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EDUCATION, ASPIRATIONS AND LIFE SATISFACTION

My one regret in life is that I am not someone else.

Woody Allen

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Abstract

The idea that expanding work and consumption opportunities *always* increases people's wellbeing is well established in economics but finds no support in psychology. Instead, there is evidence in both economics and psychology that people's life satisfaction depends on how *experienced utility* compares with expectations of life satisfaction or *decision utility*.

In this paper I suggest that expanding work and consumption opportunities is a good thing for decision utility but may not be so for experienced utility. On this premise, I argue that people may overrate their socioeconomic prospects relative to real life chances and I discuss how systematic frustration over unfulfilled expectations can be connected to people's educational achievement.

I test the model's predictions on Italian data and find preliminary support for the idea that education and access to stimulating environments may have a perverse impact on life satisfaction. I also find evidence that the latter effect is mediated by factors such as gender and age.

Indeed, the model seeks to go beyond the Italian case and provide more general insights into how age/life satisfaction relationships can be modelled and explained.

JEL Classification: A13; D1, D60; H11; I2, J13, J24, I38.
Keywords: education, opportunities, aspirations, life satisfaction, regret.

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I. INTRODUCTION.

The idea that expanding work and consumption opportunities *always* increases people's wellbeing is well established in economics, but it finds no support in psychology (Schwartz et al. 2002; Schwartz, 2000; Roese and Summerville, 2005). Instead, there is evidence in both economics and psychology that people's life satisfaction depends greatly on how *experienced utility* compares with expectations of life satisfaction or *decision utility* (Kahneman et al., 1997; Clark and Oswald, 1997; Clark, Frijters and Shields, 2007). The issue is that, whereas an expanded set of choices is good for *decision utility*, it may not be good for *experienced utility*.[1] But why is this so?

A wider opportunity set increases people's freedom to choose, but expanding options also imply psychological decision costs: 'First, there is the problem of gaining information about the options to make a choice. Second, there is the problem that as options expand, people's standards for what is an acceptable outcome also rise. And third, there is the problem that as options expand, people may come to believe that any unacceptable results are their own fault, because with so many options, they should be able to find a satisfactory one. Similar problems arise as choice becomes available in domains in which previously there was no choice.' (Schwartz et al., 2002, p.1179). Regret is the mirror of the latter costs that people bear over their life courses: 'Opportunity breeds regret, and so regret lingers where opportunity existed' (Roese and Summerville, 2005).

On these premises, in this paper I study how people's perceptions of the opportunities available to them are linked to their education and how this affects experienced utility, i.e. life satisfaction. I argue that, leaving aside random factors, the main difference between *decision utility* and *life satisfaction* stems from the role of the aspirations that people use to evaluate their experienced utility in different life domains. In this context, I also investigate whether the building up of aspirations is in some way connected to people's demographic characteristics such as age and gender.

Although education is invariably found to be an important explanatory variable of job and life satisfaction, to date few systematic efforts have been made to explain its various and interconnected functions. From an empirical viewpoint, the connection between education and life satisfaction is somewhat vague, and it has manifold facets, of which income is just a minor one: 'the educational tracking of persons leads to persistent differences in well-being' (Easterlin, 2001 p. 481). Whereas the empirical evidence on the direct effects of education on life satisfaction is not clear-cut, the evidence concerning its effects on job satisfaction is plain: higher educational attainments reduce job satisfaction (Clark, 1997; Ferrer-i-Carbonell and Frijters, 2005). One may therefore wonder why people invest time and effort in acquiring education if this depresses their job satisfaction. According to revealed preferences, for a rational agent this may simply be due to biased predictions of the impact of education on job and life satisfaction.[2]

Indeed, the socio-economic performance of individuals depends, over and above the effects of their innate abilities and socioeconomic backgrounds, on the cognitive and noncognitive skills acquired early in life[3] through education and experience: 'Cognitive and noncognitive skills can affect the

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[1] *Decision utility* is inferred from choices and used to explain choices, whereas *experienced utility* refers to the hedonic experience associated with an outcome (Kahneman and Thaler, 2005, p. 2). Experienced utility and life satisfaction are used interchangeably.

[2] An alternative explanation for this outcome is that educational choices are influenced by parents, and that the latter do not know their children's true preferences.

[3] The supporting empirical evidence on the impact of cognitive and non-cognitive skills on an individual's life is impressive. As far as cognitive skills are concerned, the list of individual characteristics correlated with the standard measurement tests is indeed long (Kuncel, Hezzlet and Ones, 2004; Ree and Carretta, 2002), ranging over: abilities (analytical style, memory, reaction time, reading), creativity (craftwork, musical ability), health and fitness, interests (breadth and depth of interests, sports participation), morality (delinquency, lie scores, racial prejudice, values), perceptual elements (ability to perceive brief stimuli, field-independence, myopia), personality (achievement motivation, altruism, dogmatism) and practical skills (practical knowledge, social skills). The socioeconomic outcomes that appear to depend on these cognitive abilities include almost all the factors that have been found directly or indirectly to affect life satisfaction, namely: educational achievement, occupational status, income, delinquency and criminal behaviour, poverty, divorce, having an illegitimate child, being on welfare, having an underweight baby, etc. (Schmidt, 2002; p.200). Leaving such specific socioeconomic outcomes aside, psychological studies suggest that the acquisition of cognitive and noncognitive abilities in childhood helps determine most of the work and consumption skills available during adulthood.

