

Education as a positional good: A life satisfaction approach

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1. Introduction

Standard economic theory generally assumes that individual satisfaction depends on absolute levels of income and consumption. Nevertheless, relative concerns also matter to individual wellbeing, so people may not be interested in having high levels of income or consumption but in enjoying higher levels than others. The role of relative concerns have been studied by authors such as Veblen (1898), who pointed out the importance of the ‘demonstration effects’ and ‘conspicuous consumption’ to display socioeconomic status through consumption; Duesenberry (1949) and his theory based on interdependent utilities; or the work by Hirsch (1976) and Frank (1985, 1989) on positional goods. Hirsch (1976) coined the term positional goods to refer to those goods whose value for an individual depends on how they rank in comparison to others, i.e. their value depends on relative rather than absolute consumption; hence, the contribution of these goods to individual wellbeing diminishes as other people, to whom the individual compares, get them¹.

In recent years we find increasing empirical evidence on positional concerns as determinants of individual wellbeing. Positional consumption has extensively been studied by using tailored survey experiments designed to identify whether people care for relative income and the degree of positionality of specific consumption goods². Besides, the so called ‘happiness literature’ has also attracted attention to the importance of relative income³. The work by Easterlin (1974) greatly motivated research on how economic factors affect subjective wellbeing. Focusing on the relationship between income and wellbeing, Easterlin found that, on average, individuals with higher levels of income seem to enjoy higher levels of subjective wellbeing; however, the levels of wellbeing do not tend to increase as a society becomes

¹ See Weiss and Fershtman (1998), Holländer (2001), and Frank (2005) for detailed overviews and discussion on positional concerns in the economic literature.

² In this paper we will not tackle this experimental economic literature; nevertheless, readers interested on this topic can refer to the work by Solnick and Hemenway (1998), Alpizar *et al.* (2005), or Carlsson *et al.* (2007), among others.

³ The ‘happiness literature’ bases on individuals’ self-reported data about satisfaction with life, happiness or subjective wellbeing. It is noteworthy that satisfaction with life is a component, in addition to positive and negative affects, of subjective wellbeing (Diener, 1984). Although recognizing differences in these constructs, throughout the paper we will use the words happiness, satisfaction and (subjective) wellbeing indistinctly.

richer. As Easterlin already pointed, these results may suggest that people derive utility from comparing their income with other individuals who are taken as reference, so an increase in absolute income which does not change their position in the distribution will not modify their individual wellbeing⁴.

Research on life satisfaction finds that relative income matters to individual wellbeing, being widely accepted that income is a positional good (e.g. Easterlin, 1995; Clark and Oswald, 1996; McBride, 2001; Ferrer-i-Carbonell 2005; Clark *et al.* 2008). However, other aspects of socioeconomic status such as education or occupational status have been less studied under a life satisfaction approach. Although there is some work based on survey experiments that points to education as being a positional good (e.g. Solnick and Hemenway, 1998), this question has not been addressed in the happiness literature. In fact, education is usually introduced as a control variable when analyzing the determinants of life satisfaction, with results that tend to be inconclusive, some pointing to a positive relationship between education and subjective wellbeing (Argyle, 1999; Blanchflower and Oswald, 2004) while others suggest that, at least in more developed countries, this relationship could be negative (Clark and Oswald, 1994). Moreover, the estimates for education are often responsive to different specifications and tend to lose significance when other variables are controlled for, which suggests that the positive impact of education on individual wellbeing could act through indirect channels such as income or health (Hartog and Oosterbeek, 1998; Heliwell, 2003). In any case, in this literature the focus is not usually placed on the education variable and possible positional concerns regarding education are generally neglected.

In this paper we adopt a life satisfaction approach and attempt to study whether education contributes to individual wellbeing beyond the positive impact that education might have through status-related variables, such as income or occupational status, or through other variables such as having improved health. The focus is hence placed on more direct effects associated to a consumption component of education. Furthermore, we try to identify whether individuals show positional concerns regarding education. To this end we analyze the relationship between education and life satisfaction for people in different income-groups in which the reference levels of education may differ. We therefore compare individuals who attained different degrees of education but who share similar levels of income. Our results suggest that, besides the effects that education may have on income, occupation or health, education shows a consumption component contributing to individual wellbeing. Moreover, the contribution of education to satisfaction with life appears to be more important as less people attain a given level of education, thus pointing to education as being related to positional concerns.

⁴ For an extensive review of this and other explanations to the ‘Easterlin paradox’, see Clark *et al.* (2008).

