Income, Unemployment, Higher Education and Wellbeing in Times of Economic Crisis: Evidence from Granada (Spain)

Jorge Guardiola · Monica Guillen-Royo

Abstract   The 2008 financial crisis hit the world's economies in different ways. In Spain, the economic crisis has had an acute effect on unemployment and access to education, aggravated by the austerity plans of the Spanish government. In order to cope with the crisis, the government's efforts have aimed to control public deficit and stabilize financial markets, rather than to directly support citizens' wellbeing. This paper studies the relationship between unemployment, education, income and subjective wellbeing (SWB) in the city of Granada, one of the most negatively affected by the crisis, using representative household data for 2012. We approach SWB from three different but interrelated angles through answers to questions on life satisfaction, financial satisfaction and material needs satisfaction. Results reveal that in this context of crisis and high levels of unemployment, higher education and employment status are still strong determinants of SWB but that income has a weak and non-robust relationship with SWB, except in the case of satisfying material needs. In addition, the unemployment levels of the same age-group are also negatively linked with people's SWB, contrary to what we would expect from previous literature predicting a positive impact of having others around experiencing the same precarious situation. Thus, our results suggest that in Spain, policies to address the effects of the crisis should strengthen their focus on providing employment opportunities and keeping people in education rather than cutting public spending to meet the needs of the financial markets.

Keywords   Economic crisis · Subjective wellbeing · Unemployment · Material needs · Spain

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1 Introduction

The 2008 financial crisis affected the world in many ways, not only economically, but also in terms of individual rights. The case in Spain illustrates the harmful effects of the crisis on civil society. The financial crisis affected Spain at the peak of economic prosperity in terms of GDP growth and job creation, driven mainly by the construction sector and related industries and services. However, the combination of increasing prices, supply and demand in those sectors generated a bubble that burst when the impact of the international financial crisis was felt in Spain (Carballo-Cruz 2011).

With the decline of the construction sector, Spain has experienced negative GDP growth rates. Starting in 2009, the GDP in Spain has continually decreased, except for 2011 with a slight increase of 0.1 % (INE 2013). Since Spanish banks were heavily involved in the construction sector, the fall of the the construction industry has dragged down all of the financial system, which has received more than 60.000 million euros in bailout funds since 2009, around 6 % of total GDP. Public accounts have worsened from a 2 % surplus in 2007 to 10.6 % deficit in 2012 (INE 2013), and austerity measures have been demanded by the European Union to guarantee financial stability. Austerity policies have added to the situation of recession and contributed to the raise of unemployment rates, the fall of household disposable income and the reduction in opportunities to access higher education.

In Spain, unemployment has traditionally been a cause for unrest and has been at the core of many of Spain's problems in past decades, but in recent years this problem has become more acute (CIS 2013). The unemployment rate rose from 9 % in January 2008 to 26.6 % in November 2012, the latter figure being the highest in the European Union (Eurostat 2013a). Parallel to this, the amount of the national budget devoted to unemployment benefits increased from the beginning of the crisis until 2010, and has since decreased from then on (Ministerio de Hacienda y Administraciones Públicas 2013). As a result, the number of unemployed people with no subsidy has increased. This could not be stopped by the implementation of several labour market reforms that have focused on giving more flexibility to cut wages and making it cheaper to dismiss individual employees and implement collective lay-offs (BOE 2012). The goal has always been to make the labour market more flexible and reduce unemployment, but so far no results have been produced to evidence this effect.

Decreases in public servant and private worker salaries, together with the value of pensions, have been accompanied by increases in direct and indirect taxes which have decreased net income and increased prices, therefore undermining purchasing power. Other polemical government measures have contributed to lower wages. For instance, the legal minimum wage was not raised in 2012 (BOE 2011), which is the first time since its creation in 1980. Although inflation rate has been moderate during the crisis, the combination of raising taxes, lower wages and lower job opportunities has decreased income inestimably. As a result of the decreasing disposable income and employment opportunities, material needs are failing to be met. Caritas, a catholic organization that gives social support to excluded and deprived people who cannot satisfy their basic material needs, published that 1,015,276 people asked them for help in 2011, 2.7 times more than in 2007 (Caritas 2012). Mirroring this decline, the percentage of people that earned less than 60 % of the national median equivalised disposable income rose from 19.6 in 2008 to 20.7 in 2010 (Eurostat 2013b).

