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**Survey Design and Response Analysis: a Study on Happiness, Life Satisfaction and Well-being in Piedmont, a Region of Italy**

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## Abstract

In the literature of happiness economics individual subjective utility is measured by directly asking individuals to self-assess their level of utility, usually on a numerical scale, using various terms such as happiness, life satisfaction and well-being, most of the times taking for granted that they are synonymous. Despite the richness of happiness economics literature, several terminological and methodological issues still need to be investigated. This paper presents the results of a field survey conducted in the Region of Piedmont (Northern Italy) by means of 1250 face-to-face interviews, financed by Piedmont Government, in order to assess the level of happiness, life satisfaction and quality of life using three different scales: a verbal one (7 steps from, say, very unhappy to very happy, a unipolar cardinal scale (from 1 to 7) and bipolar cardinal scale (from -3 to 3). We have also examined the effects of wording and scales on those that turned out to be the main determinants of the three notions. We show that wording clearly matters: not only each subject (in most cases) self-reports differently her/his own happiness, life satisfaction and well-being and therefore they may be similar but not equivalent notions, but also their determinants turn out to be different. Moreover, we find that the use of different scales leads to different results. However, a clear pattern does not emerge: therefore we cannot state which numerical scale performs better in representing the verbal self-reported valuations.

**Keywords:** Happiness, Satisfaction, Well-Being, Survey Design

**JEL Classifications:** B21, B41, C83, D03, J28.

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## 1. INTRODUCTION

Economists have been very reluctant to carry out studies on individual happiness, life satisfaction and well-being. However, nowadays, Happiness Economics is a well-established branch in Economics (see for example, Frey, Stutzer (2002a; 2002b), Oswald, A., (1997) Blanchflower, D., Oswald, A., (2004), Layard (2005) and Di Tella MacCulloch (2006), among others). As a point of fact, since the mid-nineties, there has been an increase in the number of empirical studies on these arguments. A great number of surveys have been carried out in various countries pointing out the relationship between individual subjective well-being and a great number of demographic and socio-economic variables. Nowadays, there are well established surveys in which specific questions on happiness are asked (see, for example, the *Word Values Surveys*, the *Socio Economic German Panel* or the *National Well Being Survey by the ONS in UK*). See for example Kahneman, D., Krueger A., Schkade, D., Schwarz, N., Stone, A. (2004)

In spite of the richness of literature on happiness economics (and related topics, such as life-satisfaction and well-being), quite a number of terminological and methodological problems are still to be investigated in order to make the current results more sound and really comparable. We should be aware that individuals' assessment of well-being provided by surveys can be subject to a multitude of biases. Self-reported evaluations of life may be influenced by the survey design: the order of the questions can enhance anchoring effects; the different words used (labels) can arouse different kinds of emotions in the respondents; different scales used in order to measure both the degree of happiness, well-being, satisfaction and their possible determinants may lead to dissimilar results. All these factors might make the comparison and the interpretation of the results between different surveys troublesome. In addition, most of these problems can be only partially bypassed by the development of appropriate econometric techniques. We believe that addressing directly the question of the potential bias affecting survey designs can be a profitable field of research and can be a desirable contribution to the literature on happiness.

At the moment very few papers tackle directly these problems. Taking advantage of the change in the survey design of the British Household Panel Survey data, Conti and Pudney (2011) note that the usual empirical finding that women give less importance to wages and instead prefer working fewer hours compared to men is mainly due to a difference in the design of the survey and to the use of two distinct interview modes.

Addressing the scale problem, we designed a survey asking subjects to evaluate their happiness, satisfaction and well-being, by using three different scales: a "verbal" one (7 steps from, say, "very unhappy" to "very happy") a "unipolar cardinal" one (from 1 to 7) and a "bipolar cardinal" one (from -3 to +3). In this way, we think we are able to provide a direct test on the potential framing effects due to the use of different scales. In particular, if subjects are asked about their happiness (or life satisfaction or well-being) they will answer something in between "very unhappy" and "very happy": certainly not "2" or "6". Therefore we may suppose that the verbal scale is the most reliable because it corresponds to how valuations are mentally formulated: but if we want to build averages to be able to compare subjects, social groups, different countries or different times, we need cardinal measurements. Therefore we need to know which scale better translates feelings into numbers. That's why we tested two different numerical scales.

Moreover, we directly tested if subjects perceive the three concepts of happiness, satisfaction and well-being as synonymous or not.

In addition to the main methodological objective sketched in the previous paragraph, our paper provides some new evidence on the determinants of happiness, life satisfaction and quality of life. We conducted our research taking advantage of the opportunity given by a grant from the Regional Government of Piedmont to the Department of Economics of the University of Torino. The study is a face-to-face interview survey that assesses the level of happiness, life satisfaction and quality of life perceived by the population of Piedmont, a region of Northern Italy.

To our knowledge, there are few empirical studies on happiness in Italy. Using the Survey on Household Income and Wealth of the Bank of Italy conducted in the years 2004 and 2006, Scoppa and Ponzo (2008) find results, consistent with the other studies on advanced countries: income and wealth are positively related to happiness, while unemployment is negatively related. On the other hand, they find that people living in the South of Italy are less happy than people living in the North, while people living in the big cities are less happy than people living in villages or small towns; moreover, education has a positive influence on happiness, whereas the number of children exerts no significant effect.

The results of our research mirror most of those of Scoppa e Ponzo (2008). Moreover, our findings are generally consistent with those of the international literature. This can be taken as evidence that our self-designed survey (designed mainly to test the effect of different scales and the use of different variable to measure “happiness”) is reliable and that our findings on the perception of different concepts (happiness, life satisfaction and well-being<sup>1</sup>) and on the use of different scales might be generalized.

The paper is organized as follows: section 2 contains a short review of the literature and the motivations of our research; section 3 a description of our questionnaire and survey design; in section 4 we describe our model, in section 5 we provide descriptive analyses, sections 6 includes conclusions and implications for further research.

## **2 Review of the literature and motivations**

In this work, we tackle the following two main questions:

- 1) are the notions of “happiness”, “life-satisfaction” and “well-being”, which are used indifferently in the literature, substantially equivalent?
- 2) do the different scales used in assessing self-reported happiness, life satisfaction and well-being give the same or different results?

To measure individual subjective happiness, well-being or life satisfaction it is common, in literature, to use direct questions to individual respondents, such as: “All things considered, how *satisfied* are you with your life as a whole this days?” *Word Values Surveys* (Inglehart et al.2002) or “Taken all together, how would you say things are these days – would you say that you are *happy* or not *happy*” *General Social Surveys* (Davis, Smith and Marsden 2001).

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<sup>1</sup> We adopted the Italian term of “qualità della vita” (quality of life) because we believe that it is the best translation of the English “well-being”. The literal translation of well-being, i.e. “benessere” in Italian, by now, mostly refers to a financial wealthy status.

As we can note, the words happiness and satisfaction are used indifferently. This implies that the two words are considered as synonymous. This is even more evident if we look at the *Socio Economic German Panel* where the two words are used indifferently in the same question. “*How satisfied are you today with the following areas of your life? Please answer according to the following scale: 0 means “totally unhappy”, 10 means “totally happy”.*” Thomas Siedler, Jürgen Schupp, C. Katharina Spiess, Gert G. Wagner December 2008, RatSWD, Working Paper Series, n.48 p.16.