endowment of persons, their preferences, their technology of skill formation…or all three. Thus, they might affect risk preference, time preference, and efficiency of human capital productivity without necessarily being direct determinants of market wages. Cognitive and noncognitive skills might also raise the productivity of workers and directly affect wages. Our empirical analysis shows that both cognitive and noncognitive skills play multiple roles' (Heckman, Stixrud and Urzu, 2006, p. 8). It is therefore hardly surprising if psychological studies show that educational choices (table 1) are the most important source of regret in life.[4]

Table 1. What we regret most in life
(Roese and Summerville, 2005).

Meta-analysis		*Students*	
Area	%	Area	%
Education	32.2	*Romance*	26.7
Career	22.3	*Friends*	20.3
Romance	14.8	*Education*	16.7
Being parents	10.2	*Leisure*	10
Self	5.5	*Self*	10
Leisure	2.5	*Career*	6.7
Finance	*2.5*	*Family*	3.3
Family	2.3	*Health*	3.3
Health	1.5	*Spirituality*	0
Friends	1.5	*Community*	0

The explanation put forward here of this apparent puzzle is based on the idea that education raises both people's opportunities and aspirations and, to the extent that the education-elasticity of aspirations is greater than the education-elasticity of opportunities, education may generate regret, exerting a negative effect on life satisfaction.

The role of education in generating aspirations should be investigated in conjunction with the role of environmental opportunities. In this regard, one should distinguish three measures of opportunities: *notional, perceived and realized*. People are able to *perceive* the presence of production and consumption opportunities in their environment to the extent that they possess the appropriate endowment of skills. The argument here is that the individual endowment of skills transforms given objective or *notional* opportunities, e.g. the presence of a dynamic economy, and the availability of good occupational opportunities in specific industries, into subjectively *perceived* opportunities, e.g. the perception of having a good chance of finding an interesting/well rewarded job. The benefits of better *perceived* opportunities should be balanced with their psychological cost: in fact, opportunity perception will also fuel people's aspirations. To the extent that *realized* opportunities, e.g. getting a interesting job, falls short of *perceived* opportunities, people may experience frustration due to unfulfilled expectations. Here too, the elasticity of aspirations to *perceived* opportunities is crucial for life satisfaction.

As a first approximation, economic, cultural and social infrastructures are the natural indicators with which to measure *notional* opportunities. In addition, the available empirical evidence suggests that local human capital externalities (Lucas, 1988, Glaeser and Mare, 2001; Moretti, 2004) and cultural diversity (Ottaviani and Peri, 2004) may play an equally important role in creating a stimulating environment in both the production and consumption spheres. Indeed, the question is not whether local human capital and cultural diversity matter, but how one should take account of their contribution. This paper adopts a novel approach based on Florida and Tinagli's work on creativity (Florida and Tinagli, 2005).

One would expect that it takes time for people to determine whether their socioeconomic expectations have been satisfied, and that the actual impact of this realization on life satisfaction depends on people's age as well as on the extent to which they form aspirations and adjust them to real

[4] E.g., should have stayed in school, should have studied harder, should have got another degree.

life chances and experiences. For instance, males and females seem to show a different *optimism bias* that may matter in this context (Puri and Robinson, 2005). Moreover, the role of time is particularly important for educational choices and for other choices, like marriage and type of job, involving significant non monetary and monetary investments early in life.

In order to test the predictions produced by this simple theoretical framework, I use data drawn from the Survey on Household Income and Wealth (SHIW) conducted by the Bank of Italy[5] (2004). To account for the role of environmental factors in shaping *notional* work and consumption opportunities, I include province-level data on social, economic and cultural infrastructures in addition to the index of creativity drawn from Florida and Tinagli (2005).

The results lend support to the hypothesis that education and *perceived* opportunities may exert a perverse effect on life satisfaction. In particular, I find that the educational attainment level above which perceived opportunities start to exert a negative effect on life satisfaction is secondary schooling. In light of the premises of the model provided here, this is not surprising, and it is consistent with the idea that, whereas primary education is intended to provide the basic cognitive and non-cognitive skills necessary in every life domain, the main scope of secondary and tertiary education is to develop those skills and incentive-enhancing preferences required in the labour market (Bowles, Gintis and Osborne, 2001) and which also fuel socioeconomic aspirations, i.e. material aspirations (Easterlin, 2001).

I also find a *U-shaped* life satisfaction/age relationship consistent with the idea that it takes time for people to realize whether their socioeconomic expectations have been satisfied, and that, over time, people may revise their socioeconomic aspirations and adapt to the systematic frustration of their expectations (Easterlin, 2003; 2005; 2006). In particular, I find evidence that income aspirations matter a great deal in this time pattern. Finally, the results suggest that the lack of a *U-shaped* life satisfaction/age relationship for females is related to a gender-specific mechanism of aspirations' building and adaptation.