The structure of the remainder of the paper is as follows. First, different channels by which education can contribute to individual wellbeing are overviewed. The method is then described and empirical evidence on the effects of education on life satisfaction is presented and discussed. Finally, the paper closes with a conclusions section where the main findings of this study are summarized.

2. Investment and consumption components of education

In the economic literature it is generally acknowledged that education is both an investment and a consumption good (Schaafsma, 1976). As already pointed out by Schultz (1963), benefits to education are due to an investment component, which relates to monetary returns in the future, and a consumption component, which is associated to the utility coming from present consumption as well as from improved abilities to enjoy greater variety of goods in the future. Since the success of the human capital theory in the 1960's, the investment side of education has prevailed in economic analysis. Under the human capital approach, developed by Schultz (1960) and Becker (1964), education is seen as increasing the skills of the individuals and therefore their productivity; as a result, this increase in productivity leads the individual to be paid higher wages in the labor market. Nevertheless, some authors argue that schooling may have little effects on productivity although it can provide a signal of the individual's abilities to employers (Spence, 1973; Arrow, 1973; Stiglitz, 1975). This signaling or screening view assumes a labor market with asymmetric information in which differences in schooling will allow employers to infer unobservable differences in abilities and productivity; success in the labor market will then not only depend on the attained level of schooling but on how this level compares to that of other individuals. While in the human capital theory monetary returns to education base on absolute levels, under the signaling approach investment in education is positional or based on relative levels of schooling. In any case, monetary returns to schooling will lead the individuals to invest in education as a way to increase their wages in the future, independent of whether schooling is really a productive asset or a signaling mechanism⁵.

On the other hand, education can be seen as a consumption good which contributes to individual utility or satisfaction. Among scholars it is usual to consider present consumption of education as a good that positively contributes to individual wellbeing. Education appears then as an enjoyment which is consumed for its intrinsic value for the individual. Nevertheless, some results suggest that "more surprising ... education is a *bad*" (Lazear, 1977: 569) so "in the absence of a wealth-augmentation effect no schooling would be acquired" (*ibid.*: 571). In this case, education would be an activity requiring an effort which is not compensated with any enjoyment or intrinsic value; the

⁵ Although in this work we will not focus on social returns, it is worthy to note that the implication of the human capital and the signaling approaches clearly differ regarding social returns since the positional component of education will be associated to negative externalities. Extensive discussion on positional externalities can be found in Frank (2005, 2008).

compensation would be in the form of increasing future income and the process of education would be seen as an investment cost. The most common approach to empirically study the consumption component of education combines the consumption and the human capital views. Looking at the difference between demanded and optimal investment in education it is usual to find that individuals demand more education than what would be an optimal investment under the human capital model, thus concluding that education is partly a consumption good positively contributing to individual utility (Kodde and Ritzen, 1984; Oosterbeek and Webbink, 1995; Oosterbeek and van Ophem, 2000). On the contrary, Lazear (1977) finds that individuals demand less education than the optimal wealth-maximizing level of schooling, a result which is interpreted as education being a bad generating disutility to the individuals (however, following this author, individuals exceeding the optimal level, i.e. individuals who achieve M.A.'s and Ph.D.'s levels, would see schooling as a good). More recently, other authors studying school dropout emphasize individual heterogeneity in preferences for education, suggesting that, in addition to a myopic behavior regarding future gains from schooling, individuals who drop out of school have lower motivation and a lower consumption value of school attendance (Eckstein and Wolpin, 1999; Oreopoulos, 2007).

The consumption value of education goes beyond present consumption. Education can shape or induce changes in individual's preferences by increasing the variety of goods to be enjoyed in the future. It is generally argued that education may increase 'meritorious' or cultural consumption goods, such as reading, music or art (Haveman and Wolfe, 1984). Moreover, the contribution of these activities to individual wellbeing could be more persistent in time than that of 'comfort' goods. These ideas go back to Scitovsky's (1976) distinction between comfort and stimulating activities, pointing out that comfort goods temporally contribute to individual satisfaction but are subject to adaptation and satiation, so their contribution to individual wellbeing blurs over time; instead, stimulating activities present durable effects on wellbeing. Hence, as far as education increases the enjoyment of creative and stimulating activities, the consumption value of education would extend to future satisfaction derived from such activities.

Nevertheless, some authors argue that education may raise aspirations, what could lead to frustration if individuals do not manage to fulfill them. This view assumes that individual wellbeing depends on the difference between actual and perceived opportunities. Therefore, since education will increase earning and consumption opportunities, but also expectations, its impact on life satisfaction will depend on how the increase of real opportunities compares to that of aspirations. Empirical studies on how aspirations raise with increased income tend to estimate an elasticity close to one, suggesting that greater aspirations will offset the effects of higher income on wellbeing (Frey and Stutzer, 2002; Easterlin, 2005). Furthermore, focusing on education, Ferrante (2009) finds that individuals overrate their socioeconomic prospects relative to real opportunities, suggesting that education may have a 'perverse' impact on life satisfaction.