Austerity, as a response to the crisis, has not only hit income and deteriorated employment opportunities, but also affected key components of the Spanish welfare system. Education, an important pillar of the Spanish welfare state, has also been affected by

economic cuts from 2,933 million euros in 2008 to 1,945 million euros in 2013 (Ministerio de Hacienda y Administraciones Públicas 2013), an adjustment that was not in response to a decrease on the number of students. Education cuts have meant an increase in university fees, among others, making access to higher education more costly.

As a result of austerity policies, the Economic, Social and Cultural Rights Committee of the United Nations has requested the Government of Spain to guarantee human rights through legislative measures in order to avoid rising discrimination, poverty, unemployment and health risks and other potential negative consequences of recession (United Nations 2012). The latter are already reflected in subjective wellbeing indicators revealing a decline in the subjective wellbeing of the Spaniards. According to the Eurobarometer (2013), Spain has reached its lowest level of life satisfaction since 1994; the percentage 'very satisfied' is currently at a 7 %, the same as in 1994 but 13 points below the level reached between October 2005 and April 2008, when the country was growing at an average rate of around 3 %. The positive affect, that is the feeling of pleasant emotions, also fell, while the negative affect, which is the feeling of negative emotions, grew in Spain during the crisis. This pattern changed in a way that, as suggested by Helliwell et al. (2012), was even larger than would be expected from their income decrease and increases in unemployment.

This paper studies the relationship between unemployment, education, income and subjective wellbeing (SWB) in Granada, one of the Spanish cities most negatively affected by the crisis with an unemployment rate of 35 %. The goal is to investigate the link between key aspects of people's lives that are being jeopardized by the economic crisis and SWB, linking with recent studies analyzing the effects of the crisis in other national contexts (Deaton 2012; Gudmundsdottir 2013; Walsh 2011). As we will address further in the next section, the socio-economic reality of a region or country has a clear impact on people's perceptions of their own situation; reducing the stigma of unemployment or poverty as others around share the same experience (Graham and Felton 2006; Clark 2003). Thus, we expect that in Granada the high unemployment levels, the generalised cuts in income and the reduced access to higher education would dampen the negative relationship between people's socio-economic situation and their SWB. In order to investigate if this hypothesis holds, we draw on data from a representative survey undertaken in Granada in 2012. To our knowledge, this is the first attempt to analyse the relationship between income, unemployment and education with SWB in the backdrop of the current Spanish financial crisis. The paper is structured as follows: Sect. 2 reviews the existing literature on the relationship between economic crises and subjective wellbeing. Section 3 presents the empirical analysis of the relationship between income, unemployment, education and SWB in Granada and discusses the findings. Conclusions and limitations are introduced in Sect. 4.

2 Literature Review

Addressing the effects of an economic crisis from a SWB perspective implies relying on people's own appraisal of their situation and not only on traditional socioeconomic indicators. Changes in the two groups of variables are not always correlated and distinctions have to be made between short and long-term effects. Several studies suggest that variables such as inflation, income and unemployment are not always related to SWB measures in the long run, although short-term changes are commonly found to be of great importance (Helliwell et al. 2012). As Easterlin et al. (2010) indicate, recessions and economic

contractions are associated to changes in the average SWB of the population in the short run but in the long run (10 years or more), neither rich nor middle or low income countries experience changes in happiness levels that can be explained by the evolution of their economy alone.

Studies on the effects of the recent financial crisis using longitudinal data confirm the limited influence of falls in employment levels and income (two key determinants of happiness in cross-sectional studies) on the SWB of Europeans and their US counterparts. Gudmundsdottir (2013) for example, in her analysis of the economic crisis in Iceland, shows that it has not had a particularly negative effect on happiness and that experiencing financial difficulty has been a better explanation for SWB variations than a lower income or being unemployed. The latter has also been of limited importance in explaining SWB variations during the financial crises in Ireland and the US (Walsh 2011; Deaton 2012). However, despite the limited predictive power of socioeconomic variables in longitudinal studies, cross-sectional analyses still suggest the importance of income and unemployment levels for the SWB of people during periods of crisis (Graham 2010). This is particularly the case regarding job losses that, for example, in the US could only be compensated by a six-fold increase in income (Deaton 2012, 17).