The notion of happiness has been explored and measured in psychology. Elster (1997, 98), for example, distinguishes happiness from emotion. He considers happiness more as a state of mind than a proper emotion like joy or pain. Moreover, Elster (1998) writes “no economist to my knowledge has considered emotions in their main role as providers of pleasure, happiness, satisfaction, or utility” (p. 1386), where pleasure, happiness, satisfaction seem all to be considered “forms of utility”, to use an economics kind of word<sup>2</sup>. On the other hand, S. Lyubomirsky (2001) defines happiness as follows “*it includes the experience of joy, contentment, or positive well-being, combined with the sense that one’s life is good, meaningful and worthwhile*” (p. 239). Hence, the words “satisfaction” and “well-being” seem to be related somehow with the concept of happiness; however the three concepts may not be perceived exactly equivalent. Happiness seems to evoke more directly positive emotions than satisfaction or well-being. For example, happiness might be considered a state of mind or a mood with a more subjective glint, while life satisfaction and well-being might evoke less subjective conditions or feelings.<sup>3</sup> If this is true, we might expect that some factors will systematically determine subjects’ different self-valuations under the three different frames or that the three notions may have different determinants. For this reason in our survey we asked the interviewed individuals their subjective evaluation for all three notions. This allows us to compare the answers and the main determinants of the three notions for each subject<sup>4</sup>.

The second methodological problem we address is related to the scales that are used to measure the single variables. In the cited surveys, Likert and Cantril scales are commonly used.<sup>5</sup> Both these scales are normally used in psychology and psychometrics with different results. As far as happiness is concerned, the Likert type scale<sup>6</sup>

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<sup>2</sup> B.M.S. van Praag (2007) writes: “Mainstream economists mostly do not talk of happiness but of utility. As we said before the choice of the word is just a matter of taste without consequences” p. 4

<sup>3</sup> B.M.S. van Praag (2007) writes in a footnote p. 3 “We will make no difference between those notions, (well being, satisfaction and happiness). The reason is that all those notions are metaphysical concepts. Without an operational measurement methods they remain empirically indistinguishable.”

<sup>4</sup> Since we used a questionnaire containing 63 “main” questions and 69 more “sub-questions” we expect that the distance in the questionnaire of the three of the questions related to well-being satisfaction and happiness was such as to reasonably limit the influence that the first answer may have on the others. Moreover we randomized the order of the questions.

<sup>5</sup> See for example D. H. Russell Bernard (2000) “Social Research Methods: Qualitative and Quantitative Approaches”. Sage publication, London.

<sup>6</sup> We can distinguish between a Likert scale strictly defined and Likert-type scales. In the literature of happiness Likert-type scales are used. To see the difference between the two concepts see Uebersax JS. Likert scales: dispelling the confusion. Statistical Methods for Rater Agreement website. 2006. Available at: <http://john-uebersax.com/stat/likert.htm>. And between the others Carifio and Perla, 2007, Ten Common Misunderstandings, Misconceptions, Persistent Myths and Urban Legends about Likert Scales and Likert Response Formats and their Antidotes. Journal of Social Sciences 3 (3): 106-116.

(Likert 1932) and the Cantril Self-Anchoring Striving Scale (Cantril, 1965) have been used in the Gallup research initiatives, for example<sup>7</sup>.

Let us briefly describe these two scales. With the term Likert scale, we refer to a multi-attribute scale used to assess individual judgment on more than one item. Normally a 1-to-5 rating scale is used, where numbers are linked to words like in the following general example: 1 = strongly unfavourable to the concept 2 = somewhat unfavourable to the concept 3 = undecided, 4 = somewhat favorable to the concept 5 = strongly favorable to the concept. To be a proper Linker scale, words should be assigned to each number of the scale. Moreover, we have to go from a very unfavorable opinion to a very favorable one on multi items with an anchor to a neutral concept like “undecided”, “indifferent”, “I don’t know”.

In the literature on happiness, Likert-type of scales, in which not all the characteristics of the Likert scale are present, are more often adopted. The Likert-type of scale involves more or fewer steps than the Likert scale (seven, ten) or it does not have a neutral anchor or it measures frequency (1. Always, 2. Often, 3. Sometimes, 4. Seldom, 5. Never) or it does not measure intensity.

Again, we can take as an example the German Panel Questionnaire (p.15) where the neutral anchor is not present.

*How often have you felt ...*

	<i>Very Rarely</i>	<i>Occasionally</i>	<i>Often</i>	<i>Very often</i>
• <i>angry?</i>	-	-	-	-
• <i>worried?</i>	-	-	-	-
• <i>happy?</i>	-	-	-	-
• <i>sad?</i>	-	-	-	-

The other scale normally used is the Cantril Self-Anchoring Scale. Consider the following example:

Please imagine a ladder with steps numbered from zero at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time? (ladder-present) On which step do you think you will stand about five years from now? (ladder-future). Hence the question “How satisfied are you today with the following areas of your life? According to the sentence “*Please answer according to the following scale: 0 means “totally unhappy, 10 means “totally happy”*” (Socio Economic German Panel), we can say that the Cantril’s is a rating scale in which only the end point ladders of the scale are fixed, while the remaining ladders can be self-anchoring. Such a scale is often compared with a rating scale with fixed anchors. Recently, Hofmans Theuns and Van Acker (2009) have found out that self anchoring scales perform better when collecting additional

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<sup>7</sup> Gallup's World Poll of more than 150 countries and Gallup's in-depth daily poll of America's wellbeing (Gallup-Healthways Well-Being Index; Harter & Gurley, 2008), Gallup (1972), (2009) Deaton A.(2008).

information from the anchor is needed, while, when comparison between groups is necessary, rating scales with fixed anchors are easier to use.

There is a rich literature in psychology on the use of different scales, but we limit our attention to the most common scales (verbal and unipolar) used in the literature of happiness, satisfaction and well-being economics, adding a new bipolar scale.

First of all we want to check which of the two cardinal scales corresponds most closely to the verbal one. On the one hand, the bipolar one should better correspond to the verbal valuations: “Very unhappy”; “Unhappy”; “Slightly more unhappy than happy”; “Neither unhappy nor happy”; “Slightly more happy than unhappy”; “Happy”; “Very happy”, where the first three imply negative valuations and the last three positive ones. Moreover, a low valuation on the unipolar scale, “1” for example, may be perceived as corresponding to a negative valuation (“very unhappy”) but also to a slightly positive one (“slightly more happy than unhappy”). On the other hand, people may not be very familiar with negative numbers, and therefore may tend to ignore them.

The effect of the use of different scales represents a new development in the literature on happiness, and our paper addresses the question of the analysis of subjectively perceived evaluations of happiness, satisfaction and well-being.

### **3. Survey design**

In Autumn 2011, we interviewed 1250 subjects which are a representative sample of Turin, Alessandria and Cherasco; a large, a medium size and a small town in Northern Italy. Each subject was interviewed face-to-face and was asked to answer 63 questions, including demographic information, self-reported level of health, job satisfaction, wealth, qualification, perceived risk and security, valuation of public services like transportation, school, security and relational goods. The main objective of the survey wasn't that to mimic the national survey mentioned above. Our aim was more limited, we wanted to give some elements to regional administrators about the importance for well-being of regional public services. On the other hand we used this opportunity to test – as we pointed out above – the influence in measurements of different metric scales as well as the perceived subjected individual differences in the words happiness, well-being and satisfaction. The information on the more general variables has been also used to control if the design of our questionnaire was overall correct. As shown in the following discussion, the results we obtained are comparable with the general ones of the related literature.

