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Subjective well-being and adaptation. The case of Uruguay

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Subjective well-being and adaptation. The case of Uruguay

Gonzalo Salas♣
Andrea Vigorito♣

Abstract

We assess the recent evolution of the quality of life in Uruguay, analysing whether current subjective well-being levels are conditioned by the objective well-being trajectory of each individual. We explore subjective well-being in three domains: life, economic situation and housing satisfaction. Although adaptation has been addressed in the empirical literature for developed countries, there is scarce evidence for developing countries due to the lack of suitable panel datasets. In this article, we provide an econometric test of the adaptation hypothesis based on longitudinal data from Uruguay for the years 2004, 2006 and 2011/12 (*Estudio Longitudinal de Bienestar en Uruguay*). Our main findings show that present levels of life, economic and housing satisfaction are each positively correlated with the corresponding contemporary and lagged objective variable of interest. Thus, we reject the adaptation hypothesis in all the dimensions considered. We also explore the role of social interactions in the three subjective well-being dimensions. Average objective well-being of the reference group (either income or crowding) is not associated with individual subjective well-being levels. However, life satisfaction is positively correlated with the average subjective well-being of the reference group.

Keywords: Adaptation, adaptive preferences, subjective well-being, Uruguay

JEL Classification: I31

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Bienestar subjetivo y adaptación. El caso de Uruguay

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Resumen

Evaluamos la evolución reciente de la calidad de vida en Uruguay, analizando si los niveles de bienestar subjetivo están condicionados por la trayectoria objetiva del bienestar de cada individuo. Exploramos el bienestar subjetivo en tres dominios: vida, situación económica y satisfacción con la vivienda. Aunque la adaptación se ha abordado en la literatura empírica para los países desarrollados, debido a la falta de conjuntos de datos de panel adecuados existe escasa evidencia para los países en desarrollo. En este artículo, proporcionamos una prueba econométrica de la hipótesis de adaptación basada en datos longitudinales de Uruguay para los años 2004, 2006 y 2011/12 (Estudio Longitudinal de Bienestar en Uruguay). Nuestros principales hallazgos muestran que la satisfacción con los niveles de vida, la situación económica y la vivienda están correlacionados positivamente con la correspondiente variable objetiva de interés. contemporánea y rezagada. Por lo tanto, rechazamos la hipótesis de adaptación en todas las dimensiones consideradas. También exploramos el papel de las interacciones sociales en las tres dimensiones del bienestar subjetivo. El bienestar objetivo promedio del grupo de referencia (ya sea ingreso o hacinamiento) no está asociado con los niveles de bienestar subjetivo individual. Sin embargo, la satisfacción con la vida está correlacionada positivamente con el bienestar subjetivo promedio del grupo de referencia.

Palabras clave: Adaptación, preferencias adaptativas, bienestar subjetivo, Uruguay

Código JEL: I31

1. Introduction

The aim of this article is to analyse the recent evolution of the quality of life in Uruguay, assessing whether current subjective well-being levels are conditioned by the individual's objective well-being trajectory. Specifically, we test for the presence of adaptive preferences or adaptation (Elster, 1988; Clark, 2016) in three evaluative subjective well-being domains: life, economic situation and housing satisfaction (Clark, 2016; Graham and Ruiz Pozuelo, 2017).

Although objective well-being is multidimensional (Sen, 1992; Alkire, 2002; Robeyns, 2003), we restrict our analysis to the role of income and housing conditions. Most of the research in this field has been concentrated in the former. However, we also include housing to reflect a more structural and complementary perspective on deprivation than only income.

As Clark (2012) points out, adaptation has been addressed by many disciplines and can be understood in many ways, ranging from climate change to aspirations and household behaviour. In this study, we understand adaptation as the extent to which past experiences in terms of income and housing affect current subjective well-being of a particular individual. Adaptation has been addressed in both the strand of literature that criticizes utilitarianism and also in happiness economics.

According to the first perspective, adaptation and mental conditioning systematically affect individual valuations (Elster, 1988; Sen, 1999). In their critique of utilitarianism, Sen and Nussbaum explicitly point out the challenge that adaptation to current circumstances in order to "make life bearable in adverse situations" poses for comparison of different individuals' subjective well-being (Sen, 2009; pp. 282; Sen, 1987; Sen, 2008; Nussbaum, 2000).[1] In this perspective, utility measurement renders biased interpersonal comparisons. The underlying psychological mechanism has been uncovered clearly in Festinger's (1975) writings on cognitive dissonance. The adaptive preferences hypothesis postulates that cognitive dissonance is resolved through the adjustment of volitions to real opportunities, adapting desires to what can be achieved.[2] Habituation to bad circumstances might cause subjective well-being to be higher for those persons experiencing more deprivation. The presence of this phenomenon may not only distort interpersonal comparisons, but will also be deleterious to people's own interests, as the chronically deprived will be happy with any minor achievements (Comim, 2008).

