
Paid Job (=1 if Remunerated Job)	0.045	0.051	0.015	0.034	-0.25	0.167	0.350**	-0.012	0.1177	0.065	0.139	0.043	-0.183	-0.016
	(0.082)	(0.081)	(0.081)	(0.082)	(0.173)	(0.165)	(0.178)	(0.315)	(0.347)	(0.180)	(0.160)	(0.169)	(0.278)	(0.254)
Floor Material (=1 if Concrete Floor)	-0.610***	-0.615***	-0.122	-0.183	-0.329	-0.357	-0.275	-9.178***		-0.104	0.171	0.263	-11.30***	-0.363*
	(0.225)	(0.228)	(0.319)	(0.326)	(0.436)	(0.329)	(0.505)	(0.606)		(0.451)	(0.312)	(0.912)	(0.724)	(0.203)
Floor Material (=1 if Wood)	-0.113	-0.108	-0.025	-0.022	-0.267*	0.229	0.062	-0.418**	-0.784***	0.088	0.041	-0.101	-0.446**	-0.109
	(0.069)	(0.069)	(0.067)	(0.068)	(0.158)	(0.155)	(0.141)	(0.199)	(0.233)	(0.155)	(0.149)	(0.136)	(0.197)	(0.070)
Debt (=1 if has debt)	-0.139*	-0.148*	-0.240***	-0.253***	-0.307	-0.092	-0.076	-0.044	-0.207	-0.299	-0.087	-0.057	-0.398*	0.005
	(0.079)	(0.079)	(0.086)	(0.084)	(0.237)	(0.194)	(0.168)	(0.189)	(0.200)	(0.220)	(0.201)	(0.179)	(0.210)	(0.004)
Dependents (number of dependents)	-0.034	-0.039*	-0.019	-0.027	-0.015	0.000	-0.096**	-0.024	-0.074	0.007	0.009	-0.059	-0.021	0.006*
	(0.022)	(0.022)	(0.020)	(0.021)	(0.049)	(0.044)	(0.047)	(0.072)	(0.062)	(0.045)	(0.047)	(0.045)	(0.076)	(0.003)
ABS Scale First Principal Component	0.005***	0.005***	0.005***	0.005***	0.006**	0.003	0.007***	0.004	0.004	0.003	0.008***	0.008***	0.005	0.005
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
ABS Scale Second Principal Component	0.003***	0.003***	0.007***	0.008***	0.000	0.009***	0.002	0.003	0.013***	0.009***	0.014***	0.006**	0.011**	0.005
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.004)	(0.003)
N	1316	1316	1316	1316	280	297	314	213	212	280	297	314	213	212
R²	0.0713	0.0723	0.1355	0.1341	0.155	0.064	0.103	0.093	0.156	0.165	0.161	0.131	0.227	0.184

b/ The exchange rate in 2001 was approximately 9.3 Mexican Pesos per US$.

Note: Robust Standard Errors in Parentheses.

*** p-value< 0.01, ** p-value < 0.05, * p-value<0.1.

Appendix III: Tests

Table 10: Tests for differences within levels of reference-income indicators a/

	Ordered Linear Probability Model		Ordered Probit Model	
	Y Sufficient	Y Satisfaction	Y Sufficient	Y Satisfaction
RG Negative Gap 1	-0.242	-0.421**	-0.251	-0.466**
(1 = Extremely Below or Below)	(0.150)	(0.196)	(0.158)	(0.215)
RG Negative Gap 2	-0.198**	-0.190**	-0.213***	-0.163*
(1 = Slightly Below)	(0.082)	(0.081)	(0.081)	(0.088)
RG Positive Gap 1	0.200**	0.204***	0.181**	0.238***
(1 = Slightly Above)	(0.087)	(0.070)	(0.076)	(0.078)
RG Positive Gap 2	0.207	0.368***	0.186	0.481***
(1 = Extremely Above or Above)	(0.165)	(0.138)	(0.151)	(0.166)
H Negative Gap 1	-0.099	-0.336*	-0.191	-0.384
(1 = Extremely Below or Below)	(0.177)	(0.200)	(0.200)	(0.234)
H Negative Gap 2	0.010	-0.163*	0.011	-0.155
(1 = Slightly Below)	(0.103)	(0.097)	(0.100)	(0.104)
H Positive Gap 1	-0.051	-0.007	-0.053	0.043
(1 = Slightly Above)	(0.083)	(0.072)	(0.076)	(0.077)
H Positive Gap 2	-0.046	0.015	-0.068	0.062
(1 = Extremely Above or Above)	(0.130)	(0.117)	(0.117)	(0.130)
Asp. Negative Gap 1	-0.490***	-0.780***	-0.462***	-0.858***
(1 = Extremely Below or Below)	(0.163)	(0.159)	(0.174)	(0.187)
Asp. Negative Gap 2	-0.252***	-0.508***	-0.202**	-0.501***
(1 = Slightly Below)	(0.090)	(0.082)	(0.085)	(0.087)
Asp. Positive Gap 1	-0.002	0.092	0.011	0.094
(1 = Slightly Above)	(0.095)	(0.078)	(0.086)	(0.086)
Asp. Positive Gap 2	0.152	0.352***	0.132	0.412***
(1 = Extremely Above or Above)	(0.144)	(0.125)	(0.129)	(0.147)
Personal Expenditure [b]	0.048***	0.029***	0.044***	0.034***
(thousands of pesos)	(0.012)	(0.009)	(0.011)	(0.011)
Constant	1.969***	3.768***	-	-
	(0.328)	(0.283)		
N	1316	1316	1316	1316
R^2	0.206	0.322	0.074	0.141
RG Negative 1 = RG Negative 2	0.09	1.34	0.06	1.92
RG Negative 1 = RG Negative 2 = 0	3.35**	4.29**	7.84***	6.94**
RG Positive 1 = RG Positive 2	0.00	1.36	0.00	2.04
RG Positive 1 = RG Positive 2 = 0	2.93*	6.35***	6.16**	14.89***
Hist. Y Negative 1 = Hist. Y Negative 2	0.38	0.71	0.99	0.92
Hist. Y Negative 1 = Hist. Y Negative 2 = 0	0.19	2.35*	1.02	4.23
Hist. Y Positive 1 = Hist. Y Positive 2	0.00	0.05	0.02	0.03
Hist. Y Positive 1 = Hist. Y Positive 2 = 0	0.20	0.03	0.58	0.38
Y Asp. Negative 1 = Y Asp. Negative 2	2.50	3.20*	2.46	4.04
Y Asp. Negative 1 = Y Asp. Negative 2 = 0	5.98**	23.3***	9.40***	40.62***
Y Asp. Positive 1 = Y Asp. Positive 2	1.29	5.01**	1.00	5.30**
Y Asp. Positive 1 = Y Asp. Positive 2 = 0	0.68	3.95**	1.15	7.77**