Generally, cross-sectional within-country studies find income to be positively and significantly related to SWB when a logarithm of income is included (Van Praag and Ferrer-i-Carbonell 2004). This reflects the diminishing returns of income on SWB implying that the same proportional increase in income yields lower returns in terms of SWB at higher incomes than at lower ones (Graham et al. 2010). Efforts to estimate the point at which income stops being relevant for subjective wellbeing have been made in the US, indicating that beyond an income of around $75,000, the relationship between income and SWB ceases to exist (Kahneman and Deaton 2010). However, the latter only holds with measures of SWB capturing hedonic or affect-related wellbeing. As Kahneman and Deaton point out, emotional measures such as happiness and positive or negative affect do not respond to changes in income at higher incomes, but measures of life evaluation like Cantril's (1965) ladder do, showing a positive linear relationship with the logarithm of household income. This is also the case when studying longitudinal data during the current economic crisis. As Deaton (2012) indicates, positive emotions return to the pre-crisis level after about a year despite rising unemployment and diminishing incomes, whilst this is not exactly the case for more cognitive measures such as life evaluation.

The finding that measures of wellbeing based on emotions such as positive, negative affect or happiness are only sensitive to changes in income before a certain threshold has commonly been explained in terms of basic needs. Veenhoven (2007) argues that 'needs are requirements for functioning that are so vital that evolution has safeguarded their fulfilment by means of hedonic signals'. Thus, people will experience an array of negative feelings up to the point where their basic needs are met, beyond which more income or consumption will not have a significant effect on their emotional wellbeing.

The frustration of not being able to satisfy one's needs might explain the fact that richer people are usually happier than their poorer counterparts. However, it does not explain why social comparisons or relative consideration are as important for the poor as they are for the rich (Graham and Felton 2006). If the poor were only concerned with satisfying basic needs, measures of relative income would not be significantly affecting their SWB in such diverse countries as South Africa (Kingdon and Knight 2007), Peru (Guillen-Royo 2011) and Nepal (Fafchamps and Shilpi 2006). The widespread importance of social comparison suggests that in contexts of economic crisis, where many people see their income and relative position reduced, income should be strongly related to SWB as it represents both

the possibility of meeting ones' needs and also of keeping a relatively favourable social position.

In addition to income, unemployment is also a variable repeatedly found to be negatively related to SWB in cross-sectional studies. The effect of unemployment has been found to be worse for SWB than getting a divorce, for example (Clark and Oswald 1994), and its detrimental effect goes beyond a reduction in one's income to account for other personal and social consequences. Unemployment decreases opportunities to meet other people and also brings about a loss of social status and self-esteem. All of these factors influence emotional and cognitive assessments of wellbeing negatively (Helliwell et al. 2012).

The effects of unemployment are not confined to the unemployed, but also affect the rest of society, as people become scared of future job losses for them and their families. Thus, through their toll on job availability, recessions can be expected to result in generalized losses in SWB. However, this might only be true if recessions bring moderate increases in unemployment rates (Helliwell and Huang 2011). When unemployment spreads, people feel a lesser stigma from not having a job, and this dampening effect is further increased if someone in the family also becomes unemployed. Clark (2003) calculates that an unemployment rate of 24 % in the UK would eliminate the differences in SWB between the unemployed and the employed. This rate is lower than the figure in Granada in 2012, suggesting a potentially non-significant effect of unemployment on SWB among its citizens. Furthermore, Graham (2010) finds that a higher general unemployment rate is positively associated with SWB in Russia and many Latin American countries; supporting the argument that not having a job in contexts of joblessness reduces the stigma of being unemployed.

Along with income and unemployment, the economic crisis, mainly in the South of Europe, is negatively affecting wellbeing through a reduction in State support for social programs and higher education. People's educational achievements are not always found to directly determine SWB. They usually affect wellbeing through their effect on income, as in most societies the higher the education the higher the income received (Frey and Stutzer 2002). However, additional years in formal education seem to enable people to get more job security and stability and facilitate promotion and thus a higher status, which are all positive contributors to SWB (Helliwell et al 2012). However, achieving a higher status through education is difficult if people around also have opportunities to get a better education through public or private means. Previous studies analyzing satisfaction with schooling indicate that this is a domain greatly dependent on the situation of the comparison or reference group as when the latter gets richer satisfaction with schooling diminishes (Fafchamps and Shilpi 2006; Guillen-Royo 2011). This suggests that in the context of Granada, where public and private means to support higher education are meagre, we could expect a positive relationship between a general low level of education in the society and the SWB of its members.