[1] "The utilitarian calculus based on, say, happiness can be deeply unfair to those who are persistently deprived, such as the traditional underdogs in stratified societies, oppressed minorities in intolerant communities, precarious sharecroppers living in a world of uncertainty, sweated workers in exploitative industrial arrangements, subdued housewives in deeply sexist cultures. The hopelessly deprived people may lack the courage to desire any radical change and often tend to adjust their desires and expectations to what little they see as feasible. They train themselves to take pleasure in small mercies. The practical merit of such adjustments for people in chronically adverse positions is easy to understand: this is one way of making deprived lives bearable. But the adjustments also have the incidental effect of distorting the scale of utilities". (Sen, 2009; pp.282).

[2] However, Elster argues that adaptive preferences formation is not the only possible adaptive response. An alternative strategy is what Elster defines as "character planning", which is an adaptive process generated by people consciously adjusting wishes to real possibilities. To differentiate between these, it can be highlighted that in the case of adaptive preferences there is a causal subconscious process going on among the affected persons, while in the case of the character planning process there is a deliberate choice (Elster, 1988; Pereira, 2009). Differently to Elster, in Sen´s view, reduced aspirations result from being exposed to long-term deprivation, but this does not necessarily entail the existence of a previous period in which individual desires were not downsized.

Meanwhile, in the happiness literature, the issue of adaptation has also been discussed in the context of reference points and social comparisons and interactions.[3] Easterlin's (1995) seminal work pointed out that although in cross-sectional data higher average income is positively related to happiness, in a time series perspective, rising average income is not coupled with similar increases in happiness (Easterlin paradox). Since then, a significant strand of the happiness literature has also focused on the role of social comparisons and adaptation to past income as a possible solution to this dilemma (Di Tella and MacCulloch, 2008; Deaton, 2008; Clark, 2016). Thus, it has been argued that happiness is a relative phenomenon, and that people do not evaluate their circumstances in terms of happiness per se, but in relation to reference points, such as reference groups and past trajectories (Clark, 2016). In this perspective, the hedonic treadmill generates a permanent attempt to increase achievements in order to increase happiness (Clark, 2012).

However, as we show later in section II, there is conflicting empirical evidence on the existence of adaptation processes (Burchardt, 2005; Clark, 2016; Deaton, 2008; Di Tella and MacCulloch, 2010). Most of the research carried out on adaptation and subjective well-being has been based on information from developed countries, mainly due to the lack of suitable longitudinal datasets in developing countries (Deaton, 2008; Clark, 2016).

In order to contribute to this debate and provide evidence for a developing country, we investigate the adaptive preferences or adaptation hypothesis using a unique dataset, created for the purposes of this research. This empirical exercise is based on three waves of a longitudinal study carried out in Montevideo and the surrounding Metropolitan area in 2004, 2006 and 2011-12 (*Estudio Longitudinal de Bienestar en Uruguay*, ELBU), that follows households with children attending the first grade of public primary schools in 2004 (85% of the cohort) in urban areas (87% of the population). The survey questionnaire includes socio-economic information in detail and a wide set of questions on subjective and objective well-being.

The recent evolution of living standards and development policies in Latin American countries, and specifically in Uruguay, provides a very interesting setting to study the interrelation between objective and subjective well-being. Whereas high inequality levels still persist, most countries in the region have experienced rapid economic growth in the last fifteen years, coupled with a substantial fall in income poverty and inequality (ECLAC, 2012; Gasparini and Lustig, 2011). Although there are significant variations by country, most authors attribute this favourable evolution in social indicators to increasing employment and wages among low-skilled workers; educational progress (particularly in Brazil); stronger labour market institutions; non-contributory cash transfer schemes; and the rise of centre-left political regimes (López-Calva and Lustig, 2010; Cornia, 2010; Gasparini and Lustig, 2011). Within this context, the case of Uruguay is of particular interest as many redistributive reforms were carried out during this period in which, for the first time, a centre-left coalition (*Frente Amplio*) governed the country.[4] Between 2004 and 2014, income inequality fell from 0.453 to 0.380 (Gini index), whereas income poverty was reduced from 40% to 10% (national poverty line).[5] GDP growth averaged 5.9% a year and

[3] In recent decades, a significant strand of the empirical literature has been examining reported happiness and life satisfaction as a way to measure cardinal utility and its determinants (Clark and Oswald 1994; Blanchflower and Oswald 2000; Easterlin, 1995; Frey and Stutzer, 2007). Lelkes (2006) offers a complete systematization of the main findings of this literature.

[4] Redistributive policies included the introduction of the personal income tax, a health reform, the restoration of centralized wage-setting mechanisms and a substantial expansion of non-contributory cash transfers schemes.

[5] As in most Latin American countries, national poverty thresholds are based on absolute lines, following the ECLAC methodology, but with a higher Orshansky coefficient. Montevideo's per capita official poverty line is equivalent to 100 U$S a month.

average household income grew 5.4% a year. However, achievements were lower in non-income dimensions such as education and health (Colafranceschi, Failache and Vigorito, 2014).