a/ Regression results include all control variables.
b/ The exchange rate in 2001 was approximately 9.3 Mexican Pesos per US$.
Note: Robust Standard Errors in Parentheses.
*** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1.

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(1 = Slightly Above)	(0.087)	(0.070)	(0.076)	(0.078)
RG Positive Gap 2	0.207	0.368***	0.186	0.481***
(1 = Extremely Above or Above)	(0.165)	(0.138)	(0.151)	(0.166)
H Negative Gap 1	-0.099	-0.336*	-0.191	-0.384
(1 = Extremely Below or Below)	(0.177)	(0.200)	(0.200)	(0.234)
H Negative Gap 2	0.010	-0.163*	0.011	-0.155
(1 = Slightly Below)	(0.103)	(0.097)	(0.100)	(0.104)
H Positive Gap 1	-0.051	-0.007	-0.053	0.043
(1 = Slightly Above)	(0.083)	(0.072)	(0.076)	(0.077)
H Positive Gap 2	-0.046	0.015	-0.068	0.062
(1 = Extremely Above or Above)	(0.130)	(0.117)	(0.117)	(0.130)
Asp. Negative Gap 1	-0.490***	-0.780***	-0.462***	-0.858***
(1 = Extremely Below or Below)	(0.163)	(0.159)	(0.174)	(0.187)
Asp. Negative Gap 2	-0.252***	-0.508***	-0.202**	-0.501***
(1 = Slightly Below)	(0.090)	(0.082)	(0.085)	(0.087)
Asp. Positive Gap 1	-0.002	0.092	0.011	0.094
(1 = Slightly Above)	(0.095)	(0.078)	(0.086)	(0.086)
Asp. Positive Gap 2	0.152	0.352***	0.132	0.412***
(1 = Extremely Above or Above)	(0.144)	(0.125)	(0.129)	(0.147)
Personal Expenditure b/	0.048***	0.029***	0.044***	0.034***
(thousands of pesos)	(0.012)	(0.009)	(0.011)	(0.011)
Constant	1.969***	3.768***	-	-
	(0.328)	(0.283)		
N	1316	1316	1316	1316
R^2	0.206	0.322	0.074	0.141
RG Negative 1 = RG Negative 2	0.09	1.34	0.06	1.92
RG Negative 1 = RG Negative 2 = 0	3.35**	4.29**	7.84***	6.94**
RG Positive 1 = RG Positive 2	0.00	1.36	0.00	2.04
RG Positive 1 = RG Positive 2 = 0	2.93*	6.35***	6.16**	14.89***
Hist. Y Negative 1 = Hist. Y Negative 2	0.38	0.71	0.99	0.92
Hist. Y Negative 1 = Hist. Y Negative 2 = 0	0.19	2.35*	1.02	4.23
Hist. Y Positive 1 = Hist. Y Positive 2	0.00	0.05	0.02	0.03
Hist. Y Positive 1 = Hist. Y Positive 2 = 0	0.20	0.03	0.58	0.38
Y Asp. Negative 1 = Y Asp. Negative 2	2.50	3.20*	2.46	4.04
Y Asp. Negative 1 = Y Asp. Negative 2 = 0	5.98**	23.3***	9.40***	40.62***
Y Asp. Positive 1 = Y Asp. Positive 2	1.29	5.01**	1.00	5.30**
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