3 The Case of Granada

3.1 Data, Variables and Hypothesis

The empirical analysis draws on data from a representative survey of the urban area of Granada. Granada is a city with 239,000 inhabitants located in Andalusia, in the South of Spain, a region with one of the highest unemployment rates in the country, averaging 35 %

in 2012 (37 % for women and 65 % for people under 25) and the lowest social welfare in Spain (Zarzosa and Somarriba 2013). The province of Granada displays similar unemployment rates to the regional average (around 37 %), but its progression since the advent of the crisis is remarkable, as in 2008 the unemployment rate was only 15 % (INE 2013). This high unemployment rate makes Granada an interesting location for a study on the determinants of SWB in a situation of crisis.

The survey from which our data is drawn was funded by the Spanish Government and implemented by Almanara Social Consulting in 2012 on a population of 5,483 households, from which a representative sample of 1,472 households was obtained. There was one respondent per household. Respondents had to be over 18 years old and when the household was formed by a family, the head of the household or their spouse would be approached for the interview. The questionnaire gathered information on socioeconomic variables, as well as water access and SWB variables. After eliminating missing values, we were left with a total of 903 households.

The SWB variables used in this study are *life satisfaction*, *satisfaction* with income and *satisfaction with material needs given the available household income*. The life satisfaction variable was created using the following question: "Are you satisfied with your life in general?" Respondents answered using a scale of 1–5, with a score of 1 meaning very dissatisfied, 5 very satisfied and 3 as a middle neutral point. The satisfaction with income scale was constructed by asking people if they were satisfied with the income they earn and they replied using the same five-point scale. Finally, we also asked if they believed that with the available income in the household they could meet their material needs. The possible answers to these questions were: 1 we still need a lot more to satisfy our needs, 2 we need only a little more to satisfy our needs, 3 we just get by and 4 we satisfy our needs comfortably.[1]

These SWB questions are cognitive or evaluative as they focus more on people's appraisal of their situation than on their emotional states (Helliwell et al. 2012). However, they have different implications as *satisfaction with income* concerns the current financial situation of the household; *satisfaction with material needs given the available household income* links the financial situation of households with their consumption requirements; and *satisfaction with life* goes beyond material concerns to incorporate non-material pursuits. The Spearman correlation coefficients of the SWB variables range from 0.32 for life satisfaction and satisfaction with material needs to 0.46 for income and material needs satisfaction.

The independent variables are chosen to represent the key socio-economic aspects more severely influenced by the current recession and the austerity policies of the Spanish government, namely income, unemployment and education. These are traditional variables included in cross-sectional studies of happiness determinants (Frey and Stutzer 2002) so we have ample evidence of their significance and the direction of their relationship with SWB.

Concerning income, we created three variables, the logarithm of the income per capita earned by the household and a dummy variable capturing people's perception of the evolution of their income 2 years prior to the interview. Interviewees were asked to group

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[1] The original questions and answers in Spanish are as follows: ¿Está usted satisfecha/o con su vida en general? (1) Muy satisfecha/o, (2) Satisfecha/o, (3) Normal, (4) Insatisfecha/o, (5) Muy insatisfecha/o, (6) NS/NC; ¿Está usted satisfecha/o con la renta que gana/n? (1) Muy satisfecha/o, (2) Satisfecha/o, (3) Normal, (4) Insatisfecha/o, (5) Muy insatisfecha/o, (6) NS/NC; En su opinión, con la renta de la que dispone/n en su hogar… (1) Se satisfacen holgadamente las necesidades, (2) Llega justo pero se satisfacen las necesidades, (3) Falta un poco para satisfacer las necesidades, (4) Falta mucho para satisfacer las necesidades, (5) NS/NC.

household income into different categories. We decided to make this variable continuous by taking the Neperian logarithm of the average value of each category, dividing by the number of members in each household. This transformation to create the variable *income* is normally used when the income variable is categorical (Clark et al. 2008; McBride 2001). The questionnaire also contained the following question: Is household disposable income: (1) >2 years ago? (2) the same as 2 years ago? or (3) lower than 2 years ago? We create a dummy variable, *worse hh income,* which equals 1 if the interviewee chose category 3 and 0 if otherwise. The incorporation of these variables in our model is important, as it gives an idea of the temporal dimension. The database is cross-section, and the ideal would be a panel data in order to take into account the income variations, as well as control for unobserved heterogeneity such as personality traits. Not having panel data restricts our analysis to a single point of time, and this dummy variable enables us, at least, to have an idea of the income evolution. Unemployment was estimated using two variables: The working status of the interviewee as unemployed and the percentage of unemployed people in the household. In the questionnaire, people were asked about their professional situation and we created the *unemployed* variable, which equals 1 if the interviewees declared themselves unemployed and 0 otherwise.[2] In order to account for the importance of higher education on SWB, we constructed a dummy variable called *higher_educ* that equals 1 if the interviewee has a university degree. In order to control for demographic traits, we include the variables *age* and *gender* (one indicates that a woman answered the survey) in the study.