The questionnaire was in Italian; hence, we translated happiness with “felicità”, life satisfaction with “soddisfazione con la propria vita” and well-being with “qualità della vita”. In order to measure the above notions we asked the same question twice using two different measurement scales.

For the concept of happiness we used a verbal scale and a numerical unipolar scale going from 1 to 7; for the concept of life satisfaction a verbal scale and numerical bipolar scale going from -3 to +3 and containing the zero; for the concept of well-being we used for all subjects the verbal scale, whereas to one half of the sample (Questionnaire A) we used an unipolar numerical scale while for the other part of the sample (Questionnaire B) we used a bipolar numerical scale. See below the appropriate examples.



The two questionnaires, A and B (50% of the sample each) are identical except for the questions on well-being and for the position of questions on happiness and satisfaction that are placed in different order at the same distance.

Consider now the questions in details:

- Life Satisfaction: Question 1 (verbal): “All together, how satisfied are you with your life?” “Very unsatisfied; Unsatisfied; Slightly more unsatisfied than satisfied; Neither unsatisfied nor satisfied; Slightly more satisfied than unsatisfied; Satisfied; Very satisfied” (Linkert scale with seven items)<sup>8</sup>. Question 2 (numerical bipolar): “All together, on a scale from -3 to +3, with the related answers “-3; -2, -1; 0; +1; +2; +3” (where -3 represents the most negative valuation and +3 the most positive one) how satisfied are you with your life?”<sup>9</sup>.
- Happiness: Question1 (verbal): “All together, how happy do you feel?” with the 7 point scale of related answers “Very unhappy; Unhappy; Slightly more unhappy than happy; Neither unhappy nor happy; Slightly more happy than unhappy; Happy; Very happy”<sup>10</sup> Question 2 (numerical unipolar): “All together, on a scale from 1 to 7 (where 1 represents the most negative valuation and 7 the most positive one) how happy do you feel?”<sup>11</sup>.
- Well-being: Question 1 (verbal): “All together, how do you value the quality of your life?” with the 7 point scale of related answers “Very bad; Bad; Rather bad; Neither bad nor good; Rather good; Good; Very good”<sup>12</sup>. Question 2 (numerical bipolar): “All together, on a scale from -3 to +3 (with the related answers “-3; -2, -1; 0; +1; +2; +3”, where -3 represents the most negative valuation and +3 the most positive one) how do you value the quality of your life?”<sup>13</sup>. Question3 (numerical unipolar): “All together, on a scale from 1 to 7 (where 1 represents the most negative valuation and 7 the most positive one) how do you value the quality of your life”<sup>14</sup>.

#### 4. The Model

Economics deals with decisions in a world of scarce resources. Hence the underlying idea is the maximisation of utility while choosing between alternatives. The standard theory usually assumes that individuals reveal their preferences through their choices. Hence choices are observed directly, not utility. Recently the idea that utility can be directly observed and measured and that the concept of utility is highly correlated with emotions and feelings is back in the economic debate. Kahneman and Wakker (1997) for example reintroduced a Bentham’s concept, the so called experienced utility. This kind of utility is linked to the concept of happiness and can be measured. Naturally this concept of utility raises the debate on the *ordinality versus cardinality* of the utility function. In the literature of happiness the assumption of cardinality is not always present. Usually it is assumed that the reported level of

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<sup>8</sup> Placed in position 15 in questionnaire A and in position 30 in questionnaire B.

<sup>9</sup> Placed in position 30 in questionnaire A placed in position 15 in questionnaire B.

<sup>10</sup> placed in position 21 in questionnaire A placed in position 35 in questionnaire B.

<sup>11</sup> placed in position 35 in questionnaire A placed in position 21 in questionnaire B.

<sup>12</sup> placed in position 40 both in questionnaire A B.

<sup>13</sup> placed in position 26, in questionnaire A

<sup>14</sup> placed in position 26, in questionnaire B

happiness, satisfaction or well-being is a proxy of the level of utility. Hence we suppose a latent utility variable  $u$ , so that  $u = f(x_i; \beta; \varepsilon)$ , where  $x_i$  are the variables that might influence happiness or well-being or satisfaction,  $\beta$  are the parameter vectors and  $\varepsilon$  is the vector of the random error: we estimate a different  $u$  for each of the variable happiness, well-being and satisfaction and for each scale used to measure these variables.

Taking into account the many doubts expressed in the literature, we haven't taken for granted the cardinality of the assessments; therefore at a first level of analysis we interpret the self-reported level of happiness, life satisfaction and well-being as an ordinal measure where for example a higher level of satisfaction reflects a higher utility. This is done for each of the respective scales.

## 5. Data and Descriptive Statistics.

As mentioned above, our sample contained 1250 individuals living in Piedmont, a Region in North of Italy. The sample was stratified by age and gender. The face-to-face interviews involved 900 individuals in Turin, the largest city (around one million people), 250 subjects lived in Alessandria a middle town and finally one hundred subjects lived in Cherasco, a small town. We got a very good percentage of answers: 1241 out of 1250.

As mentioned before, the questionnaire contains questions regarding social life, perception of security, community relations, etc.

The main methodological aim of our research is to try to understand if the use of a different terminology in order to define a broad concept of welfare – “happiness”, “life-satisfaction” and “wellbeing” – as well as the use of different scales to measure the different level of welfare – verbal, numerical unipolar, numerical bipolar – lead to different answers and to dissimilar econometric findings.

We start from a very simple visual inspection. Figure 1 shows the distribution on the self-assessment of the level of utility using the three different wordings; Figure 2A shows the distribution of the self-reported happiness using the verbal and the numerical unipolar scale and the distribution of the self-reported satisfaction using the verbal and the numerical bipolar case, Figure 2B compares the distributions of self-reported well-being using all the three scales. Clearly, the three figures show how both the different terminology and the different scales present different shapes in the response distributions.

A simple tabulation (see table 1A and 1B in appendix B) of the mean and the frequencies of answers to the questions on different notions and scales, on the unrestricted sample, confirms that response distribution are dissimilar.

Further, we check if self-reported happiness, life satisfaction and well-being are on “average” perceived as equivalent or not, using a simple mean t-tests. The first set of t-tests (and regressions) are performed on a sample of individuals who answered the questions on all these three different concepts. In the second set of t-tests (and regressions), the sample is further restricted to those who answered, for each variable, both on the verbal and on the numerical scale. More precisely 1211 answered to all the three notion measured with the verbal scale. Among these, 1206 provided an answer to the notion of life satisfaction measured both on the verbal and on the bipolar scale, while 1198 individuals provided an answer to the notion of happiness measured both on the verbal and on the

unipolar scale. As said before for the concept of well-being we used verbal scale for all individuals, a bipolar scale for one half of the sample and a unipolar scale for the other half, obtaining 616 individuals answering to well-being on the verbal scale and well-being unipolar scale and 591 answering to well-being on the verbal scale and well-being on the bipolar scale.

Not restriction sample produces the same results. Tables in the Appendix C show the results of a t-test performed between different wordings and between different scales, respectively<sup>15</sup>. As for the verbal scale (appendix C), we find significant mean differences between happiness (4.97) and well-being (4.85) and between well-being and life satisfaction (4.92), while happiness and satisfaction do not show significant differences.