The paper draws on the existing interdisciplinary literature on the interplay among expectations, regret and experienced utility. It is based on the idea that, although the issues under investigation lie within the boundaries of economic analysis, their treatment requires such an interdisciplinary approach. Indeed, the resulting lack of analytical rigour may appear unsatisfactory to purists or, simply, to those readers specialised in specific areas.

The main contributions made by this paper in relation to previous work are the following. First, it explicitly posits and provides support for the hypothesis that, above compulsory schooling, education can be used to measure, besides people's unobservable skills, also their unobservable socioeconomic aspirations. Second, in order to measure people's *notional* opportunities, it uses a novel objective measure based on an index of environmental creativity. Third, it includes an empirical measure of *perceived* as opposed to *notional* opportunities based on the role of education. Fourth, it proposes a unifying framework for interpretation of the available literature on the age/happiness (Blanchflower and Oswald, 2007) and gender/happiness (Clark, 1997) relationships, based on the central role of education and aspirations. The final conclusion drawn by the paper is that happiness studies should concern themselves more with education than income as the primary source of aspiration-building in different life domains.

The paper is organized as follows. Section 2 discusses how the interplay between education and environmental opportunities affects life satisfaction. Section 3 discusses the empirical strategy and results. Section 4 draws the main conclusions.

II. EDUCATION, OPPORTUNITIES AND LIFE SATISFACTION.

At the heart of economic theory lies the idea that choices are based on unbiased predictions of the hedonic experiences associated with them: 'The economist's traditional picture of the economy resembles nothing so much as a Chinese restaurant with its long menu. Customers choose from what is on the menu and are assumed always to have chosen what most pleases them. That assumption is unrealistic, not only of an economy, but of Chinese restaurants. Most of us are unfamiliar with nine-tenths of the *entrées* listed; I seem invariably to order either the wrong dishes or the same old

[5] This data set has been selected because it can be integrated with a large set of measures of *notional* opportunities at local (province) level.

ones. Only on occasions when an expert does the ordering do we realize how badly we do on our own and what good things we miss.' (Scitovsky, 1992, p. 149-150).

The main limit to rational choices stems from the fact that "people do not always know what they will like; they often make systematic errors in predicting their future experience of outcomes and as a result fail to maximize their experienced utility" (Kahneman and Thaler, 2006, p.3). Such systematic errors emerge even in very simple decision settings involving very short time-spans (Kahneman and Snell, 1990; 1992).

The main contention of this paper is that people's aspirations constitute a major systematic endogenous source of errors in predictions which affects life satisfaction: insofar as people fail to anticipate endogenous change in their aspirations correctly (Easterlin, 2001; Stutzer, 2004; Bruni and Stanca, 2006), they may experience systematic frustration of their expectations, i.e. they experience an aspirations bias. The clear-cut evidence that educational choices are the most important potential source of regret in life (Roese and Summerville, 2005) renders them natural candidates for explaining the gap between *decision* and *experienced utility*.

The second candidate for explaining the latter gap are environmental opportunities. It is likely that people's subjective perceptions of their socioeconomic opportunities are related to the availability of stimuli in the environment. As such, the latter co-determine people's aspirations and, eventually, the gap between decision and experienced utility (Di Giacinto and Ferrante, 2007; Di Giacinto, Ferrante and Vistocco, 2007). Most importantly, the extent to which objective or *notional* opportunities are *perceived* as being subjective depends on people's acquired and innate skills. Therefore, the endogenous building up of aspirations, in addition to skills, should be related to the availability of *notional* opportunities as well as to the interplay between an individual's skills/innate talents and the latter. Although it may appear a difficult task to accomplish, empirical analyses of the determinants of life satisfaction should endeavour to take account of the latter interactions.

Conjectures about the formation of biased aspirations considered here include the idea that people lack information about their unobservable abilities/talents and/or that people are affected by a *self serving bias*. These explanations are not mutually exclusive. If socio-economic expectations are based on imperfect information and/or a *self serving* process of information selection, people may form biased expectations about what they deserve, and may experience frustration over unfulfilled expectations.[6] Most importantly, owing to the fact that education can be expected to increase the variance and the right skewness of the socioeconomic outcomes, the bias may increase with educational attainment.

Income expectations provide a good example of how imperfect information or the presence of a *self serving bias* may affect socioeconomic expectations. Although the typical shape of the income distribution is right skewed, it is hard to find people who believe that they deserve to earn an income below the average within the group of people sharing the same observable characteristics; on these grounds, one may take the degree of (right) skewness as a measure of the likelihood of frustration deriving from unfulfilled socioeconomic expectations in a given population.