In what follows, we first summarize the existing empirical literature on adaptive preferences and adaptation (section II). After that, we present the methodology and describe the data used in this study (section III). Section IV contains our main results and section V gathers some closing comments.

2. Previous empirical findings

Recent literature reviews point out that existing empirical work shows that there is not complete adaptation to situations such as separation, divorce or unemployment (Clark, 2015; Clark and Georgellis, 2013; Layard, 2007; Lucas, 2007; Lelkes, 2006). Thus, these new circumstances generate permanent changes in subjective well-being.

In order to test for the presence of adaptive preferences in relation to income trajectories, Burchardt (2005) uses ten waves panel from the British Panel Household Survey (BPHS) that contain information on income and life satisfaction. In line with the downwards adaptation hypothesis, she detects adaptation among those individuals experiencing income gains, and rejects this hypothesis among those who experienced income reductions. She also tests the role of reference groups, considering ethnicity and employment status, finding mild effects.

Clark (2016) summarizes the recent empirical literature related to potential explanations of the Easterlin paradox, with a focus on adaptation. He points out that there is more research available on the role of reference groups than on adaptation, due to the constraining requirement to have longitudinal data to test it. In the case of developed countries, most findings show partial or total adaptation to income. Based on three different data sources (German Socioeconomic Study, Eurobarometer and Gallup Poll), Di Tella and MacCulloch (2008) also find evidence of adaptation to income in all cases.

However, Deaton (2008) argues that adaptation research has been based on survey data in which high-income countries are overrepresented. To overcome this problem, he explored the Gallup World Poll database, that covers a wide set of developing countries. However, as this is a cross-sectional survey, he was not able to test the effect of past income, but instead assessed the effect of current GDP and income, and recent GDP growth, finding a positive correlation between subjective well-being and the first two variables, and a negative one with the third.[6]

In the context of developing countries, few studies assess adaptation, probably due to the reasons already stated (lack of panel data combining subjective and objective information). Previous work for Uruguay based on the first two waves of the dataset used in this study (Burstin et al., 2010) rejected the adaptation hypothesis in the same domains as those used in this article, but they were not able to include fixed effects estimations. Furthermore, the two waves were very close (2004 and 2006) and reflected very peculiar economic circumstances, in which most households experienced substantial increases in income. Indeed, as stated in the introduction, Uruguay experienced the most severe economic crisis of its modern history in 2002-03 and a quick recovery led by the international increase in primary goods prices since 2004.

[6] He also remarks that these relations vary depending on the specific wording of the question used to capture subjective well-being: life satisfaction evaluations and experiencing happiness the day before provide different.

As in most Latin American countries, empirical research on subjective well-being in Uruguay has been based on cross-sectional data (see, for example, Bucheli and Rossi, 2003; Cid et al., 2007; Borraz et al., 2008; Gerstenbluth et al., 2008).

Based on ELBU data, Leites and Ramos (2016) explored in detail the role of social comparisons involving reference groups (with a different operationalization than the one used in this study) which are connected to life and economic satisfaction, finding evidence of asymmetric social comparisons in terms of income.[7] They first model reference group well-being based on average or median income (depending on the specification), finding no evidence of externalities. In a second step, they model the distance to the mean/median distinguishing individuals above and below the threshold, and conclude that the more deprived individuals in the group are less satisfied, whereas no effect is found for those individuals above the mean/median.

3. Methodological details

3.1 The data

Our empirical analysis is based on three waves of the longitudinal study *Estudio Longitudinal del Bienestar en Uruguay*, that started in 2004 and has been carried out by *Instituto de Economia* to investigate multidimensional well-being.[8]

The study follows a representative sample of households with children attending the first year of primary school at public institutions in Montevideo and urban areas in 2004. The sampling frame corresponds to the 2002 Height Census undertaken across the whole universe of public schools in Uruguay. Methodological details of the sample can be found in Amarante et al. (2007).

85% of the children living in these areas attended public schools in the reference period, so our analysis is representative of this population and is under-capturing richer income strata. Bergolo, Leites and Salas (2006) show that the 2004 ELBU wave captured more than 97% of the children in per capita income deciles 1 to 6, whereas it captured respectively 90.8, 84.7, 69.8 and 59.3 in the deciles 7, 8, 9 and 10 as the remaining children attended private schools. Colafranceschi, Leites and Salas (2017) compare how the three ELBU waves capture the different socio-economic strata based on a comparison with similar households interviewed as a part of the official household survey (*Encuesta Continua de Hogares*). They find that the distributions by socio-economic category are very similar, implying that the ELBU still correctly represents the universe corresponding to its original sampling framework.

To date, three waves (2004, 2006 and 2011/12) have been completed. The 2006 round was restricted to Montevideo and the Metropolitan area, which represents 65% of the total population. In order to include the information corresponding to the 2006 wave, and carry out fixed effects estimations, the present study is restricted to this region.

The 2004 wave included 1758 households located in the region of interest, as compared to 1327 households in 2006 and 1092 in 2011/12. Panel attrition was 38% and there are no substantial biases in the loss in terms of socio-economic characteristics, although the probability of finding

[7] Whereas in this paper we use school groups as the basis of social comparisons, Leites and Ramos define broad categories in terms of education, sex and region and obtain average income from the national household survey (Encuesta Continua de Hogares).