The reference groups of the key independent variables are generated using age-groups. We calculate the average values of the variable for different age groups, namely from 18 to 30, from 31 to 45, from 46 to 65 and for people over 65 so every participant has a value for this variable that corresponds to the average value for his or her age group. The variables are *unemployed_med*, *income_med* and *educ_med*. Table 1 presents the descriptive statistics of the variables.

The hypotheses of our study are as follows:

- **H1**: As the crisis has had a direct effect on the financial and economic situation of Spanish households, SWB variables addressing satisfaction with the economic domain should be better explained by socio-economic variables, therefore the explanatory power of those variables on SWB should be greater for *financial satisfaction* and *satisfaction with material needs given the available household income*.
- **H2**: According to the literature, we would expect a positive relationship with the SWB related to income and education and a negative relationship of the variable capturing unemployment status.
- **H3**: We would also expect a negative relationship between the comparison variables and SWB except concerning unemployment status, since previous literature suggests that in contexts of economic depression, a high level of unemployment of the reference group might be positively appraised.
- **H4**: Regarding our variable capturing the change in the household economic level, we would expect a significant and negative association with SWB.

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[2] The different options were self-employed, employee, unemployed, retired, student, homemaker and others.

Table 1 Descriptive statistics

Dependent vble, satisfaction	%	Independent vble	Mean/%	SD
Sat with life		Age	52.43	(20.2831)
Very dissatisfied	0.35	Gender (%)	56.82	
Dissatisfied	2.90	Income	6.25	(1.4532)
Neither satisfied nor dissatisfied	24.82	Worse hh income(%)	29.46	
Satisfied	49.93	Unemployed (%)	6.87	
Very satisfied	21.99	Higher_educ (%)	47.53	
Sat with financial sit		Income_med	6.1581	(0.2995)
Very dissatisfied	3.53	Unempl_med	0.0673	(0.0561)
Dissatisfied	15.56	Educ_med	0.4724	(0.1675)
Neither satisfied nor dissatisfied	33.86			
Satisfied	39.48			
Very satisfied	7.56			
Sat with material needs				
We are very far	1.87			
We just get by	9.81			
We get by comfortably	54.36			
I satisfy them very well	33.96			

Standard deviation of quantitative variables in parentheses

3.2 Estimation Strategy and Results

In this section we estimate the relationship between our independent variables and the three measures of SWB, introducing *age* and *gender* as control variables. Given the ordinal design of each of the SWB variables, we estimate each model using an ordered logit model robust to heteroskedasticity, described in the following expression:

$$SWB_i^* = x_i'\beta + \varepsilon_i,$$

where SWB_i^* is a latent variable that refers to the SWB of the individual i, β is the vector of the regression parameters x_i' is the vector of independent variables and ε_i is the error term. The dependent variable progressively crosses higher thresholds, and for a low value, the SWB is worse than for higher values. Mathematically, we can express an m-ordered model as:

$$SWB_i^* = j \, if \, \alpha_{j-1} < SWB_i^* \le \alpha_j \quad j = 1, \ldots, m,$$

where α refers to each threshold and j to the number of thresholds. In the case of our analysis, m is equal to 5 for the life and financial satisfaction variables and equal to 4 for the needs satisfaction variable. The sign of each regression parameter determines if SWB_i^* increases or decreases with the independent variable associated to it. If the estimated parameter is positive, then an increase of the independent variable associated to it increases the probability of being in the highest category, and decreases the probability of being in the lowest category. The analysis is implemented using Stata, and more information on the method can be found in Cameron and Trivedi (2009).