The gap between actual and expected socioeconomic outcomes depends on random factors, as well as on personal characteristics that may be unknown to individuals, such as unobservable abilities. The gap may persist even if people know their abilities but do not know those of others, and are hence unable to assess the systematic link between abilities and reward. To the extent that differences in characteristics are not observable, and owing to the fact that most socioeconomic outcomes (i.e. income, career) are right skewed, socioeconomic aspirations based on statistical expectations will be upward biased, at least for some individuals, and the fraction of individuals affected by such an upward bias will increase with the skewness of the distribution. One may accordingly suppose that both higher educational attainments and more favourable *notional* opportunities increase the degree of positive skewness of the distribution due to a magnification of the underlying differences in people's unobservable characteristics. On this premise, the chance of experiencing frustration over unfulfilled expectations increases with educational attainment and *perceived* environmental opportunities, because these increase the skewness of the socioeconomic outcomes.

The aspirations bias may not be due solely to a lack of information about the individual's position within the distribution of abilities in the relevant reference group. Psychologists argue that people may be systematically induced to form upward biased expectations by a *self serving bias* in the selection of information (Miller and Ross, 1975; Roese and Olson, 2007) i.e., people may select information in a self comforting way which induces them to overrate their personal skills. Examples include people's self assessment of their ability to drive a car or to cook a meal. The pervasiveness of the *self serving bias* should prompt us to consider it as a potential, important source of bias in the

[6]Of course, one should find the opposite result for more talented and luckier people. I posit that, when loss aversion obtains, people's hedonic adaptation to positive surprises is very rapid.

building up of socioeconomic expectations. On this premise, too, the chance of experiencing frustration over unfulfilled expectations increases with educational attainment and *notional* opportunities, owing to their impact on the skewness of the socioeconomic outcomes.

On the basis of these arguments, one would expect a positive aspirations bias to make people more satisfied because of a *surprise effect*. Unfortunately, the psychological evidence supports the view that people evaluate gains and losses with respect to a reference socioeconomic outcome in different ways (Kahneman et al., 1991): in particular, people's wellbeing is much more responsive to losses than to gains, i.e. people show loss aversion. This conclusion translates into the idea that people respond asymmetrically to aspirations biases. On this premise, I assume that people's life satisfaction responds only to a negative gap in aspirations, i.e. a positive difference between expected and realized outcomes.

III. THE EMPIRICAL STRATEGY.

On the premise that life satisfaction depends also on the gap between socioeconomic aspirations and outcomes, the aim of my empirical strategy is to assess the role of education and *notional* opportunities in affecting life satisfaction by shaping people's *perceived* and actual socio-economic opportunities. Since educational attainment is observable, whereas aspirations, as a general case, are not,[7] a remedy is to estimate the net impact of education on life satisfaction given that the separate impacts of education and aspirations cannot be disentangled.

Owing to the limited availability of internationally comparable data on *notional* opportunities, and in order to limit the sources of unobserved heterogeneity and measurement errors, in particular in income data, in the estimation I consider a single country, Italy, and data on employees in the private and public sectors.

Individual data are drawn from the Survey on Household Income and Wealth (SHIW[8]) conducted by the Bank of Italy (2004). Satisfaction with life is defined as *the degree to which respondent rates positively, on a scale of 1 to 10, the overall quality of his or her present "life as a whole".*

Data on *notional* opportunities are drawn from Unioncamere (2006) and from Florida and Tinagli (2005). These sources furnish a large set of economic and social indicators for the 103 Italian provinces, including a *creativity* indicator (ICI) summarising different aspects. The latter is a composite index based on three measures: Talent, Technology and Tolerance (Table 2).

Provinces with higher scores for this indicator are expected to be more attractive to "talented" people and also to offer advantages in terms of availability of new ideas, exchanges and information flows[9] and cultural diversity (Ottaviano and Peri, 2004). Data from Unioncamere provide a wide set of socioeconomic indicators at province level on economic, financial, social and cultural infrastructures. I use all these indicators as proxies for local *notional* socioeconomic opportunities in different life domains.[10] Descriptive statistics on the variables included in the analysis can be provided on request.

Table 2 –The Italian Creativity Index (Florida and Tinagli, 2005)

[7] Of course one could build a database by asking people not only the standard questions but also ones revealing their aspirations. As far as I know, there are at present no suitable data bases integrating all the information required.

[8] The Survey began in the 1960s, originally gathering data on the incomes and savings of Italian households. Its scope broadened over the years to include wealth and other aspects of household economic and financial behaviour and, since 2004, also a question on satisfaction with life. The sample in the most recent surveys comprises about 8,000 households distributed over 300 Italian municipalities and 103 provinces.

[9] The Talent Index includes three sub measures: the Creative Class (creative occupations as a percentage of total employment), the Human Capital Index which is based on the percentage of the population age 25-64 with a bachelor degree or above (degrees of at least four years); and the Scientific Talent Index, which is based on the number of research scientists and engineers per thousand workers. For the construction and on the relevance of the creativity index, see Florida and Tinagli, 2004 and 2005.

[10] Given the characteristics of the Italian economic, social and urban structure?, the province appears to be a better unit of analysis than other administrative aggregations such as the Region. Moreover, rich data on notional opportunities are available only at regional or provincial level. Local Labour Systems (LLS), i.e. groupings of municipalities with high degrees of self-containment of commuting workers, identified by the Statistical Office (ISTAT) on the 2001 population census, could be a more appropriate unit of analysis. Unfortunately, the latter data on LLS cannot be adopted for our present purposes owing to a lack of matching with other data.