Finally, as pointed by Hirsch (1976) or Hollis (1982), education may be considered as a partial positional good, with its value depending on both absolute and relative levels of consumption. As it happens with other consumption goods, education can be subject to positional concerns. Individuals will see education as a way to gain social status, provided that their education level is higher than that of others; education would then be considered as a credential instrument for status (Collins, 1979). Education *per se* may be a status sign, especially for some types of education or type of institution attended (Akerlof and Kranton, 2002). In addition, education plays a significant role in allocating individuals to different occupations. Thus, in a similar way that schooling could be a signaling mechanism to increase earnings, it can also serve as a screen to filter individuals into challenging and privileged occupations (Duncan, 1976; Ranson, 1993). In any case, these relative concerns would lead individuals to attempt to improve their position by acquiring more education than other individuals to whom they compare.

3. Method

From the above revision of the literature we find reasons to expect both positive and negative effects of education on subjective wellbeing, so the net contribution of education to individual satisfaction seems to be *a priori* unclear. In this study we control for some indirect effects of education on wellbeing that have proved to be significant in previous literature, such as its effects through increased earnings, higher probability to find a job or improved health (e.g. Psacharopoulos and Patrinos, 2004; Haveman and Wolfe, 1984). By controlling for these variables, we attempt to focus on more direct effects related to the consumption components of education.

We adopt a life satisfaction approach by analyzing the impact of education on satisfaction with life. The life satisfaction variable relates to experienced utility, thus providing an idea of the ex-post evaluation made by the individuals. This assessment will therefore take into account all the effects of education on individual wellbeing, independent of whether these effects were expected or unexpected. While considering only the expected benefits of education would be more appropriated to analyze individual decisions on education demand, ex-ante evaluations will not take into account the unexpected benefits and hence they will not capture all realized benefits from education. To take into account all realized benefits of education it looks therefore more convenient to use a variable related to experienced utility, such as satisfaction with life, which refers to ex-post evaluations of wellbeing⁶.

Finally, a point has to be made regarding the frame of reference. Positional concerns refer to comparison with others, so it becomes necessary to define who are the relevant

⁶ An extensive discussion on the ideas of ‘decision’ and ‘experienced utility’, and their use in economics, can be found in Kahneman and Thaler (2006).

others, i.e. those individuals to whom one compares. Different types of comparison have been discussed in the literature, from ‘downward comparisons’, based on self-enhancement motives, to ‘upward comparisons’, related to self-improvement reasons⁷. The empirical evidence suggests that, at least for income, comparisons are mostly upward and individuals tend to compare to similar others and to those with whom they usually interact (Falk and Knell, 2004; Clark and Senik, 2009). In this study we consider that income is a leading status criterion and assume that individuals tend to interact mainly with other individuals of similar status, so reference groups are defined by individuals in the same income class.

3.1. Data

Data used in this study come from the last wave of the World Values Survey (2005-06 WVS) and cover information on individuals from 11 OECD countries for which all variables were available (Australia, Britain, France, Germany, Italy, Japan, Netherlands, Spain, Sweden, Switzerland and United States), resulting in a sample size of 11,934 observations. Among the advantages of the WVS we find that it offers a large international sample with consistent data across countries and provides information on most of the variables usually studied in the economic analyses on wellbeing, such as income, employment, health or education. In particular, economic, demographic and social variables used in this study refer to income, unemployment, age, gender, civil status, religion, health, education and occupational status⁸.

The WVS measure of satisfaction with life is used as dependent variable. The question asked to assess life satisfaction in the WVS is the following: “All things considered, how satisfied are you with your life as a whole these days”, with responses on a scale from 1, which means ‘completely dissatisfied’, to 10, meaning ‘completely satisfied’. Income data provided by the WVS give information on the relative position of the individuals in the income distribution of their country. In this study we group the income variable, originally expressed in deciles, in three categories corresponding to low, middle and high-income class (the low-income variable groups deciles from 1 to 3; the middle-income deciles from 4 to 7 and the high-income class the remaining above deciles). The education variable is also grouped into three categories, corresponding to individuals who have not completed secondary school, individuals with a level of secondary schooling, and individuals with higher education. To consider occupational status we differentiated occupations related to liberal professions, employers, managers and supervisors from employees or workers with no supervisory tasks. Besides, the age of the individuals is also taken into account and several dummy variables are introduced to consider what their subjective health is and whether the individuals are unemployed, married, religious, male or female.