Table 2 The influence of key variables on SWB: life satisfaction

Variable	(1)	(2)	(3)	(4)
Age	−0.0003 (0.9406)	0.0000 (0.9985)	−0.0016 (0.7737)	0.0000 (0.9988)
Gender	−0.3739*** (0.0045)	−0.3738*** (0.0045)	−0.3715*** (0.0049)	−0.3748*** (0.0044)
Income	−0.0149 (0.7427)	−0.0147 (0.7488)	−0.0144 (0.7531)	−0.0153 (0.7374)
Unemployed	−1.0048*** (0.0010)	−1.0059*** (0.0009)	−1.0028*** (0.0010)	−1.0049*** (0.0010)
Higher_educ	0.5658*** (0.0001)	0.5674*** (0.0001)	0.5714*** (0.0001)	0.5631*** (0.0001)
Worse	−0.0796 (0.5638)	−0.0781 (0.5677)	−0.0795 (0.5640)	−0.0808 (0.5566)
Income_med		−0.0357 (0.9257)		
Unempl_med			−0.5265 (0.7607)	
Educ_med				0.0573 (0.8971)
χ^2	46.595757	46.923151	46.897001	46.717887
Pseudo R^2	0.0222	0.0222	0.0222	0.0222

All models are significant at 1 %

* Significant at 10 %, ** significant at 5 % and *** significant at 1 %. We include p values between brackets below the estimated coefficient

The economic crisis could influence the key variables directly and indirectly, and they could be interrelated. These interrelations have been tested in economics. For example, people's education is related to the kind of employment they have and the kind of employment they have determines the income that they earn. In spite of this, a collinearity test found no problems of imperfect collinearity in our variables, the highest Variance Inflation Factor being equal to 1.33. Therefore it would seem to be fair to include all the variables in a single model.

Taking this into consideration, the estimation strategy for each SWB variable is based on the following strategy: First, we estimate a model with the control and independent variables (model 1) and then we introduce the comparison variables sequentially (models 2, 3 and 4). Table 2 presents the results for satisfaction with life, Table 4 for financial satisfaction and Table 6 for needs satisfaction. Tables 3, 5 and 7 include marginal effects for the significant variables in model 3 for each satisfaction variable. The Chi squared test of global significance indicates that all models are suitable for interpretation. As Table 2 below indicates, age is not significantly in explaining life satisfaction in our sample. The coefficient for gender has a negative sign indicating that women in Granada are more likely to be dissatisfied than men, which is consistent with empirical evidence in Spain (Mochón and Ahn 2007). As expected, being unemployed and having higher education are both significant determinants of life satisfaction in Granada but personal income has a non-significant coefficient. Marginal effects in Table 3 give an idea of the effect of each significant variable on life satisfaction. For instance, becoming unemployed increases the chances of being dissatisfied with life by 4 % and decreases the probability of being very satisfied by 11 %, whilst getting higher education has

Table 3 Marginal effects for satisfaction with life

	Very dissatisfied	Dissatisfied	Normal satisfied	Satisfied	Very satisfied
Age					
Gender		0.0106543	0.0630676	−0.0170287	−0.0577854
Income					
Unemployed		0.0446453	0.1829039	−0.1166273	−0.1157269
Higher_educ	−0.0017517	−0.0170209	−0.0977947	0.0295047	0.0870626
Worse					
Unempl_med					

Marginal effects for each outcome, computed at the mean of the quantitative variables. The fields in blank indicate that the marginal probability for that outcome was not significant at 10 %

Table 4 The influence of key variables on SWB: satisfaction with income

Variable	(1)	(2)	(3)	(4)
Age	0.0101** (0.0143)	0.0151*** (0.0019)	−0.0039 (0.5506)	0.0048 (0.3383)
Gender	−0.2866** (0.0297)	−0.2861** (0.0301)	−0.2707** (0.0395)	−0.2777** (0.0348)
Income	0.0717 (0.1442)	0.0753 (0.1265)	0.0727 (0.1419)	0.0746 (0.1301)
Unemployed	−2.0081*** (0.0000)	−2.0441*** (0.0000)	−2.0510*** (0.0000)	−2.0411*** (0.0000)
Higher_educ	0.7395*** (0.0000)	0.7713*** (0.0000)	0.8007*** (0.0000)	0.7896*** (0.0000)
Worse	−0.2795** (0.0468)	−0.2458* (0.0823)	−0.2836** (0.0433)	−0.2562* (0.0677)
Income_med		−0.6768 (0.1119)		
Unempl_med			−5.3477 *** (0.0035)	
Educ_med				−0.9976** (0.0392)
χ^2	102.4706	104.7777	111.6764	106.9549
Pseudo R^2	0.0546	0.0559	0.0587	0.0567

All models are significant at 1 %

* Significant at 10 %, ** significant at 5 % and *** significant at 1 %. We include *p* values in parentheses below the estimated coefficient

the opposite effect; reducing the probability of being dissatisfied by 2 % and increasing that of being very satisfied with life by 9 %.[3] The average income, unemployment and education levels of the reference group are not significantly related to life satisfaction in Granada.