Talent	*Creative class index*
	Human capital index
	Number of researchers index
Technology	*High-tech index*
	Innovation index
	High-tech connectivity index
Tolerance	*Diversity index*
	Integration index
	Gay-tolerance index

Education, i.e. number of schooling years, is assumed to be a good proxy for people's skills in terms of cognitive and noncognitive abilities (Heckman, Stixrud and Urzua, 2006; Cuhna and Heckman, 2007).

The empirical investigation on the aspirations bias is focused on income expectations, on the assumption that other socioeconomic outcomes affecting life satisfaction through aspirations (e.g. career, job satisfaction) are positively correlated to people's incomes.

1. Measuring socioeconomic aspirations.

Building on (Schwartz et al. 2002; Schwartz, 2000; Roese and Summerville, 2005), I posit that the *schooling years* variable also contains valuable information regarding people's socio-economic expectations, and that it can therefore be adopted as a good predictor of their socio-economic aspirations. On these grounds, and building on the idea that socio-economic aspirations are fuelled by schooling attainments above middle school (8 schooling years), in the estimation I include both schooling years and the squared term of the latter. My expectations are that (a) schooling improves people's socioeconomic skills and life satisfaction and that (b) the latter effect may be non-monotonic owing to the compensating effect, captured by the squared term, delivered by the impact of schooling on aspirations above compulsory schooling.

I also consider the impact on life satisfaction of both *notional* and *perceived* opportunities. The former are given by various indicators and the latter by the interaction of these indicators with schooling. I assume that *perceived* opportunities also contain information about people's aspirations. My expectation is that the effect of notional opportunities is neither null or positive, whereas the impact of *perceived* opportunities can be either negative or positive, depending on whether they raise socioeconomic aspirations more or less than outcomes. The joint impact of aspirations induced by education and perceived opportunities is assumed to be captured by the terms schooling^2, schooling*ICI and schooling^2*ICI.

Finally, building on the available empirical evidence (Blanchflower and Oswald, 2007), I include both age and age squared in the estimation, and I expect to find a *U-shaped* happiness/age relationship; the latter should be seen as evidence of the impact of aspirations on people's wellbeing over the life cycle. Table 3 provides a summary of the predictions based on the previous speculative conjectures.

Table 3 – Summary of the main predictions

Variable	Expected sign
female	+
separated/divorced	-
widowed	-
single	-
sge	-
age^2	+
schooling	+
schooling^2	(?)

*schooling*ICI*	(?)
ICI (notional opportunities)	(?,+)
*schooling²*ICI (perceived opportunities)*	(?)
logincome	+

2. The results.

The results[11] of the ordered probit estimations of the determinants of life satisfaction, which confirm the model's main predictions, are shown in Table 4. The table does not report the results based on the inclusion of the indicators of *notional* and *perceived* opportunities that were found to be non significant in the first rounds.

First, education and *perceived* opportunities both play a significant role. Interestingly, the only indicator that seems to capture the impact of both *notional and perceived* opportunities on life satisfaction is the composite index of *creativity* (ICI) The skills acquired through education appear to exert a direct positive impact on life satisfaction up to an educational attainment which ranges, depending on the model selected and on the actual value of ICI, between 8 and 15 schooling years[12] (Figure 1). Second, the distinction between *notional* and *perceived* opportunities and the role of education in the latter distinction seem to be relevant. The variable of interaction between ICI and schooling is always significant in the different versions of the interactions, whereas the role of notional opportunities, i.e. ICI, appears weak. Third, living in environments which offer more stimulating opportunities has a direct positive, though weak, impact on life satisfaction. Conversely, the negative sign of the variable *perceived* opportunities (schooling*ICI, schooling²*ICI), in both models 1 and 2, suggests that, for more educated people, environments offering better work and consumption opportunities may have a perverse effect on life satisfaction.[13] How can these results be reconciled with standard economic theory. Rational agents should be expected to choose the educational attainment and locations which maximise their life satisfaction. What we find here is that people may choose *too much education* or locations yielding *inappropriate notional opportunities.* As far as the location is concerned, an alternative hypothesis is that mobility costs systematically prevent more educated people from choosing the right location. Yet one would expect the opposite to hold, i.e. that mobility increases with educational attainment. Hence, it seems that what is left is the idea that the negative impact on life satisfaction of both education and *perceived opportunities* has something to do with the link between education and expectations.