As scales are concerned we find that the mean answer as for life satisfaction expressed in the verbal scale is 4.92 while the mean answer in the bipolar scale is 5.08. We also find that mean answer to the question on happiness expressed in the verbal scale is 4.97 while it's 4.83 when the unipolar scale is used. Ttest shows that both mean differences are statistically significant. No significant difference emerged between self-reported well-being in a verbal scale (4.83) and in an unipolar scale (4.84) in questionnaire A, and also the difference between self-reported well-being (4.86) in a verbal scale and in an bipolar verbal scale (4.75) in questionnaire B is not significant. Descriptive analysis shows mixed results, but we can conclude for sure that the three notions are quite often not perceived as synonymous and that scales do matter. Both visual inspection and descriptive analysis suggest that the design of the questionnaire may impact the response pattern.

In the next section, we show how the distortions in survey responses lead to different econometric results, comparing the results of the same estimated model on the same sample using the three different notions and the three different scales.

## **6. Econometric results.**

Before addressing our two main questions, we first checked the consistency of our results with other findings in the international literature estimating a basic model using some key variables like age, unemployment, education, income, having a fixed partner, the number of children in the family, and where you come from. We checked also the consistency of cardinal and ordinal treatments of self-reported levels of "utility" estimating the model using OLS, Ordered probit and Ordered logit strategies. On average we got a very good percentage of answers to almost all the questions, but only about 50% of subjects provided an answer on family income in spite of the assurance of anonymity.

As a consequence we performed two sets of analysis: in the first one only on individuals who provided information on family income, in the second one on the whole sample not including the income variable among regressors, but adding, as a row proxy of income, self-reported satisfaction of subject's family on its overall economic condition (see table 5A of appendix D for the basic statistics of the key variables that we used in all samples). Since an in-depth study of the determinants of life satisfaction is not the very core of this paper, we didn't perform any Heckman selection model, conducting each of the equivalence test shown below on exactly the same samples.

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<sup>15</sup> Because of a direct comparison reason, bipolar scale is normalized to 1 to 7, so -3 corresponds to 1; 4 to 0 and +3 to 7.

Only the results we obtained by using the sample of individuals who provided an answer to the family income question are shown (in Table 5B, Table 5C and Table 5D in the appendix D)<sup>16</sup>. As for all the three notions, age is not significant in this sample<sup>17</sup>; unemployment is negative and significant while education becomes not significant once income variables are included, otherwise it is positive and significant at a decreasing rate (not shown); the number of children is not significant, and this result is confirmed when using the whole sample; family income is positive and strongly significant<sup>18</sup>. Living with a fixed partner is found to have positive and highly significant effects on satisfaction and happiness, but not on well-being when income variables are included.

All our findings are consistent to the main findings of international literature. Moreover, we obtained very similar results implementing OLS, OPROBIT, OLOGIT strategies, therefore we can conclude that ordinal and cardinal treatments of the utility are consistent. Hence from here on we are going to use the OLS specification.

As we said, one of the main questions we want to tackle is whether satisfaction, happiness and well-being are equivalent notions. We test the equivalence of these three different notions comparing the results of the same model, on the same sample of respondents, putting on the left side life satisfaction, happiness and well-being and on the right side the same determinants. If these three notions are equivalent their determinants should not be different.

The estimates are obtained using the sample of those individuals who answered to all the three notions – measured with the verbal scale. Income variables are excluded, since the absence of these variables should not have any implication for equivalent assessments. Moreover, we added some variables, not present in the basic model adopted in most of the existing literature.

Our questionnaires add questions on how respondents feel satisfied/dissatisfied – using the same 1 to 7 scale – with their family economic condition, health and leisure time and ask for self-assessment about their optimism, trust, social life, having a complicated or easy life, attitude toward risk, sensation of security and presence of social pressure (see Appendix E for details on the adopted variables). Results of regressions are shown in table 6 in Appendix D.

Basic results are confirmed in this extended model. Moreover, as expected, being satisfied of one's family economic situation, social life, leisure time, health condition, independence and being a person who trusts people, exert positive and significant effects on all the three notions of welfare.

Our results seem to be rather similar when running regressions on life satisfaction, happiness, and well-being. However, several differences did emerge. The impact of some determinants is not always of a similar size: i.e health satisfaction shows a coefficient equal to 0.068 for well-being, 0.12 for happiness and 0.135 for life satisfaction. Moreover, many variables (optimism, risk aversion attitude, age, the number of children, living in Alessandria and being student) are significant in one or two regressions but not in the others. Therefore the

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<sup>16</sup> Results using the whole sample are available upon request to the authors.

<sup>17</sup> However it becomes significant and U shaped when using all individuals sample.

<sup>18</sup> This last factor takes us back to the many recent studies on Easterlin's paradox (2001,2003 and 2004), confirming the prevalent results that it may stand as for time series but happiness is significantly positively related to income in cross-section analyses. See also Ferrer-i-Carbonell A. (2005).

regressions suggest that the notions of life satisfaction, happiness and well-being are similar but not equivalent. Moreover, discrepancies in responses significantly impact econometric findings. Factors that determine differences in the self-reported valuations may influence differently some groups of the population rather than others: for each group of the population the three variables sometimes have different determinants.

We explored this issue estimating the same models separately for males and females. Significant gender differences emerged as shown in Table 6A and 6B. As males are concerned, freedom is positively and significantly related only to happiness, trust to happiness and well-being, optimism and satisfaction for one's leisure time only to well-being, having an easy life to satisfaction and well-being, and having a fixed partner to happiness and life satisfaction. Risk aversion is U shaped related to satisfaction and happiness, whereas living in Alessandria to happiness and well-being. Nevertheless, both for the positive and negative determinants, only the significance is different for the three notions, but not the sign. Economic satisfaction for family income, good social life, security and health are positively and significantly related to all the three notions. On the contrary, unemployment, shows a significantly negative coefficient for all the three notions. Having children has no effect on none of the three notions for men.

As females are concerned other variables show different results, as for the three notions: trust is positive for happiness and life satisfaction, health and optimism only for life satisfaction, having an easy life only for happiness, the number of children is positively related to happiness and well-being, being a student is positively related to well-being. Age and living in Alessandria is negatively and significantly related to happiness and well-being, unemployment is negatively related to happiness and life satisfaction (as for well-being, its coefficient is negative but not significant).

Interestingly leisure time satisfaction exerts positive and strongly significant effects on life satisfaction, happiness and well-being only for women, while for men it exerts positive and significant effects only on well-being. Having a fixed partner, feeling free and secure, satisfaction for leisure time, exert a strongly positive effect on all the three notions for women, whereas risk aversion is never significant. Being unemployed is not significant for well-being only for women.

As it can be seen, the differences in the determinants of happiness, well-being and life satisfaction are mainly due to demographic factors as age, living in Alessandria and being a student. A possible interpretation is that demographic groups share identical notions of happiness etc., while these notions differ among the various groups.