⁷ See Wood and Taylor (1991) for a discussion of different individual goals in the social comparison literature.

⁸ A detailed description of the variables used in this study is given in the Appendix.

Individuals in the sample are almost evenly distributed by gender, men representing 47% of the individuals and women 53%; with an average age close to 48 years. Around 56% of the respondents are currently married; 50% declare to be religious persons; and 72% report to enjoy a good or very good health. Near 49% of the individuals in the sample show a level of secondary school and 20% hold a post-secondary level of education; 72% work on non-supervisory tasks while the remaining 28% are employers or managers; and 5% of the individuals are unemployed. Regarding the income distribution, 29% of the individuals are in the low-income group; 45% in the middle-income group and the remainder 26% in the high-income group. On average, individuals in the sample seem to be quite satisfied with their life, with a mean value of 7.3 (the statistical summary of the variables is given in Table 1).

Table 1: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
<u>Life satisfaction</u>	7.274	1.792	1	10
<u>Income</u>				
Low-income	0.289	0.453	0	1
Middle-income	0.455	0.497	0	1
High-income	0.256	0.436	0	1
<u>Control variables</u>				
Unemployed	0.053	0.223	0	1
Health (poor)	0.054	0.225	0	1
Health (fair)	0.222	0.415	0	1
Health (good)	0.475	0.499	0	1
Health (very good)	0.249	0.433	0	1
Religious	0.500	0.500	0	1
Married	0.557	0.497	0	1
Gender (male)	0.467	0.499	0	1
Age	47.88	17.378	14	94
Education (less than secondary)	0.309	0.462	0	1
Education (secondary)	0.486	0.499	0	1
Education (higher)	0.205	0.404	0	1
Occupational status	0.277	0.448	0	1

Focusing on the variables related to socioeconomic status (i.e. income, education and occupation) we look at the distribution of education and occupational status through the different income groups which are taken as reference. Table 2 shows the distribution of these variables through the low-, middle-, and high-income groups. Regarding education we find that near half of the individuals in the low-income group do not reach a secondary school level while only 10% of individuals in this income group received higher education; in the middle income group, 54% of the individuals hold a level of secondary schooling, but still 26% showed a lower level of education; finally, in the high income group we find that near 80% of the individuals have at least a secondary school level, with the percentage of individuals with higher education rising to 33%. On the other hand, in all income groups, individuals being employers, managers, or carrying out supervisory tasks are in minority. Nevertheless, there are differences across income groups. While in the whole sample the percentage of individuals working in non supervisory tasks is about 72%, in the low-income group this number rise to 80%. The opposite happens in the high income group, where near 40% of the individuals hold a

higher occupational status, being managers, liberal professionals or carrying out supervisory tasks. Finally, the distribution of individuals in the middle-income group is close to that of the whole sample, with 74% of them being workers with non-supervisory tasks.

Table 2: Education and occupational status through different income groups

	Low-income	Middle income	High-income
Less than secondary education	0.48	0.26	0.21
Secondary education	0.42	0.54	0.46
Higher education	0.10	0.20	0.33
<i>Total</i>	<i>1</i>	<i>1</i>	<i>1</i>
	Low-income	Middle income	High-income
Non-supervisory workers	0.80	0.74	0.61
Employers & managers	0.20	0.26	0.39
<i>Total</i>	<i>1</i>	<i>1</i>	<i>1</i>

3.2. Procedure

Given the ordinal nature of the dependent variable, ordered probit models are estimated. The empirical analysis bases on different specifications of the following equation:

$$LS_i^* = \alpha + \sum_n \beta_n X_{n,i} + \varepsilon_i$$

where i refers to the individual, LS^* is a measure of life satisfaction, X_n is a set of explanatory variables, such as income and other sociodemographic and individual characteristics, β_n are parameters to be estimated and ε is a random term. We do not observe LS^* but we do observe individuals' answers to survey questions about their wellbeing, LS . Individuals choose the answer LS that is closest to their true unobserved latent level of well-being, LS^* . Therefore we observe:

$$\begin{aligned} LS=0 & \text{ if } LS^* \leq 0, \\ LS=1 & \text{ if } 0 < LS^* \leq c_1 \\ LS=2 & \text{ if } c_1 < LS^* \leq c_2 \\ & \vdots \\ LS=J & \text{ if } c_{j-1} < LS^* \end{aligned}$$

where c_i are parameters to be estimated. If we assume that ε is normally distributed then the probabilities that an individual reports a given level of wellbeing would be:

$$\begin{aligned} \text{Prob}(LS=0|X) &= \Phi(-X'\beta), \\ \text{Prob}(LS=1|X) &= \Phi(c_1 - X'\beta) - \Phi(-X'\beta) \\ \text{Prob}(LS=2|X) &= \Phi(c_2 - X'\beta) - \Phi(c_1 - X'\beta) \\ & \vdots \\ \text{Prob}(LS=J|X) &= 1 - \Phi(c_{j-1} - X'\beta) \end{aligned}$$