[8] Information on this dataset, survey questionnaires and micro-data can be found at http://www.fcea.edu.uy/estudio-del-bienestar-multidimensional-en-uruguay.html

elder household heads and households outside of Montevideo was slightly higher (Failache, Salas and Vigorito, 2016).

Table 1 depicts the main sample characteristics for the group of households that were interviewed in the three waves (balanced panel). It can be noticed that most respondents were women and there is a gradient in terms of age, education and income.

Table 1. Sample characteristics. ELBU

	2004			2006			2011/12		
	Obs.	Mean	SD	Obs.	Mean	SD	Obs.	Mean	SD
Age	888	34.297	8.748	899	36.950	8.742	870	41.208	8.516
Sex (% male respondents)	900	0.099	0.299	900	0.117	0.322	900	0.094	0.292
% married or cohabiting	900	0.780	0.414	900	0.760	0.427	900	0.685	0.465
Average years of education (adults aged 22 or more)	896	8.672	3.240	897	8.711	3.436	888	8.823	3.166
Crowding	881	2.048	1.300	897	1.904	1.327	883	1.730	1.085
Average monthly household income (per capita; US dollars)	896	121.7	122.7	897	192.0	191.3	884	202.0	171.3
Employment rate (among respondents)	872	0.582	0.493	885	0.580	0.494	864	0.744	0.437

Notes: 29 Uruguayan pesos=1 USD.
Source: own elaboration based on ELBU data.

Survey instruments collect information on housing characteristics, income, labour force participation and education of all household members, health data for the reference child at school (including anthropometric measures) and a wide range of questions on agency, subjective well-being, attitudes and opinions in the case of the adult responsible for the child.[9] The survey was responded to by the person responsible for the reference child.

Information on evaluative subjective well-being was gathered for the first time in 2006. In that year, a set of questions on satisfaction was included, with a scale ranging from 1 (not satisfied at all) to 5 (very satisfied). The domains of interest were life in general, economic situation, leisure, decision making at home and social participation. In this study, we restrict our analysis to life satisfaction in general, satisfaction with own economic situation and satisfaction with housing.

3.2 Methods

As noted before, the adaptation process can result from either downward or upward movements. The econometric methodologies used in each case are very similar (Burchardt, 2005, Di Tella and MacCulloch, 2008, Clark, 2016).

In what follows, we draw on the specification proposed by Di Tella and MacCulloch (2008) to estimate an equation of the form:

$$F_{ti} = \alpha_0 \log Y_{0i} + \alpha_1 \log Y_{1i} + \sum_k \delta_k X_{ki} + f_i + A_i + e_i$$

where F represents satisfaction levels declared by each individual in the domain of interest. Y is income in the cases of life satisfaction and economic situation, and crowding (number of

[9] A comparative analysis of the ELBU data with that from the official household survey (*Encuesta Continua de Hogares*) run by the local statistical office (INE) in terms of income, employment situation and other socio-economic variables shows very similar results (see Failache, Salas and Vigorito (2016) for details). However, as is the case of most household surveys, recent comparisons with information coming from income tax records show that labour earnings and pensions are well captured in the ECH, although top and capital incomes may be undercaptured (Burdín, Esponda and Vigorito, 2015). Informal income is included in the ECH and the ELBU. However, in the period under analysis, 80% of the labour force had formal employment (INE, 2017).

household members per room) in the case of housing. In order to include the 2006 and 2011/12 waves, we only include one lag (2004 and 2006, respectively). Additionally, to assess whether adaptation depends on being exposed to poverty, in some specifications we substitute continuous poverty variables and instead use poverty in the respective domain (income poverty, and overcrowding operationalized as more than 2 persons per room). X_k is a set of variables reflecting current individual characteristics (marital status, employment status, age and average educational attainment of adults in the household), f indicates individual fixed effects, A represents the corresponding wave and *e* is an error term. The hypothesis test to determine adjustment of reported satisfaction levels in a certain domain in response to changes in income or housing conditions can be expressed as:

$$H_0: \sum_{k=1}^{T} \alpha_k = 0 \qquad \text{versus} \qquad H_1: \sum_{k=1}^{T} \alpha_k \neq 0$$

In the absence of adaptation, past income streams would have no effect on present life satisfaction. However, if there is adaptation to higher levels of income, the sum of lagged income coefficients should be negative.[10]

We also carried out separate estimations for each wave including present and lagged objective well-being variables for each domain to check the differences with the fixed effects estimations. As it is the case of Clark et al (2009), the estimated coefficients in this case are much larger, overestimating the effects with respect to the fixed effects specifications.[11]

As introduced earlier, different underlying mechanisms can explain potential adaptation phenomena. Whereas the capabilities approach looks at a downward adjustment involving reduction in aspirations to impoverished living conditions, in the happiness literature there will be an upwards adjustment due to changing expectations over time (Clark, 2009; Comim, 2005). Thus, in the first perspective, adaptation will mainly be verified among poorer socio-economic strata, while in the second one, the rich will be more prone to adaptation. To understand which of these changes is at play, in a separate group of estimations we differentiate among those individuals that have experienced an income increase of 10% or more since the last wave; those whose income remained steady (increase or decrease of less than 10%); and those who experienced a fall of 10% or more.