In table 7.A, 7.B and 7.C we present the results of the regressions aimed to compare the different scales, as for the determinants of happiness, life satisfaction and well-being. These results show that the type of scale clearly does matter. However a clear pattern does not emerge. There are rather small differences in the results between self-reported happiness in the verbal scale and in the unipolar scale and in the results between self-reported life satisfaction in the verbal scale and in the bipolar one, with two variables (optimism and living in Alessandria for satisfaction, easy life and number of children for happiness) that show different results. On the other side, the results between self-reported well-being in the verbal scale and in the bipolar scale are less similar than the ones between well-being in the verbal scale and well-being in the unipolar one. In particular, optimism, having an easy

life, leisure time satisfaction and being unemployed show different results between verbal and both unipolar and bipolar scale, while living in Alessandria or in Cherasco and being a student or a white collar, show a different result only between the verbal and the bipolar scale.

## **7. Conclusions**

This study is based on a face-to-face interview survey that reports the level of happiness, life satisfaction and well-being perceived by the population of three municipalities in Piedmont.

In this paper, we examine the effects of different wording and scales (verbal, unipolar from 1 to 7, bipolar from -3 to +3) on how subjects self report happiness, life satisfaction, well-being and their main determinants.

We show that wording clearly matters. Results are similar when running regressions on life satisfaction, happiness, and well-being, but several differences did emerge (also gender differences in the discrepancies between coefficients emerged). Hence, people perceive well-being, satisfaction and happiness as similar but not equivalent notions and therefore it is not correct to use them as if they were synonymous.

Moreover, the use of different scales matters, but a clear pattern did not emerge, when comparing self-reported happiness in a verbal scale and in a unipolar scale, and life satisfaction in a verbal scale and in a bipolar scale. On the other hand, the unipolar scale seems to perform better than bipolar scale compared to self-reported well-being in a verbal scale. Therefore, we cannot state which of the two “cardinal scales” corresponds better than the verbal one, with unipolar scale performing slightly better than the bipolar scale.

Consequently, our main conclusion is that that survey design might lead to biases in empirical findings. Researchers should be aware of this problem when designing surveys as well as when interpreting the results of different surveys that adopt different scales or “utility” variables.

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## Appendix A Visual inspection

Figure 1. Happiness, Satisfaction and Well-being; Verbal Scale

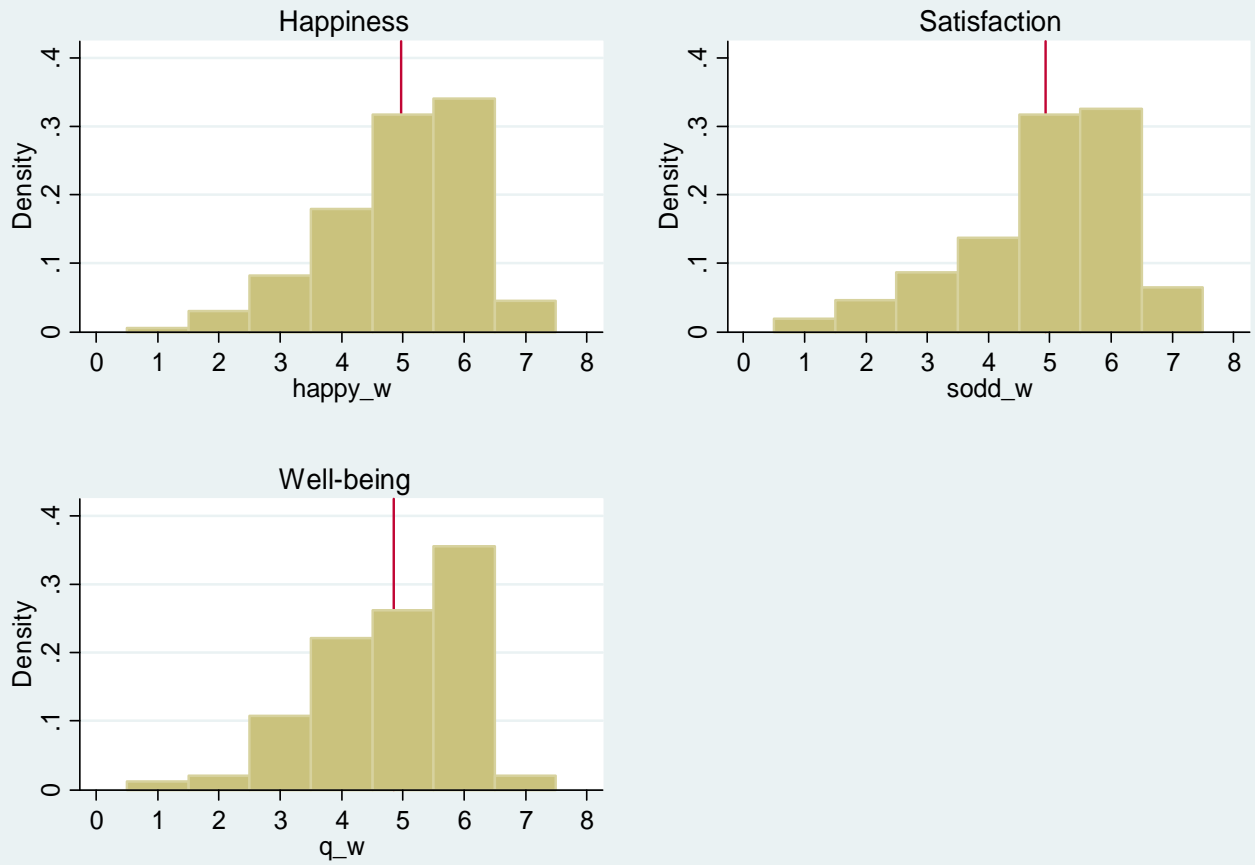


Figure 2A. Happiness and Satisfaction- Scales Comparison

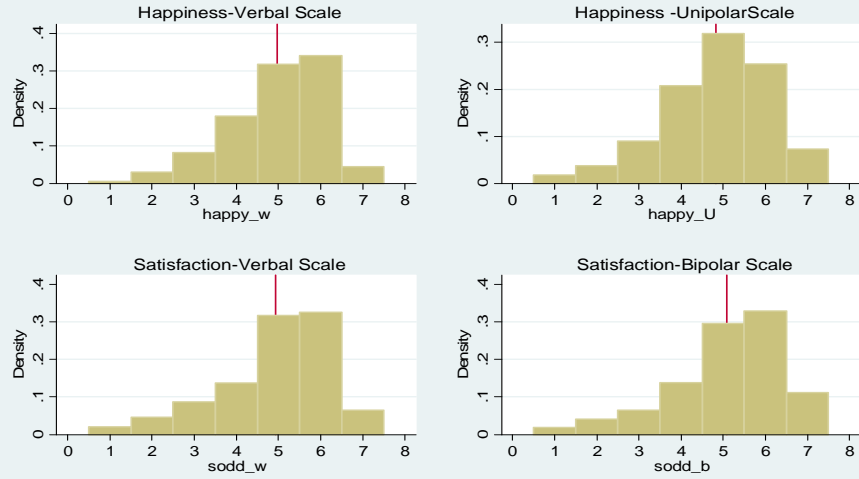
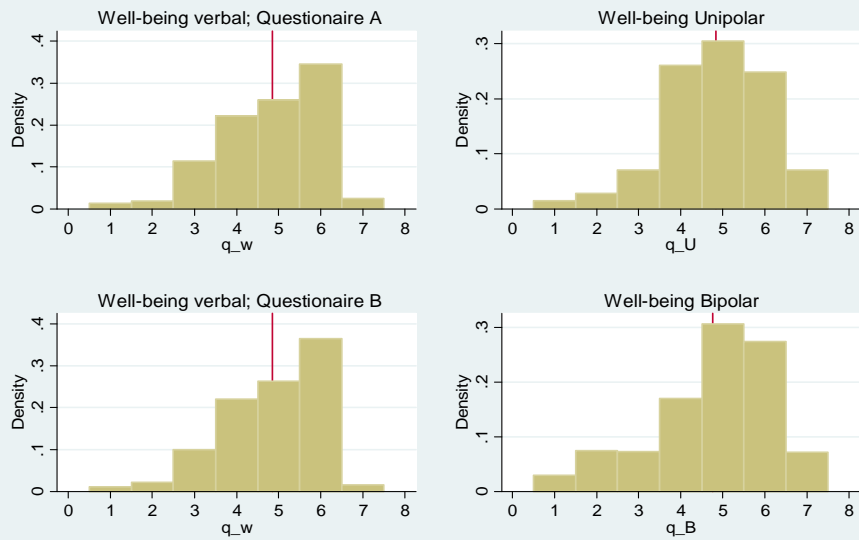