The corresponding log-likelihood function is derived from these probabilities and the parameters of interest are obtained by maximization of this log-likelihood function (see Zavoina and McElvey, 1975).

We estimate several specifications of the above model. First, we estimate a baseline specification where variables for education and occupational status are not included. Besides income, several socio-demographic variables are considered; in particular, the age of the individuals is taken into account and several dummy variables are introduced to consider what their subjective health is and whether the individuals are unemployed, married, religious, male or female. Furthermore, country dummy variables are included in the analysis since the meaning of satisfaction with life might be more similar and comparable between individuals sharing the same socio-cultural background or living in the same country. This specification is run for the whole sample and by groups of income, thus checking whether the estimates for the control variables are robust across different income groups. Afterwards, the education variables are added to the baseline specification in order to test whether education conditions life satisfaction. Since other control variables such as income, unemployment or health are also included in the analysis, we attempt to study whether education affects subjective wellbeing beyond the indirect impact that education might have on individual wellbeing through its effects on those other variables. These estimates are also carried out for the whole sample and for the different income groups that are taken as reference. Finally, an occupational status variable is introduced in addition to the educational variables, taking into account positional concerns regarding education and given that its impact on life satisfaction could work through occupational status; once again, this specification is run for the sample as a whole and by income groups.

3.3. Results

The estimates for the baseline specification are shown in Table 3. The first column gives the estimates for the whole sample; individuals in the low-income group are taken as reference and dummy variables for individuals in the middle and the high-income groups are included. These income variables have a positive and highly significant ($p < 0.01$) effect on life satisfaction (the coefficient for the middle-income variable is 0.2001 while that for the high-income variable is 0.2523); therefore, these results point to a significant relationship between income and life satisfaction, with increasing satisfaction with life as one moves from the lowest to the highest income group⁹. As expected, being unemployed has a negative impact on life satisfaction whereas enjoying improved health has a significant positive effect on subjective wellbeing (individuals with poor health are taken as reference and higher coefficients are obtained as subjective health moves from fair to good or very good health). The results also suggest that being religious or being married has a significant positive impact on satisfaction with life (all these variables are significant at $p < 0.01$). Life satisfaction shows a U-

⁹ Since coefficients in the ordered probit regressions are hard to interpret, which makes comparisons difficult, we also ran several OLS regressions corresponding to each probit model. Not surprising given that there are as many as 10 categories in the dependent variable, the results using OLS are qualitatively identical and quantitatively very similar to those of the ordered probit regressions.

shaped relationship with age, and men tend to report lower satisfaction with life than women do. Columns 2 to 4 offer the estimates for the low-, middle-, and high-income groups separately. The results for the control variables are robust across different income groups. Only the gender variable loses significance for individuals in the high-income class, but parameters estimated for the other control variables remain relatively stable in sign and significance across income groups.

Table 3: Baseline specification

Dependent variable: Life satisfaction				
	All	Low-income	Middle-income	High-income
Middle-income	0.2001*** [0.0330]			
High-income	0.2523*** [0.0456]			
Unemployed	-0.3305*** [0.0890]	-0.2934*** [0.0884]	-0.3147*** [0.1035]	-0.4112*** [0.1270]
Health (fair)	0.6147*** [0.0454]	0.6810*** [0.0728]	0.6101*** [0.0778]	0.4248*** [0.0927]
Health (good)	1.0766*** [0.0592]	1.1400*** [0.0944]	1.0615*** [0.0618]	0.9063*** [0.1288]
Health (very good)	1.6090*** [0.0687]	1.6629*** [0.1113]	1.6348*** [0.0632]	1.4025*** [0.1133]
Religious	0.1270*** [0.0282]	0.1666*** [0.0498]	0.0891** [0.0439]	0.1355*** [0.0207]
Married	0.2868*** [0.0165]	0.3155*** [0.0419]	0.2495*** [0.0206]	0.3418*** [0.0324]
Male	-0.0346* [0.0195]	-0.0467* [0.0240]	-0.0438* [0.0251]	0.0017 [0.0510]
Age	-0.0326*** [0.0036]	-0.0316*** [0.0076]	-0.0277*** [0.0034]	-0.0394*** [0.0078]
Age squared	0.0004*** [0.0000]	0.0004*** [0.0001]	0.0003*** [0.0000]	0.0004*** [0.0001]
Observations	13159	3760	5963	3436

Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4 provides the estimates for the specification including the education variables. The results for the control variables do not greatly differ from those in the baseline specification, showing similar coefficients and levels of significance. Even when other variables such as income, unemployment and health are controlled for, the education variables significantly contribute to explain satisfaction with life ($p < 0.01$), with a positive impact of holding a secondary school level or following higher education (the coefficient of the secondary education variable is 0.0882 while that of higher education is 0.1029). However, the impact of the education variables on satisfaction with life significantly differs across individuals in different income groups. The results obtained for the whole sample are driven by individuals in low- and middle-income classes. Having a level of secondary schooling is significant to explain satisfaction with life for individuals in the low- and middle-income groups whereas following higher education also contributes in a significant way to subjective wellbeing for individuals in the middle-income group; nevertheless, education becomes non-significant for individuals in the high-income class.

Table 4: Specification including the educational variables

Dependent variable: Life satisfaction				
	All	Low-income	Middle-income	High-income
Middle-income	0.1904*** [0.0320]			
High-income	0.2461*** [0.0464]			
Unemployed	-0.3418*** [0.0910]	-0.3053*** [0.0955]	-0.3390*** [0.0925]	-0.4031*** [0.1411]
Health (fair)	0.6196*** [0.0546]	0.7009*** [0.0854]	0.6022*** [0.0734]	0.4205*** [0.0908]
Health (good)	1.0651*** [0.0663]	1.1364*** [0.1020]	1.0341*** [0.0650]	0.9054*** [0.1209]
Health (very good)	1.5787*** [0.0719]	1.6275*** [0.1071]	1.6000*** [0.0654]	1.3781*** [0.1071]
Religious	0.1334*** [0.0297]	0.1657*** [0.0497]	0.0995** [0.0443]	0.1427*** [0.0273]
Married	0.2881*** [0.0175]	0.3266*** [0.0430]	0.2538*** [0.0175]	0.3290*** [0.0326]
Male	-0.0281 [0.0187]	-0.0275 [0.0273]	-0.0389 [0.0250]	-0.0092 [0.0501]
Age	-0.0323*** [0.0039]	-0.0294*** [0.0086]	-0.0285*** [0.0042]	-0.0391*** [0.0084]
Age squared	0.0004*** [0.0000]	0.0004*** [0.0001]	0.0003*** [0.0001]	0.0004*** [0.0001]
Secondary education	0.0882*** [0.0216]	0.1238*** [0.0418]	0.1004*** [0.0370]	0.0386 [0.0526]
Higher education	0.1029*** [0.0319]	0.1178 [0.0868]	0.1115** [0.0435]	0.0733 [0.0554]
Observations	11934	3447	5431	3056

Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Finally, Table 5 offers the estimates when the occupational status is considered in addition to the educational variables. The control variables are again robust across specifications and the occupational status variable appears to be significant to explain satisfaction with life in the sample as a whole and for individuals in the low- and high-income groups. Furthermore, although the levels of significance are slightly reduced, the education variables remain significant when occupational status is introduced into the analysis, showing similar results than those presented above.

Table 5: Specification including the educational and occupational status variables

Dependent variable: Life satisfaction				
	All	Low-income	Middle-income	High-income
Middle-income	0.1857*** [0.0326]			
High-income	0.2397*** [0.0479]			
Unemployed	-0.3363*** [0.0906]	-0.3003*** [0.0949]	-0.3341*** [0.0913]	-0.3931*** [0.1413]
Health (fair)	0.6183*** [0.0546]	0.6988*** [0.0861]	0.6010*** [0.0739]	0.4196*** [0.0912]
Health (good)	1.0618***	1.1326***	1.0314***	0.9003***