As was mentioned in section II, various studies have shown that reference groups influence reported satisfaction. The database used in this article allows for a fairly accurate identification of the peer group of the households analysed, since the original sample was based on entire class groups. In this way, we can identify the reference group of the adults of interest from the characteristics of adults responsible for the classmates of each child. As was mentioned, the sample is representative of children attending first-year public schools in Montevideo and the metropolitan area in 2004. Therefore, parents share a set of activities that take place at the school, interact with each other and most of them live in the same neighbourhood. In our estimations, we included two different indicators of reference group outcomes in separate equations: objective well-being (income or crowding) and the average level of satisfaction in the domain of interest. Averages were computed for the households comprising the initial 2004 school group for each observation.

[10] A potential source of endogeneity might be given by the fact that improvements in life satisfaction levels could h impact on income. Di Tella and MacCulloch (2008) conducted empirical tests that suggest that such shocks do not significantly bias the coefficients.

[11] We did not include these results due to space constraints, but regression outputs are available on request to the authors.

Due to potential measurement error, sorting into schools (Lavy et al., 2009, Halliday et al., 2007) and the potential endogeneity among the respondent's subjective well-being and that of the reference group, we instrumented subjective well-being reference group variables. The instruments were the group mean and standard deviation in the respective objective variable (income or crowding) corresponding to a school in a neighbourhood. To choose the comparison school we run an OLS regression for 2004 (the baseline) on the height-for-age score (zscore) of the reference child against a set of observable variables including maternal education, a parabolic expression of per capita household income, age of the adult responsible for the child, school category and area. After that, we predicted a score for each household and computed the average by school group. Then, we selected the school with the closest average among those in the surrounding neighbourhoods (*barrio*). As is shown in the results section, in the case of life and economic satisfaction we reject the weak instruments hypothesis.

4. Main results

In what follows we present our main results. We first present a general overview of the evolution of quality of life and subjective well-being in Uruguay (II.1), and then we present the main findings of the econometric analysis (II.2).

4.1 Descriptive statistics

As was mentioned in the introduction, Uruguay experienced substantial economic growth between 2004 and 2011/12 and a significant fall in income poverty and inequality. Exploiting the panel nature of the data, Table 2 depicts transitions into and out of poverty in the two domains of interest in this article. Income poverty has a higher incidence than housing poverty, measured as over-crowding. However, persistence is high in the two cases: around 70% of the households remained in the same condition in both periods. At the same time, approximately 20% of the households climbed out of poverty in the two dimensions. The incidence of over-crowding is less than that of income poverty.

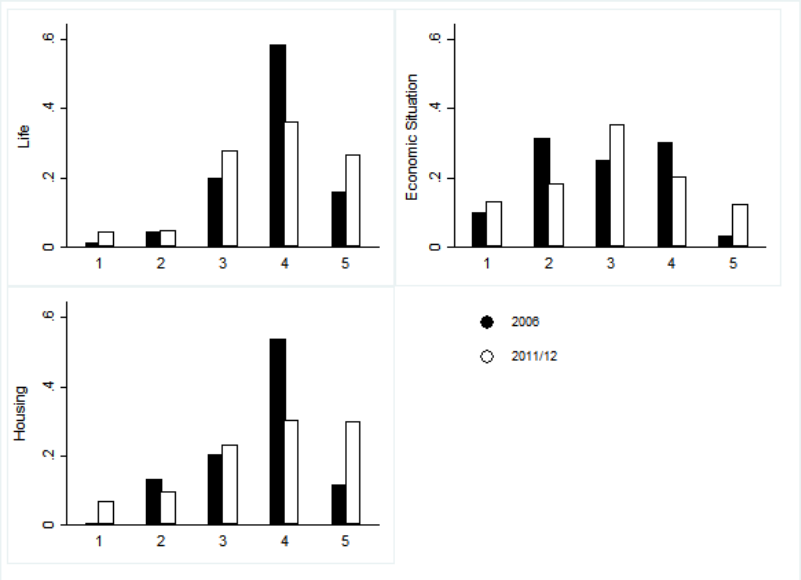
Table 2. Poverty transition matrices by domain: 2004, 2006 and 2011/12

t/t+1	Income		Crowding	
	Non Poor	Poor	Non Poor	Poor
2004/2006				
Non poor	0.163	0.033	0.437	0.127
Poor	0.180	0.624	0.143	0.293
2006/2011				
Non poor	0.230	0.115	0.478	0.102
Poor	0.139	0.516	0.182	0.238
2004/2011				
Non poor	0.151	0.046	0.457	0.107
Poor	0.217	0.585	0.202	0.233

Source: own elaboration based on ELBU data.