Figure 2B. Well-being, Scales Comparison



**Appendix B**  
**Basic descriptives**

**Table 1.A – Mean and frequencies of the happiness satisfaction and Well-Being across surveys**

<b>Survey A</b>	<b>Happiness</b>		<b>Satisfaction</b>		<b>Well being</b>	
<b>Question</b>	<b>Verbal</b>	<b>Unipolar</b>	<b>Verbal</b>	<b>Bipolar</b>	<b>Unipolar</b>	<b>Verbal</b>
1	2	6	12	4	9	8
2	20	21	32	21	17	11
3	50	55	55	40	43	69
4	105	125	86	98	157	133
5	171	206	159	191	185	157
6	221	160	213	202	158	221
7	36	38	46	54	43	16
Total	605	611	603	610	612	615
<b>Mean</b>	<b>5.03</b>	<b>4.86</b>	<b>4.94</b>	<b>5.09</b>	<b>4.86</b>	<b>4.87</b>
<b>Std dev</b>	<b>1.21</b>	<b>1.23</b>	<b>1.40</b>	<b>1.23</b>	<b>1.24</b>	<b>1.22</b>

*Note: No sample restriction*

**Table 2 B – Mean and frequencies of the happiness satisfaction and Well-Being across surveys**

<b>Survey B</b>	<b>Happiness</b>		<b>Satisfaction</b>		<b>Well being</b>	
<b>Question</b>	<b>Verbal</b>	<b>Unipolar</b>	<b>Verbal</b>	<b>Question</b>	<b>Verbal</b>	<b>Unipolar</b>
1	16	5	19	12	19	7
2	24	16	29	24	46	15
3	55	52	40	51	45	62
4	130	114	72	83	107	136
5	186	216	174	231	191	165
6	152	199	207	188	170	229
7	52	19	83	36	46	10
Total	615	621	624	625	624	624
<b>Mean</b>	<b>4.80</b>	<b>4.92</b>	<b>5.09</b>	<b>4.93</b>	<b>4.76</b>	<b>4.87</b>
<b>Std dev</b>	<b>1.37</b>	<b>1.15</b>	<b>1.46</b>	<b>1.28</b>	<b>1.46</b>	<b>1.19</b>

*Note: No sample restriction*

**Appendix C**  
**Mean differences ttest- Satisfaction vs Happiness vs Well being**

**Table 3.A Happiness vs Well being**

Variable	Observation	Mean	Std. Error
Happiness verbal	1211	4,97	0.038
Well- Being verbal	1211	4.85	0.034
Mean difference	1211	0,123	0.028
Mean (diff)	t=4.380		
Mean(diff)!=0	Pr( T > t)=0.0000		

**Table 3.B Happiness vs Satisfaction**

Variable	Observation	Mean	Std. Error
Happiness verbal	1211	4,97	0.034
Satisfaction verbal	1211	4.92	0.039
Mean difference	1211	0.47	0.028
Mean (diff)	t=1.68		
Mean(diff)!=0	Pr( T > t)=0.0938		

**Table 3.C Well Being vs Satisfaction**

Variable	Observation	Mean	Std. Error
Satisfaction verbal	1211	4.92	0.039
Well-being verbal	1211	4.85	0.035
Mean difference	1211	0.077	0.032
Mean (diff)	t=2.41		
Mean(diff)!=0	Pr( T > t)=0.0160		

**Appendix C**  
**Mean ttest – Scale comparisons.**

**Table 4.A Satisfaction verbal vs Satisfaction Bipolar**

Variable	Observation	Mean	Std. Error
Satisfaction verbal	1206	4,92	0.039
Satisfaction bipolar	1206	5,08	0.039
Mean difference	1206	-0,1600	0.034
Mean (diff)	t=-4.70		
Mean(diff)≠0	Pr( T > t)=0.0000		

*Note: bipolar scale is normalized to 1 to 7, so -3 corresponds to 1; 4 to 0 and +3 to 7*

**Table 4.B Happiness verbal vs happiness Unipolar**

Variable	Observation	Mean	Std. Error
Happiness verbal	1198	4,97	0.034
Happiness Unipolar	1198	4,83	0.037
Mean difference	1198	0,143	0.031
Mean (diff)	t=-4.67		
Mean(diff)≠0	Pr( T > t)=0.0000		

**Table 4.C Well being verbal vs Well being Unipolar- Questionnaire A**

Variable	Observation	Mean	Std. Error
Well being verbal	616	4,83	0.050
Well being Unipolar	616	4,84	0.051
Mean difference	616	-0.005	0.043
Mean (diff)	t=0.11		
Mean(diff)≠0	Pr( T > t)=0.9055		

**Table 4.D Well being verbal vs Well-being Bipolar-Questionnaire B**

Variable	Observation	Mean	Std. Error
Well being verbal	591	4,86	0.048
Well being Bipolar	591	4,75	0.058
Mean difference	591	0,102	0.054
Mean (diff)	t=1.9		
Mean(diff)≠0	Pr( T > t)=0.059		

*Note: bipolar scale is normalized to 1 to 7, so -3 corresponds to 1; 4 to 0 and +3 to 7*

**Appendix D**

**Table 5.A –Mean of key dependent variables**

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Trust	5.02	4.92	4.92	4.89	4.94
Freedom	3.83	3.84	3.84	3.79	3.88
Optimistic	0.68	0.69	0.70	0.70	0.67
Good social life	0.81	0.83	0.83	0.83	0.83
Easy life	0.52	0.52	0.52	0.54	0.50
Attitude toward risk	3.25	3.25	3.25	3.25	3.26
Security	3.57	3.74	3.74	3.72	3.76
Health Satisfaction	5.36	5.44	5.45	5.40	5.49
Free Time Satisfaction	5.02	5.02	5.02	5.00	5.08
Males	0.48	0.48	0.48	0.48	0.47
Average Age	50.3	48.3	48.2	48.8	47.8
Unemployed	0.08	0.11	0.11	0.11	0.11
Number of children	1.2	1.03	1.03	1.04	1.03
High Wage	0.14	-	-	-	-
Middle Wage	0.68	-	-	-	-
Alessandria	0.12	0.20	0.20	0.21	0.20
Cherasco	0.08	0.08	0.07	0.07	0.08