Table 4. Ordered probit regressions
Number of obs = 1240. Robust standard errors
* = sig. 10%, **= sig. 5%, *** =sig. 1%

1			2		
Wald chi2(11) = 192.80; Prob > chi2 = 0.0000 – Log pseudolikelihood = -2224.25. Pseudo R^2 = 0.0287			Wald chi2(11) = 203.29; Prob > chi2 = 0.0000 – Log pseudolikelihood = -2225.55 Pseudo R^2 = 0.0282		
Variable	Estimate	z	Variable	Estimate	z
Female	0.17956**	2.49	*female*	0.1763**	2.49
Age	-0.06562**	-2.43	*age*	-0.0633**	-2.36
Single	-0.48393***	-5.42	*single*	-0.4858***	-5.43
Divorced	-0.60051***	-5.82	*divorced*	-0.5990***	-5.83
Widowed	-0.75391***	-4.04	*widowed*	-0.7450***	-4.01
Login come	0.25633***	3.58	*logincome*	0.2519***	3.53
Schooling	0.20391***	4.29	*schooling*	0.0788***	5.05
age²	0.00061**	2.01	*age²*	0.0006**	1.92

[11] I computed robust standard errors to account for the presence of the cluster variable ICI. As to be expected, OLS estimations, available on request, yielded very similar results.

[12] Scoppa and Ponzo (2008), using the SHIW data set and two waves (2004 and 2006), find that education exerts a positive effect on life satisfaction. They include all individuals, whereas I consider only employees. I believe that their result is driven by the fact that data on income for self–employed workers are not very reliable and that, for the latter individuals, education captures part of the impact of income on life satisfaction. The low quality of data is particularly important for highly educated professionals.

[13] In model 2 schooling*ICI has a positive impact but the coefficient is significant at 10%.

*schooling*ICI*	-0.11884**	-2.28	*schooling*ICI*	0.1254*	2.43
ICI	1.13544*	1.80			
schooling²	-0.00581***	-2.89	*schooling²*ICI*	- 0.0113***	-3.08

Fourth, life satisfaction shows the expected *U-shaped* relationship[14] with age, with a minimum at around 55 years (Fig. 2). In comparison with computations for other countries (Blanchflower and Oswald, 2004 and 2007), showing a value of around 45 years, the minimum in Italy is reached far later in life. This is consistent with the fact that, in Italy, important changes in different life domains, such as entering the labour market and getting married, are delayed in relation to other countries.

Of course, different explanations are possible of the latter time pattern. This result is certainly consistent with the argument explored in this paper that people may show an *optimism bias* (Easterlin, 2001) which induces them to commit systematic errors in over-predicting their life satisfaction. In particular, this evidence is consistent with the idea that this aspiration bias follows a typical time-pattern. Thus, at the beginning of adult life, errors in socioeconomic predictions reduce life satisfaction: people experience increasing frustration over unfulfilled life expectations. Sooner or later, they begin to recognize that their expectations are too high and they scale down their aspirations. In other words, older people become wiser in assessing what their lives can deliver them.[15] Of course, these are only preliminary results and conjectures. In order to find robust support for this interpretation of the *U-shaped* age/life satisfaction relationship, one should use a panel data set; but this, unfortunately, is not available for the complete set of *notional* opportunities variables.

If my conjectures are correct, the *U-shaped* age/life satisfaction relationship should be valid only for people experiencing frustration of their expectations.

Fig.1 Schooling, ICI and life satisfaction (model 1)

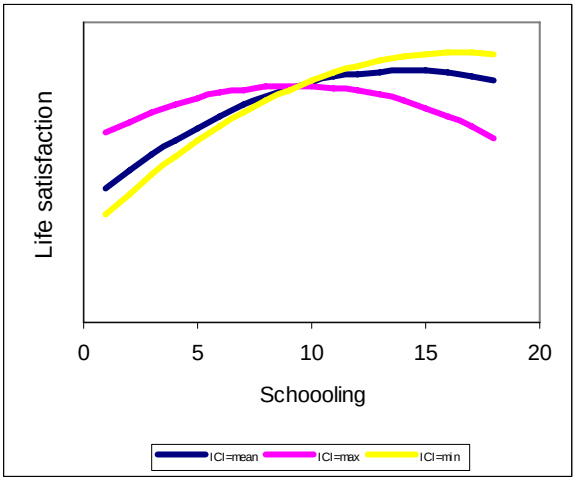
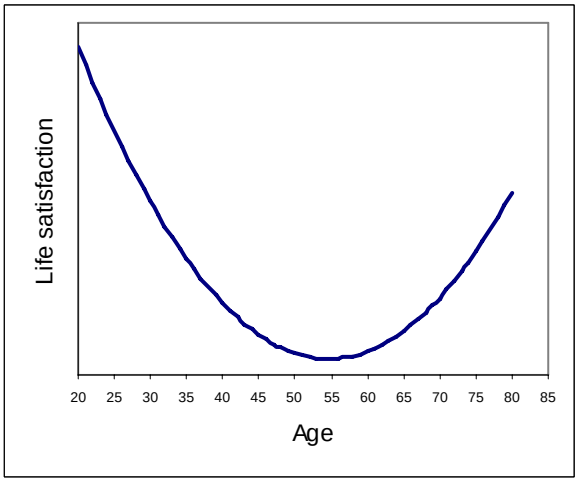


Fig. 2 The age/life satisfaction relationship (model 1)



To test this hypothesis in relation to income expectations[16] and in order to measure income aspirations (Clark and Oswald, 1996), I estimated a *Mincerian* equation of the determinants of earnings[17] based on the following explanatory factors: education, experience, being a manager (boss),

[14] It should be stressed that the coefficient of age squared is significant at 10%.