Meanwhile, between 2006 and 2011/12 subjective well-being also experienced significant variations, with increases in all the domains considered. However, gains were larger in housing, followed by life in general in an intermediate position and then economic situation (Graph 1).

Graph 1. Subjective well-being by domain: 2006 and 2011/12

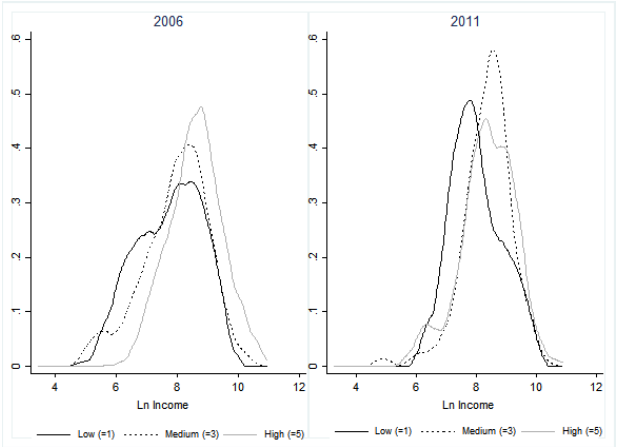


Source: own elaboration based on ELBU data

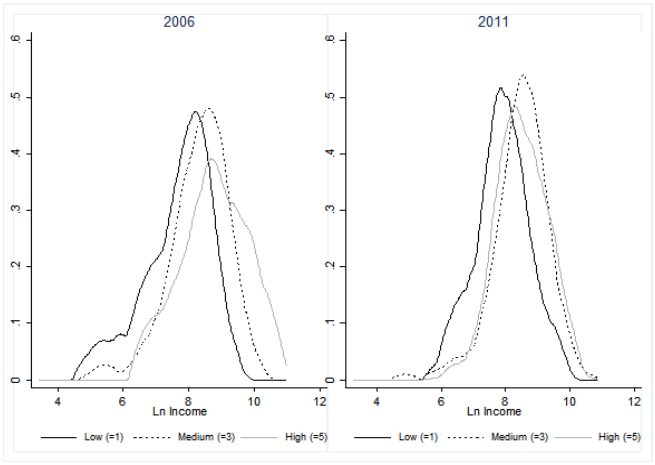
Higher satisfaction levels are associated with higher per capita household income for all the domains (Graph 2). However, when comparing the evolution of the income distribution by level of life satisfaction, we see that the evolution was very similar across all groups and a similar pattern can be observed in terms of economic situation and housing satisfaction. Income inequality also fell within each satisfaction level and the three distributions within each domain became closer.

Graph 2. Per capita income distribution and subjective well-being by domain

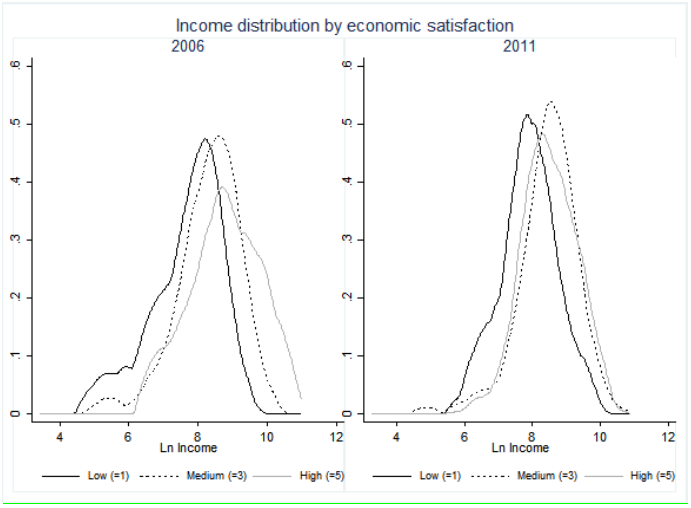
a) Life satisfaction



b) Economic satisfaction



c) Housing satisfaction



4.2 Econometric analysis

In what follows, we present the results of the econometric analysis for each subjective well-being domain. In all cases, we performed three types of estimations of the effects of the objective variable of interest (income or crowding) and its lag. In a first group of estimations we present a model that includes the continuous variable of interest. In order to capture whether deprivation experiences result in different responses in terms of adaptation, in a second group of estimations, we include a set of dummy variables that identify whether the household experienced deprivation in the domain of interest. Finally, a third group of estimations differentiates whether per capita household income experienced a decrease, an increase or remained steady. Due to space constraints, in each case we present tables reporting only the coefficients of interest.[12]

As was argued in previous sections, a person will develop adaptive preferences if her levels of satisfaction in a certain dimension have been affected by her past objective situation. In terms of the present specifications, a negative sign in the lagged objective indicators (or a positive one in

[12] Full regression outputs can be requested from the authors.

the case of deprivation thresholds) would suggest that an adaptation process is going on. As Burchardt states, satisfaction levels depend not only on who the people are but who they have been.