	[0.0660]	[0.1025]	[0.0651]	[0.1211]
Health (very good)	1.5742*** [0.0712]	1.6226*** [0.1079]	1.5968*** [0.0657]	1.3715*** [0.1088]
Religious	0.1317*** [0.0296]	0.1645*** [0.0495]	0.0981** [0.0447]	0.1397*** [0.0269]
Married	0.2853*** [0.0170]	0.3238*** [0.0432]	0.2528*** [0.0172]	0.3231*** [0.0323]
Male	-0.0315* [0.0178]	-0.0334 [0.0283]	-0.0402 [0.0247]	-0.0179 [0.0522]
Age	-0.0332*** [0.0039]	-0.0302*** [0.0089]	-0.0289*** [0.0043]	-0.0412*** [0.0086]
Age squared	0.0004*** [0.0000]	0.0004*** [0.0001]	0.0004*** [0.0001]	0.0004*** [0.0001]
Secondary education	0.0778*** [0.0221]	0.1109** [0.0460]	0.0939** [0.0380]	0.0187 [0.0545]
Higher education	0.0766** [0.0333]	0.0835 [0.0933]	0.0950* [0.0489]	0.0308 [0.0558]
Occupational status	0.0682** [0.0302]	0.1079** [0.0527]	0.0436 [0.0514]	0.1001*** [0.0374]
Observations	11934	3447	5431	3056

Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

3.4. Discussion

As regards the relationship between income and satisfaction with life we find that individuals enjoy increasing life satisfaction when moving from the lowest to the highest income group. While this result is in accordance with most empirical work, Caporale *et al.* (2009) suggest that the correlation between these two variables may be weaker in studies that control for education, unemployment and other variables that could moderate this relationship. Nevertheless, we find a significant relationship between income and life satisfaction even when we control for those variables, finding robust results through different specifications. The results obtained for the other control variables are also in accordance with previous empirical studies (see, for example, Dolan *et al.*, 2008) so we do not extend herein in their discussion. Just noting that the obtained results seem to be robust throughout the different estimates; although the gender variable loses significance in some specifications, all other variables remain highly significant across different specifications and income groups.

Empirical work focusing on the investment component of education tends to find significant monetary returns to education (e.g. Psacharopoulos and Patrinos, 2004). In addition, having a higher level of education may reduce the risk of being unemployed (Bishop, 1994). Therefore, since education contributes both to having higher probabilities to find a job and to enjoying increased earnings, these are indirect channels through which education can contribute to individual satisfaction. The same happens with health, which seems to be conditioned by the education level of the individuals (Leigh, 1983) and which positively affects subjective wellbeing. In the baseline regressions these variables are included as controls, so some indirect effects of education on subjective wellbeing may be captured by these variables. Nevertheless, we

attempt to analyze the impact of education on satisfaction with life beyond these indirect effects, thus focusing on more direct effects related to the consumption component of education. To this end we added the education variables to the baseline specification, finding that education shows a significant impact on life satisfaction even when variables such as income, unemployment or health are controlled for. Although the effects of education on subjective wellbeing could be *a priori* both positive (e.g. enjoyment during the education process and increased opportunities of consumption after the completion of education) or negative (e.g. frustration during the education process and increased aspirations which may not be fulfilled), we find that the net contribution of education to satisfaction with life is positive for the whole sample of individuals, thus identifying a consumption component of education.

The consumption component of education may derive from achieving a given level of schooling that provides utility to the individual, but benefits of education may also depend on relative position, with people looking for achieving at least the same level of education, or a higher one, than others. Education would then be seen as a positional good and status concerns would lead people to compare to others. The question is then to define the frame of reference used by the individuals to do status comparisons. In this study, we consider that income is a leading status criterion and assume that individuals tend to interact mainly with other individuals of similar status, so reference groups are defined by individuals in the same income class. When the analysis is run by income groups, we therefore compare individuals who attained different degrees of education but who share similar levels of income. The results by income groups show that the impact of education on subjective wellbeing varies for individuals with different levels of income. Education seems to be non-significant in explaining satisfaction with life for individuals in the high-income class whereas in the middle-income group both secondary and higher education positively contribute to life satisfaction and in the low-income group only secondary education shows a significant impact on individual wellbeing.

These results are not surprising if individuals show positional concerns regarding education. Since around 80% of individuals in the high income-group show a level of secondary or higher education, schooling does not anymore constitute an element that allows one to differentiate from others. Individuals would imitate the consumptions standards for education of their income class but, given that a large majority of individuals reach those standards, education ceases to be a status-signaling element and loses significance as a contributing factor to subjective wellbeing. In the middle income group we observe that 54% of the individuals hold a secondary school degree, 26% did not reach that level of education, and the remaining 20% followed a higher education level. In this context, secondary education appears as the standard level of education for individuals in this income group. Even when this level of education is reached by half of the individuals in this reference group, it will still allow one to differentiate from individuals showing lower levels of education and who represent near 30% of individuals in the middle-income class, so achieving this standard level will contribute

to subjective wellbeing. Nevertheless, the level of schooling signaling a positional difference in the middle-income class is that of higher education, which is reached by only 20% of the individuals in this income group. Hence, following higher education has a significant effect on satisfaction with life, positively contributing to subjective wellbeing since it constitutes a status signal among individuals in the middle-income class. In addition, if comparisons are upward, having a level of higher education may be a way for individuals in the middle-income class to become closer to the standards prevailing in the high-income group. Finally, in the low-income class, where half of the individuals have not completed a level of secondary schooling, this level of education becomes that which allows one to differentiate from others; thus, we find that for individuals in this income group following secondary education significantly contributes to life satisfaction.