[15] The mechanisms underlying the building up of utility from memory and anticipation have been thoroughly investigated by psychologists and may play a significant role in this context: "The impact of memory and anticipation on current utility leads to a type of triple counting of experience. A single event can influence utility first through anticipation, then through direct experience, and finally through memory" (Elster and Loewenstein, 1992, p. 214).

[16] On the grounds that income expectations are a main driver of life satisfaction and that they are positively correlated with expectations in other socioeconomic domains.

[17] It is worth stressing here that the sample was consisted solely of? employees in the private and public sectors.

gender, working hours, creativity at the province level i.e., local labour market opportunities[18] and, finally, the interaction between the educational attainment[19] and the local endowment of human capital, measured through the talent index (see table 1; Florida and Tinagli, 2005). I then generated the expectation of individual income conditional on the latter factors (Table 5). Next, to verify my hypothesis, I split the sample according to the value of *EF* (*EF* ≥0, *EF<0*), where *EF* = actual income – expected income.[20] The means of the explanatory variables for the two sub samples are shown in Table 6. Not surprisingly, people whose income expectations are fulfilled earn more on average, although they are less educated. Moreover, females are clearly over-represented within the latter group.

To check whether the life-cycle pattern of satisfaction is related to age, I carried out an ordered probit estimation of life satisfaction for the two samples, and, indeed, I found that for *EF ≥0* the *U-shaped* age/life satisfaction relationship breaks down, whereas it retains its shape for *EF < 0* . Finally, my conjectures would imply that the age/life satisfaction relationship is stronger for those people most affected by the aspiration bias, or in other words, higher-educated men. I tested this hypothesis by splitting the sample according to the value of *schooling* (*schooling <12 and ≥ 12*) and to gender and found that for *schooling years ≥ 12* and for women the age/life satisfaction relationship breaks down[21] (Table 7).

Table 5. The estimated coefficients of the human capital earnings equation.

Dependent variable: logincome

	Coef.	Robust Std. Err.	t	P>t	Beta
Constant	8.240612	.1426862	55.38	0.000	.
Female	-.1955336	.0299858	-6.71	0.000	-.179839
ICI	.3490723	.0874142	4.66	0.000	.1532671
Experience	.0084071	.0251118	6.81	0.000	.1771427
Schooling	.0474841	.0408466	12.33	0.000	.3804998
working hours	.0137497	.0408466	5.17	0.000	.2226617
boss	.3836204	.0606779	6.78	0.000	.1607284
tertiary education*talent index	2414771	.1138528	2.12	0.034	.1138528

Number of obs.=1240; F(6, 1233) = 77.03; Prob > F =0.0000; R-squared =0.2860; Root MSE=.42251

Table 6. Expectations' fulfilment

Variable	*Mean value*	
	EF≥0	*EF<0*
age	44.24	44.70
income	20789	12593
Italian Creativity Index (ICI)	0.39	0.40
schooling	10.80	11.31
gender (Female)	35%	26%

[18] It can be shown that this works better than other measures of local economic conditions such as the unemployment rate or per capita disposable income.

[19] I excluded the interaction with secondary and primary education since I found that localized human capital spillovers matter only for people with tertiary educations (estimates are available on request). This result is consistent with the idea that the exploitation of human capital externalities requires appropriate skills, i.e. "absorption capacity". On the role of human capital externalities see Moretti (2004), Dalmazzo and de Blasio, (2007)

[20] Indeed, this procedure does not consider the degree of fulfilment of people's expectations regarding life domains other than work, as well as non-pecuniary job rewards (e.g. job security, promotion prospects, actual work itself, relations with colleagues and the supervisor etc.). Moreover, I did not control for differences in abilities which might be responsible for differences in income. For my purposes here, to the extent that the latter abilities are not known by individuals or that the latter are affected by the *self serving bias*, this is not a problem.

[21] Data can be supplied by the author on request.

It appears that the *U-shaped* age-happiness relationship has a great deal to do with people's educations and that these form socioeconomic expectations. On these grounds, it can be argued that the positive association between life satisfaction and being female, generally found in the literature, and the lack of a significant age/life satisfaction relationship for females (table 7) is related to the existence of some gender specific mechanism of aspirations build-up.[22]

Hence, I find preliminary support for the idea that, for more educated people, socio-economic aspirations may rise faster with schooling than real life opportunities do. The latter idea is consistent with Easterlin's (2001) findings and with previous empirical evidence on the negative impact of education on job satisfaction reported in most of the literature (e.g. Clark and Oswald 1996).