*Note: Sample 1 used for basic regressions are those individuals who answered to all the three verbal scale notion to income question. Sample 2 used for notion comparison regressions are those who answered to all the three verbal scale notion. Sample 3 are those in sample 2 who answered to happiness unipolar question. Sample 3 are those in sample 2 who answered to satisfaction bipolar question. Sample 4 and sample 5 are those in sample 2 and questionnaire A or questionnaire B (half of the sample each) who provided an answer to well-being unipolar and well-being bipolar respectively*

**Regression Results**

**Table 5.B Basic estimation Happiness**

	OLS	Probit	Logit
Male	0.0452 (0.49)	0.0618 (0.69)	0.1216 (0.79)
Age	-0.0280 (-1.42)	-0.0232 (-1.22)	-0.0414 (-1.25)
Age2	0.0003 (1.47)	0.0002 (1.22)	0.0004 (1.26)
Unemployed	-1.1822*** (-6.60)	-1.0801*** (-6.21)	-1.9952*** (-6.59)
N. of children	-0.1104 (-0.92)	-0.0826 (-0.71)	-0.1845 (-0.91)
N. of children 2	0.0342 (1.13)	0.0279 (0.95)	0.0635 (1.24)
Education	0.2564 (1.15)	0.2321 (1.08)	0.6048 (1.62)
Education2	-0.0148 (-0.59)	-0.0133 (-0.55)	-0.0432 (-1.04)
Middle wage	0.6649*** (5.32)	0.5685*** (4.68)	0.9898*** (4.52)
High wag	0.7630*** (4.45)	0.6486*** (3.88)	1.0657*** (3.63)
Fixed Partner	0.2819** (2.68)	0.2650** (2.60)	0.4700** (2.63)
Manager	-0.1511 (-0.37)	-0.0985 (-0.25)	0.1240 (0.18)
White Collar	0.1165 (0.91)	0.1182 (0.96)	0.1021 (0.48)
Student	0.0635 (0.25)	0.0551 (0.23)	-0.0378 (-0.09)
Retired	0.0204 (0.06)	-0.0328 (-0.11)	-0.1416 (-0.27)
Other occupation	-0.3066 (-1.43)	-0.2287 (-1.11)	-0.4309 (-1.12)
Alessandria	-0.3643** (-2.73)	-0.3735** (-2.90)	-0.6009** (-2.76)
Cherasco	0.2915 (1.60)	0.3060 (1.72)	0.5715 (1.86)
Constant	4.2784*** (6.54)		
Observations	626	626	626
Adjusted R <sup>2</sup>	0.19		

Note: t statistics in parentheses \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; Middle wage: between 1000 € and 3000€; High wage: above 3000€. About 60% of the sample provide an answer on their wage

**Table 5.C Basic estimation Satisfaction**

	OLS	Probit	Logit
Male	-0.0088 (-0.08)	0.0266 (0.30)	0.0277 (0.18)
Age	-0.0406 (-1.75)	-0.0286 (-1.50)	-0.0437 (-1.33)
Age2	0.0005* (2.11)	0.0003 (1.79)	0.0005 (1.64)
Unemployed	-0.9429*** (-4.49)	-0.7308*** (-4.26)	-1.3947*** (-4.65)
N. of children	-0.1598 (-1.13)	-0.0801 (-0.69)	-0.1596 (-0.82)
N. of children 2	0.0292 (0.82)	0.0111 (0.38)	0.0298 (0.62)
Education	0.4934 (1.90)	0.3799 (1.79)	0.8028* (2.13)
Education2	-0.0425 (-1.45)	-0.0313 (-1.31)	-0.0710 (-1.67)
Middle wage	0.7697*** (5.25)	0.5385*** (4.47)	0.9887*** (4.63)
High wage	0.8598*** (4.27)	0.5885*** (3.55)	1.0381*** (3.61)
Fixed Partner	0.3430** (2.78)	0.3030** (2.99)	0.5602** (3.18)
Manager	0.2778 (0.58)	0.2628 (0.66)	0.5768 (0.84)
White Collar	0.2033 (1.36)	0.1711 (1.39)	0.3105 (1.44)
Student	0.2617 (0.89)	0.2328 (0.97)	0.4681 (1.12)
Retired	0.0694 (0.19)	-0.0425 (-0.14)	-0.0911 (-0.19)
Other occupation	0.0434 (0.17)	0.0495 (0.24)	-0.0018 (-0.00)
Alessandria	-0.1697 (-1.09)	-0.1712 (-1.34)	-0.3139 (-1.44)
Cherasco	0.3950 (1.85)	0.4727** (2.64)	0.9960** (3.04)
Constant	3.7530*** (4.89)		
Observations	626	626	626
Adjusted R <sup>2</sup>	0.15		

Note: *t* statistics in parentheses \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; Middle wage: between 1000 € and 3000€; High wage: above 3000€. About 60% of the sample provide an answer on their wage



**Table 5.D Basic estimation Well-being**

	OLS	Probit	Logit
Male	-0.0297 (-0.33)	-0.0057 (-0.06)	-0.0120 (-0.08)
Age	-0.0137 (-0.70)	-0.0126 (-0.65)	-0.0199 (-0.60)
Age2	0.0002 (0.83)	0.0001 (0.74)	0.0002 (0.65)
Unemployed	-0.9087*** (-5.13)	-0.8435*** (-4.84)	-1.5245*** (-4.94)
N. of children	-0.2074 (-1.75)	-0.1692 (-1.43)	-0.2837 (-1.36)
N. of children 2	0.0484 (1.62)	0.0405 (1.36)	0.0733 (1.37)
Education	0.3695 (1.68)	0.3377 (1.56)	0.6843 (1.81)
Education2	-0.0215 (-0.87)	-0.0178 (-0.73)	-0.0430 (-1.01)
Middle wage	0.6535*** (5.29)	0.5513*** (4.51)	0.9969*** (4.54)
High wag	0.8360*** (4.93)	0.7663*** (4.49)	1.3825*** (4.57)
Fixed Partner	0.1642 (1.58)	0.1440 (1.40)	0.2690 (1.49)
Manager	0.1713 (0.42)	0.1808 (0.44)	0.2817 (0.39)
White Collar	0.2173 (1.72)	0.2231 (1.77)	0.2959 (1.37)
Student	0.5957* (2.41)	0.6739** (2.67)	1.1135* (2.49)
Retired	-0.0416 (-0.13)	-0.1257 (-0.41)	-0.2529 (-0.51)
Other occupation	0.1641 (0.77)	0.1762 (0.84)	0.2064 (0.56)
Alessandria	-0.2176 (-1.65)	-0.2490 (-1.92)	-0.4336* (-1.98)
Cherasco	0.7086*** (3.94)	0.7861*** (4.19)	1.4207*** (4.20)
Constant	3.4850*** (5.39)		
Observations	626	626	626
Adjusted R <sup>2</sup>	0.22		

Note: *t* statistics in parentheses \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; Middle wage: between 1000 € and 3000€; High wage: above 3000€. About 60% of the sample provide an answer on their wage