The above results suggest that individuals show positional concerns regarding education. Nevertheless, this status or positional component of education could be due either to education *per se* or to increased opportunities in the labor market driving to higher occupational status. In addition to higher probabilities to find a job, education plays an important role in labor market success and schooling may be seen as a screen filtering individuals into privileged occupations (Ranson, 1993). Access to different occupational positions will then depend on relative levels of education and positional concerns for education would appear through occupational status. Taking into account this possibility we introduce a variable related to occupational status in order to analyze whether the impact of education on subjective wellbeing works through this variable. In particular we differentiate between occupations related to liberal professions, employers, managers and supervisors from positions of employees or workers with no supervisory tasks. This variable appears to be significant in explaining satisfaction with life, indicating once again that status concerns matter to explain subjective wellbeing. Furthermore, it is worthy to note that, in spite of the significance of the occupational status variable, education remains significant in explaining satisfaction with life, with similar results both for the whole sample and by income groups than those discussed above. Thus, although the levels of significance of the education variables are slightly reduced, which could indicate that part of the impact of education on subjective wellbeing manifests through occupational status, education continues to appear as a factor contributing to satisfaction with life. Moreover, positional concerns regarding education are found even when occupational status is introduced into the analysis, with the contribution of education to life satisfaction varying for individuals in different income groups in which the frame of reference may differ.

4. Conclusions

Beyond investment aspects of education, this paper has focused on its consumption components. First, it was found that education shows a significant impact on life satisfaction independent of its effect on income, thus identifying a consumption

component of education. Furthermore, given that the contribution of education to satisfaction with life may depend partly on relative position rather than absolute levels, we analyzed the relationship between education and life satisfaction for people in different income groups in which the reference levels of education may differ. For people in the high-income group, where more people attain higher levels of education, the contribution of education to subjective wellbeing was not significant; nevertheless, as less people attain a given level of education its contribution to life satisfaction becomes significant, thus suggesting that the contribution of education to subjective wellbeing is partly due to a positional component. Moreover, taking into account that this contribution might act via occupational status benefits, we introduced a variable related to occupation in order to analyze these status effects. In spite of the significance of occupational status, the level of education continues to be significant in explaining satisfaction with life and its contribution to individual wellbeing appears to be more important as less people attain a given level of education. In sum, our results suggest that, besides investment considerations, education appears to be a consumption good contributing to subjective wellbeing, with this consumption being subject to positional concerns.

Appendix

Variables definition (from the fourth wave -2005- WVS)

<u>Life satisfaction</u>	All things considered, how satisfied are you with your life as a whole these days? Using this card on which 1 means 'completely dissatisfied' and 10 means 'completely satisfied' where would you put your satisfaction with your life as a whole?
<u>Income</u>	On this card is a scale of incomes on which 1 indicates the 'lowest income decile' and 10 the 'highest income decile' in your country. We would like to know in what group your household is. Please, specify the appropriate number, counting all wages, salaries, pensions and other incomes that come in.
Low-income	Dummy variable (1: deciles 1-3)
Middle-income	Dummy variable (1: deciles 4-7)
High-income	Dummy variable (1: deciles 8-10)
<u>Education</u>	What is the highest educational level that you have attained?
Secondary education	Dummy variable (1: Secondary school: technical/vocational or university-preparatory type)
Higher education	Dummy variable (1: Some university-level education)
<u>Occupation</u>	In which profession/occupation are you doing most of your work? If you do not work currently, characterize your major work in the past! What is/was your job there?
Occupational status	Dummy variable (1: Employer/manager; supervisors; liberal professions)
<u>Other control variables</u>	
Unemployed	Dummy variable (1: unemployed)
Subjective health	All in all, how would you describe your state of health these days? Would you say it is... 1:Very Good, 2: Good, 3: Fair, 4: Poor. (Dummy variables are constructed for each of these categories of subjective health).
Religious	Dummy variable (1: religious person)
Married	Dummy variable (1: currently married)
Gender	Dummy variable (1: male)
Age	Age in years

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