Table 7. The age/happiness relationship: breakdown by subsample

(based on model 1; model 2 does not yield very different outcomes)

*** = Sig. 1%; ** = Sig. 5%; * = Sig. 10%.

Sample	Age coefficient	Age^2 coefficient
All	-.0654**	.00064**
males	-.0706613**	.000695**
females	Not significant	Not significant
schooling < 12	Not significant	Not significant
schooling ≥ 12	-.115356***	.001135***
EF ≥0	Not significant	Not significant
EF < 0	-.130588***	.0013172***

Other interpretations of this result rely on the ideas that people lack information about their unobservable abilities/talents and/or that they are affected by a *self serving bias*. If socio-economic expectations are based on imperfect information or a *self serving* process of information selection, less talented people, when young, may form biased expectations about what they deserve and may experience frustration over unfulfilled expectations as adults.[23] Most importantly, due to the fact that education increases the variance and the right skewness of the socioeconomic outcomes, the bias would increase with educational attainment.

Income expectations provide a good example of how imperfect information or/and the presence of a *self serving bias* may affect socioeconomic expectations.. On this premise, in order to find support for my preliminary conjectures and results, I plotted the kernel distributions of income, below and above compulsory schooling and below and above the mean value of ICI.[24] The distributions were indeed more symmetric, i.e. less right skewed for schooling attainments below the compulsory level and for values of ICI below the mean. I also computed the degree of skewness of the income distribution and, not surprisingly, found that the latter is larger above compulsory schooling. Moreover, the standard deviation of income was larger for the more educated individuals living in more creative places, whereas the opposite held for the less educated individuals (Table 8).

Table 8. Schooling, ICI and income aspirations

	Skewness (95%)	S.D. of income
Schooling below compulsory	1.32	5709
Schooling above compulsory	1.84	9582
Schooling above the mean and ICI above the mean	1.90	10739
Schooling above the mean and ICI below the mean	1.43	8592
Schooling below the mean and ICI above the mean	1.63	5272
Schooling below the mean and ICI below the mean	0.94	5920

[22] On this interpretation see e.g. Clark (1997). Since females appear to be less optimistic than males, I argue that they may be less prone to building up education-induced aspirations inconsistent with their real life chances. Moreover, for the same reason, women do not seem to experience the *U-shaped* life satisfaction/age pattern of adaptation found for males.

[23] Of course, one would find the opposite result for more talented and luckier people. I posit that, when loss aversion obtains, people's hedonic adaptation to positive surprises is very rapid.

[24] Tables can be provided on request.

IV. SUMMARY AND CONCLUSIONS

The idea that expanding work and consumption opportunities *always* increase people's wellbeing is widely accepted in economics, but it finds no support in psychology (Schwartz et al. 2002; Schwartz, 2000; Roese and Summerville, 2005). The question is why, although an expanded set of choices is good for *decision utility*, it may be not so for *experienced utility.* The results shown here suggest that life satisfaction depends greatly on how *experienced utility* compares with expectations on life satisfaction or *decision utility* (Kahneman et al., 1997; Clark and Oswald, 1997).

In this paper I have discussed how education may, through aspirations, generate a systematic gap between decisions and experienced utility. I have developed an empirical model based on the assumption that skills and *perceived* opportunities play a central role in life satisfaction in that they affect people's ability to express preferences and their socioeconomic aspirations. On these premises, I have argued that better *perceived* opportunities may depress life satisfaction if they raise aspirations above real life chances, and I have provided preliminary empirical evidence, for Italy, that schooling is a main driver of *perceived* opportunities and aspirations.

A legitimate question is whether these results are specific to Italy and to employees or whether they can be generalised. Indeed, the market returns to education in Italy are lower than in other OECD countries. Furthermore, owing to institutional, technological and cultural factors, in Italy education seems to be a less valuable asset than in other advanced countries. One would expect this low social rating of education to affect other domains of life as well, and it may be responsible for the *aspirations bias* of more educated individuals that has been detected here.

Although culture, institutions and technological factors may generate important differences in socioeconomic returns to education among countries, I believe that the interpretative framework adopted here can be generalised. In this regard, a standard assumption in economics is that the preferences of a rational economic agent can be revealed by observing choices. If people's decision utility systematically differs from experienced utility and if this gap significantly affects life satisfaction, revealed preferences are not very useful to social scientists: why do people move to very *stimulating* places or acquire secondary and tertiary educations if these choices may depress their life satisfaction.

As far as the exclusion of self-employed is concerned, there is some evidence that entrepreneurs may have higher *Mincerian* returns to education because they are better able to allocate their human capital efficiently (Van der Sluis, van Praag and Van Witteloostuijn 2007). If this argument is correct, it may imply that the self-employed do not experience the aspiration bias induced by education.

Finally, the psychological evidence supports the view that not only may people respond asymmetrically to positive and negative aspirations biases but also may adapt differently to aspiration biases regarding pecuniary and non pecuniary outcomes. In particular, people's adaptations to positive aspiration biases in pecuniary outcomes should be complete, whereas they should be incomplete in the case of negative non-pecuniary biases (Easterlin, 2005; Diener and Fujita, 2005, La Tella, Haisken and Mcculloch, 2007). The same evidence suggests that age and gender may play an important role in the latter mechanisms of adaptation. This paper, too, has found evidence that individuals may learn from experience and revise their aspirations, and that females may have a different pattern from men in their aspirations' building and adaptation.

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