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[3] Even though VIF indicates that there is no problem of multicollinearity, we estimate different models introducing the variables sequentially. We are especially concerned by the possible influences between income, education and unemployment. However, the results are robust to adding or deleting variables in all models considering each dependent variable.

Table 5 Marginal effects for satisfaction with income

	Very dissatisfied	Dissatisfied	Normal satisfied	Satisfied	Very satisfied
Age					
Gender	0.0041179	0.0316578	0.0314572	−0.0506217	−0.0166112
Income					
Unemployed	0.0827378	0.3357079		−0.3208288	−0.0639955
Higher_educ	−0.0127721	−0.0954881	−0.0879481	0.1474845	0.0487237
Worse	0.0046118	0.0346491	0.0307357	−0.0536056	−0.016391
Unempl_med	0.0829485	0.6345367	0.6104553	−1.006858	−0.3210824

Marginal effects for each outcome, computed at the mean of the quantitative variables. The fields in blank indicate that the marginal probability for that outcome was not significant at 10 %

Table 6 The influence of key variables on SWB: Material needs satisfaction perception

Variable	(1)	(2)	(3)	(4)
Age	−0.0019	0.0037	−0.0095	−0.0062
	(0.6644)	(0.4812)	(0.1534)	(0.2249)
Gender	−0.5805***	−0.5771***	−0.5703***	−0.5687***
	(0.0000)	(0.0000)	(0.0001)	(0.0001)
Income	0.2817***	0.2869***	0.2847***	0.2869***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Unemployed	−1.2986***	−1.3211***	−1.2943***	−1.3035***
	(0.0001)	(0.0000)	(0.0001)	(0.0001)
Higher_educ	0.9614***	0.9944***	0.9952***	1.0039***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Worse	−0.3339**	−0.3000**	−0.3356**	−0.3143**
	(0.0216)	(0.0391)	(0.0211)	(0.0301)
Income_med		−0.7143		
		(0.1141)		
Unempl_med			−2.9765	
			(0.1309)	
Educ_med				−0.8633*
				(0.0940)
χ^2	142.10326	142.0379	141.87338	141.76629
Pseudo R^2	0.0947	0.0964	0.0962	0.0965

All models are significant at 1 %

* Significant at 10 %, ** significant at 5 % and *** significant at 1 %. We include *p* values in parentheses below the estimated coefficient

Table 4 presents regression results for models 1–4 applied to the study of satisfaction with income determinants. Our independent variables are as relevant in explaining satisfaction with income as they are with regards to life satisfaction. However, differences arise when it comes to the dummy capturing variation in income as we introduce the comparison variables. Having experienced an income reduction during the last 2 years reduces financial satisfaction. For instance, people appraising their income as worse than 2 years ago are 5 % less likely to declare themselves satisfied and 2 % less likely to report being very satisfied with their financial situation. In addition, social comparison is also important

Table 7 Marginal probabilities for material needs satisfaction perception

	Need a lot more	Need a little more	We just get by	We get by comfortably
Age		0.0006337		
Gender	0.0054131	0.0369845	0.0787034	−0.121101
Income	−0.0027981	−0.0190798	−0.0376661	0.0595441
Unemployed	0.0231001	0.132747	0.0491708	−0.2050179
Higher_educ	−0.0102255	−0.0683179	−0.1269098	0.2054531
Worse	0.0034922	0.0235372	0.041535	−0.0685644
Unempl_med				

Marginal effects for each outcome, computed at the mean of the quantitative variables. The blank fields indicate that the marginal probability for that outcome was not significant at 10 %

as an increase in unemployment of people in one's reference group is a negative determinant of satisfaction with income.

As shown in Table 5, the study of the determinants of people's perception of the satisfaction with their material needs yields similar results as the previous two studies with the exception of a robust and positive coefficient of the personal income variable. People in Granada perceived their material needs as better satisfied if they were men, with higher incomes, with incomes that have not diminished in the last 2 years, not unemployed, with higher education and in an age-group where others have do not have higher education. The negative contribution of being unemployed to the SWB variable is greater than that of life and financial satisfaction (unemployment reduces the probability of answering 'we get by comfortably' by 21 % and increases the probability of declaring to 'need a bit more' by 13 %).