4.2.1 Life satisfaction

Table 3 gathers the coefficients of interest for the case of life satisfaction. In all cases, the current logarithm of income per capita exhibits a positive sign, reflecting that income is associated with increasing satisfaction levels. Meanwhile, lagged coefficients of variables are not statistically significant at conventional levels.

Table 3. Estimation results: Life satisfaction

	OLS (1)	OLS (2)	OLS (3)	2SLS (4)	OLS (5)	2SLS (6)
Income (t)	0.133** [0.056]	0.140** [0.057]	0.109** [0.054]	0.063 [0.069]	0.117** [0.056]	0.038 [0.073]
Income (t-1)	0.022 [0.052]	0.022 [0.052]	-0.020 [0.050]	-0.100 [0.079]	0.008 [0.052]	-0.057 [0.064]
Average income		-0.075 [0.140]				
Average satisfaction (life)			0.880*** [0.074]	2.574** [1.225]		
Average satisfaction (economic situation)					0.240** [0.102]	1.433** [0.659]
Observations	1650	1650	1650	1648	1650	1648
F				1.116		1.291
Prob > F				0.060		0.000
Poverty (t-1)	-0.223* [0.125]	-0.223* [0.126]	-0.186 [0.123]	-0.121 [0.141]	-0.213* [0.125]	-0.174 [0.132]
Poverty (t)	-0.280* [0.160]	-0.282* [0.159]	-0.242 [0.153]	-0.174 [0.170]	-0.265* [0.159]	-0.203 [0.163]
Poverty (t) & poverty (t-1)	-0.228 [0.178]	-0.230 [0.181]	-0.215 [0.170]	-0.193 [0.181]	-0.183 [0.178]	0.002 [0.211]
Average income		-0.009 [0.136]				
Average satisfaction (life)			0.870*** [0.076]	2.407* [1.250]		
Average satisfaction (economic situation)					0.259** [0.105]	1.332** [0.666]
Observations	1660	1660	1660	1658	1660	1658
F				1.171		1.336
Prob > F				0.013		0.000
Decrease	0.109 [0.173]	0.109 [0.173]	0.125 [0.170]	0.149 [0.162]	-0.018 0.169	0.034 0.163
Increase	-0.095 [0.163]	-0.094 [0.163]	-0.035 [0.159]	0.058 [0.167]	0.016 0.159	0.07 0.155
Average income		-0.015 [0.141]				
Average satisfaction (life)			0.898*** [0.072]	2.315** [1.068]		
Average satisfaction (economic situation)					0.302*** [0.107]	1.386** 0.667
Observations	1623	1623	1623	1622	1624	1622
F				1.228		1.320
Prob > F				0.002		0.000

Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Meanwhile, average income of the reference group was not significant. However, the average subjective well-being of the reference group exhibits a positive sign and is significant in the OLS and 2SLS estimations (the F-test rejects the weak instruments hypothesis in this case). The latter suggests that social comparisons are based on subjective outcomes, and can also be interpreted as potential processes of adaptation to the views of the peer group. Clark, Kristensen and Westergard (2009) find a positive effect of the reference group income on individual life satisfaction. They suggest that the direction of the effect may reflect an expectation to benefit more from investments in public goods when living in a more affluent neighbourhood that might outweigh the negative sign (envy effect) found in the previous literature. In an analogy, in the present case, a positive association between one's own and group satisfaction might reflect an optimistic view: if individuals see that the members of their reference group are happier, they might decode it as a signal of future achievements.

When present and past income deprivation levels are considered, lower levels of life satisfaction are found for those individuals belonging to households in extreme poverty in either the previous period or in both in the present and previous periods. Reference group effects are similar in sign and magnitude to the ones obtained for continuous variables.

Finally, disaggregating by income variation levels are not significant: apparently, life satisfaction is not affected by past trajectories in any case. Hence, adaptation in both upward and downward cases are rejected here.

4.2.2 Economic situation satisfaction

Similarly, to the previous case, in the economic situation satisfaction estimations, current income is significant and the magnitudes of the coefficients resemble those previously obtained for life satisfaction. Not surprisingly, these findings suggest that income has a direct effect when assessing one's economic situation. At the same time, lagged income also exhibits a very strong and positive effect. These results suggest that the higher past income, the higher present life satisfaction, clearly rejecting the adaptation hypothesis.

Again, in this case average income of the reference group is not significant. Differently from the case of life satisfaction, subjective well-being of the reference group also loses significance in the 2SLS estimation.

Having experienced poverty in the past reduces present satisfaction with one's economic situation and, in this case, the magnitude of the coefficients is very similar to that obtained for life satisfaction as a whole. Reference group effects are similar to the continuous variables case.

Finally, those individuals experiencing higher income growth (10% or more) are less satisfied than the rest, although the results are very imprecise. No differences are found among the two other groups. Again, these findings contradict the adaptation hypothesis in all its variants.