4 Conclusions and Limitations

This paper attempts to reflect on the economic crisis in Spain using data from 2012 for one of the Spanish regions that has been hardest hit in terms of job destruction. More specifically, we have assessed the influence of key variables affected by the crisis using three measures of SWB.

With regards to our first hypothesis, we find, as expected, that socio-economic variables have a greater explanatory power in those models including SWB variables addressing satisfaction with the economic domain than with regards to satisfaction with life as a whole. Concerning our second hypothesis, we find a positive relationship between unemployment status and higher education with our three SWB variables. This is not the case with income, as its relationship with SWB varies according to the SWB variable we take as reference. Income has a weak and non-robust relationship with satisfaction with life and satisfaction with income and a positive relationship with satisfaction of material needs. One possible explanation for this is as follows: As the decrease in income is quite widespread—approximately 30 % of the sample declared to having experienced it and it is constantly portrayed in the news—people experiencing it could have conformed to the loss within a context of income losses.

This possible explanation in terms of habituation and adaptation does not apply, however, with unemployment. The high significance and negative impact of the unemployment-related variable on SWB, in a province with an unemployment rate of around

37 %, contrast with the results of past literature. It seems that the high unemployment figures and their rapid rise have not weakened the relationship between unemployment and SWB in Granada. Our results contradict past research indicating that with unemployment rates over 25 % people tend to see unemployment as normal, weakening the negative influence of unemployment on SWB (Clark 2003).

Regarding the third hypothesis, our results show that the average unemployment rate and higher education rate in one's age-group are negatively related with SWB. Belonging to an age-group were many people have higher education depletes both income satisfaction and satisfaction with material needs whilst a reference group with a higher unemployment rate is a strong negative determinant of satisfaction with income. However, contrary to our hypothesis, the average income of the age-group does not determine any of our SWB measures. Concerning the potential loss of stigma from being unemployed in contexts of high unemployment levels, our sample in Granada does not seem to confirm this hypothesis. Contrary to our initial expectations, being surrounded by unemployed people is a negative determinant of SWB as it probably indicates reduced opportunities to get a job in the near future or to change jobs if one is employed. Finally, as we have hypothesized, the variable capturing a negative change in the household economic level has a significant and negative association with SWB. Thus, people experiencing recent cuts in income feel worse-off than people who have not seen their income reduced.

From a SWB perspective, these results strongly support the claim that policy interventions should focus more on reducing unemployment and keeping people in higher education rather than abiding by the requirements of financial markets. Our results lead us to conclude that being unemployed and not having access to higher education are undermining the opportunities of people in Granada to experience satisfaction with life, income and material needs. Austerity policies, as argued in the introduction, have constituted the main agenda of the Spanish government within the years of the crisis, and could deteriorate the people's SWB.

The empirical part of this study has some limitations that should be addressed, particularly in the formation of the database and its usefulness in order to capture the nature of the effect of the crisis on SWB. As we mentioned in Sect. 3.1, we use cross section data, while the most appropriate would be panel data. The dataset is locally representative but not nationally and there are other key independent variables that could have an impact which are not included. Health is not included in the database, as well as other variables that may correlate with SWB, such as personality traits, affective relations with significant others. Although the sample is representative, the survey involved people in the city of Granada that lived in a house. However, as a result of not being able to pay their mortgages or rents, there are people who have lost their homes and been forced to live with relatives or friends, or who are just living in the streets. This effect is not captured by our income variable and therefore not captured by our regressions. The collective of the most vulnerable people is not a negligible one, as more than 58 thousand evictions took place in Spain in 2011, this figure more than doubling in 2012, according to the information from the Consejo General del Poder Judicial.[4] These alarming figures, along with the cases reported by the press of suicides caused by evictions and deprivation, have generated civil reactions such as the Platform against Evictions, which boycotts repossessions. The most evident noise in our house-to-house sample is that homeless people did not answer the questionnaire and obviously nor did the victims of the economic violence derived from the

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[4] The Consejo General del Poder Judicial is an autonomous and constitutional institution whose main duty is to guarantee the independence of judges in their functions.

crisis. Another aspect that is not captured concerns the people who live in structural poverty. It was not safe to implement the questionnaire in the outskirts of the city where deprivation, drug addiction and marginalization are rampant. Although this might be a common flaw of most representative databases and it could be argued that evictions and suicides are high in absolute terms, but could be low in proportional terms, we should be aware that the income effects could be greater than the data reveal.

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