4.2.3 Housing satisfaction

As the objective variable is crowding in this case, the expected signs are opposite to the case of income. Current crowding exhibits a positive sign and statistically significant coefficients, whereas lagged crowding is not significant, again ruling out the adaptation hypothesis. In this case, again, average income of the reference group is not significant. Meanwhile, the instruments are weak so no conclusions can be drawn regarding average housing satisfaction levels of the reference group.

Table 4. Estimation results. Dependent variable: Satisfaction with economic situation

Specification and variable	OLS (1)	OLS (2)	OLS (3)	2SLS (4)
Income (t)	0.196***	0.178***	0.134**	0.117
	[0.060]	[0.063]	[0.058]	[0.072]
Income (t-1)	0.143***	0.141***	0.091*	0.077
	[0.051]	[0.051]	[0.049]	[0.063]
Average income		0.196		
		[0.146]		
Average satisfaction (ES)			0.930***	1.189*
			[0.088]	[0.646]
Observations	1648	1648	1648	1646
F				1.875
Prob > F				0.00
Poverty (t-1)	-0.090	-0.084	-0.055	-0.044
	[0.125]	[0.125]	[0.119]	[0.130]
Poverty (t)	-0.519***	-0.494***	-0.465***	-0.448***
	[0.168]	[0.169]	[0.158]	[0.161]
Poverty (t) & poverty (t-1)	-0.366**	-0.340*	-0.203	-0.153
	[0.175]	[0.174]	[0.165]	[0.209]
Average income		0.148		
		[0.139]		
Average satisfaction (ES)			0.939***	1.233*
			[0.086]	[0.657]
Observations	1658	1658	1658	1656
F				1.943
Prob > F				0.00
Decrease	0.017	0.010	0.040	0.047
	[0.183]	[0.183]	[0.174]	[0.162]
Increase	-0.299*	-0.310*	-0.233	-0.213
	[0.174]	[0.175]	[0.166]	[0.157]
Average income		0.272*		
		[0.148]		
Average satisfaction (ES)			0.985***	1.271*
			[0.090]	[0.649]
Observations	1621	1620	1621	1619
F				1.877
Prob > F				0.00

Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 5. Estimation results. Dependent variable: Satisfaction with housing

Specification and variable	OLS (1)	OLS (2)	OLS (3)	2SLS (4)
Crowding (t)	-0.101***	-0.100**	-0.094***	-0.081
	[0.038]	[0.041]	[0.036]	[0.050]
Crowding (t-1)	-0.044	-0.045	-0.025	0.015
	[0.036]	[0.037]	[0.033]	[0.062]
Average income		-0.040		
		[0.153]		
Average housing satisfaction			0.941***	2.809
			[0.067]	[2.112]
N	1633	1633	1633	1631
F				0.930
Overcrowded (t-1)	0.122	0.122	0.159	0.225
	[0.099]	[0.099]	[0.097]	[0.150]
Overcrowded (t)	-0.009	-0.005	-0.044	-0.119
	[0.132]	[0.132]	[0.126]	[0.176]
Overcrowded (t) & overcrowded (t-1)	-0.005	-0.005	0.077	0.236
	[0.118]	[0.119]	[0.116]	[0.240]
Average income		-0.044		
		[0.161]		
Average housing satisfaction			0.964***	2.849
			[0.067]	[2.223]
N	1658	1658	1658	1656
F				0.933

Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

5. Final comments

In this study we provide evidence on adaptation and adaptive preferences for the case of Uruguay. Our main findings reject the hypothesis that people experiencing more adverse circumstances adapt and are more satisfied with life, their economic situation and housing than those with access to more resources and opportunities. In fact, in some cases, those individuals with higher levels of income or better housing conditions in the past, tend to declare higher subjective well-being levels.

These results contradict the findings of Burchardt (2004) and Di Tella and MacCulloch (2008) for developed countries. At the same time, the fact that we are using a panel based on children from public schools truncates the income distribution somewhat due to the 15% of households outside of public education being concentrated in the highest income groups, which can reinforce the idea that adaptation does not occur in populations more exposed to higher objective well-being deprivation levels than those observed in the developed world. It must also be considered that in this time span, most households can be expected to have experienced increases in income since it was a recovery period after a severe economic crisis that peaked in 2002.

There is no evidence of an adjustment in life satisfaction or satisfaction in a particular domain due to exposure to deprivation associated with past income.

With regard to the direction of comparisons, having experienced different income or crowding growth rates does not affect current subjective well-being, ruling out both ascending and descending adaptation processes.

We also explored the role of social interactions. Average performance of reference groups in terms of objective well-being was not significant across the different specifications in almost all the subjective well-being domains considered in this study. However, after correcting for potential endogeneity problems, the average satisfaction levels of the peer group featured prominently in the case of life satisfaction. These findings suggest that adaptation might operate in this case through the signals that individuals observe from the degree of conformity of their reference groups rather than in relation to the past history of deprivation. However, these effects need to be further explored.

One of the main caveats of this article, is that the dataset we used has only three waves. To further test the stability and persistence of our findings, more waves and domains need to be added and explored. Additionally, qualitative work could shed more light on how adaptation processes are generated and reproduced.

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