**Table 6 Happiness Satisfaction and Wellbeing Comparison, Verbal Scales**

	Satisfaction	Happiness	Well-Being
Economic Satisfaction	0.2183 <sup>***</sup> (7.48)	0.1905 <sup>***</sup> (7.60)	0.1977 <sup>***</sup> (8.15)
Freedom	0.0756 <sup>**</sup> (3.19)	0.1051 <sup>***</sup> (5.17)	0.1029 <sup>***</sup> (5.23)
Trust	0.0709 <sup>**</sup> (2.81)	0.0541 <sup>*</sup> (2.50)	0.0586 <sup>**</sup> (2.80)
Optimism	0.1996 <sup>**</sup> (2.71)	0.1226 (1.94)	0.1787 <sup>**</sup> (2.92)
Good Social Life	0.3291 <sup>***</sup> (3.37)	0.2135 <sup>*</sup> (2.55)	0.1864 <sup>*</sup> (2.30)
Easy Life	0.1551 <sup>*</sup> (2.18)	0.1833 <sup>**</sup> (3.00)	0.2110 <sup>***</sup> (3.56)
Risk Aversion	-0.2252 <sup>*</sup> (-2.16)	-0.0958 (-1.07)	-0.0594 (-0.69)
Risk Aversion2	0.0327 <sup>*</sup> (2.18)	0.0133 (1.03)	0.0107 (0.86)
Security	0.1667 <sup>***</sup> (5.03)	0.1591 <sup>***</sup> (5.59)	0.1968 <sup>***</sup> (7.14)
Health Satisfaction	0.1355 <sup>***</sup> (4.74)	0.1200 <sup>***</sup> (4.88)	0.0688 <sup>**</sup> (2.89)
Free Time Satisfaction	0.1051 <sup>***</sup> (3.74)	0.0891 <sup>***</sup> (3.69)	0.1199 <sup>***</sup> (5.13)
Male	0.0036 (0.05)	-0.0272 (-0.46)	-0.0769 (-1.33)
Age	-0.0329 <sup>*</sup> (-2.24)	-0.0381 <sup>**</sup> (-3.02)	-0.0197 (-1.61)
Age2	0.0003 <sup>*</sup> (2.51)	0.0003 <sup>**</sup> (2.77)	0.0002 (1.40)
Unemployed	-0.4563 <sup>***</sup> (-3.68)	-0.5374 <sup>**</sup> (-5.05)	-0.4186 <sup>***</sup> (-4.06)
N. of children	0.0995 (1.03)	0.1771 <sup>*</sup> (2.13)	0.1215 (1.51)
N. of children 2	-0.0192 (-0.73)	-0.0250 (-1.10)	-0.0255 (-1.16)
Education	0.2076 (1.18)	0.0630 (0.42)	0.1565 (1.07)
Education2	-0.0214 (-1.11)	-0.0051 (-0.31)	-0.0112 (-0.70)
Fixed Partner	0.3629 <sup>***</sup> (4.63)	0.2848 <sup>***</sup> (4.23)	0.2426 <sup>***</sup> (3.72)
Alessandria	-0.1124 (-1.31)	-0.3144 <sup>***</sup> (-4.26)	-0.3645 <sup>***</sup> (-5.10)
Cherasco	0.0524 (0.37)	-0.1521 (-1.25)	0.1827 (1.55)
Manager	0.2369 (1.03)	-0.1456 (-0.74)	0.0524 (0.27)
White Collar	0.1493 (1.50)	0.0841 (0.98)	0.1369 (1.65)
Student	-0.0172 (-0.10)	-0.1181 (-0.81)	0.3521 <sup>*</sup> (2.49)
Retired	0.1191 (0.48)	0.2152 (1.01)	0.0962 (0.47)
Other Occupation	-0.0273 (-0.16)	-0.1558 (-1.08)	-0.0465 (-0.33)
Constant	1.2610 <sup>*</sup> (2.37)	2.1957 <sup>***</sup> (4.80)	1.2010 <sup>**</sup> (2.71)
Observations	1050	1050	1050
Adjusted R <sup>2</sup>	0.40	0.42	0.48

Note: *t* statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 6.A Happiness Satisfaction and Wellbeing Comparison, Verbal Scales - Males**

	Satisfaction	Happiness	Well-Being
Family Econ Satisfaction	0.2459*** (5.29)	0.2137*** (5.40)	0.1820*** (4.73)
Freedom	0.0419 (1.15)	0.0979** (3.16)	0.0420 (1.39)
Trust	0.0711 (1.89)	0.0638* (2.00)	0.0723* (2.32)
Optimism	0.1446 (1.30)	0.1491 (1.58)	0.2338* (2.54)
Good Social Life	0.4626** (3.03)	0.3435** (2.65)	0.2496* (1.98)
Easy life	0.2355* (2.13)	0.1600 (1.70)	0.3232*** (3.52)
Risk Aversion	-0.3935* (-2.43)	-0.3910** (-2.84)	-0.1254 (-0.94)
Risk Aversion2	0.0587** (2.64)	0.0525** (2.78)	0.0203 (1.10)
Security	0.1714** (3.20)	0.1135* (2.49)	0.2396*** (5.40)
Health satisfaction	0.1753*** (3.91)	0.1891*** (4.95)	0.1052** (2.83)
Free time satisfaction	0.0140 (0.31)	0.0261 (0.69)	0.0965** (2.61)
Age	-0.0418 (-1.95)	-0.0267 (-1.46)	-0.0086 (-0.49)
Age2	0.0004* (2.16)	0.0002 (1.23)	0.0000 (0.28)
Unemployed	-0.4552* (-2.57)	-0.6344*** (-4.20)	-0.5267*** (-3.59)
N. of children	0.1798 (1.21)	0.1333 (1.06)	0.0195 (0.16)
N. of children 2	-0.0274 (-0.64)	-0.0172 (-0.47)	0.0223 (0.63)
Education	0.6369* (2.38)	0.2409 (1.06)	0.0573 (0.26)
Education2	-0.0703* (-2.36)	-0.0273 (-1.07)	-0.0074 (-0.30)
Fixed Partner	0.2440* (1.97)	0.2216* (2.10)	0.1867 (1.82)
Alessandria	-0.1930 (-1.50)	-0.2925** (-2.68)	-0.3781*** (-3.56)
Cherasco	-0.0503 (-0.24)	-0.2156 (-1.20)	0.2811 (1.61)
Manager	0.0526 (0.19)	-0.2521 (-1.07)	0.0211 (0.09)
White Collar	-0.0070 (-0.05)	0.0451 (0.35)	0.1304 (1.05)
Student	-0.3164 (-1.27)	-0.2088 (-0.98)	0.2650 (1.28)
Retired	0.3869 (0.92)	0.2184 (0.61)	0.1360 (0.39)
Other occupation	-0.5758 (-0.89)	-0.7369 (-1.34)	-0.1530 (-0.29)
Constant	1.0588 (1.28)	2.0740** (2.94)	1.2875 (1.87)
Observations	490	490	490
Adjusted R <sup>2</sup>	0.41	0.45	0.49

Note: *t* statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 6.B Happiness Satisfaction and Wellbeing Comparison, Verbal Scales - Females**

	Satisfaction	Happiness	Well-Being
Economic Satisfaction	0.1817*** (4.72)	0.1694*** (5.09)	0.1978*** (6.17)
Freedom	0.0938** (2.96)	0.1049*** (3.83)	0.1526*** (5.78)
Trust	0.0823* (2.38)	0.0588* (1.96)	0.0525 (1.82)
Optimism	0.2272* (2.26)	0.0799 (0.92)	0.1177 (1.40)
Good social life	0.2258 (1.75)	0.1170 (1.05)	0.1428 (1.33)
Easy life	0.0895 (0.95)	0.1821* (2.23)	0.1134 (1.44)
Risk Aversion	-0.0188 (-0.13)	0.1835 (1.48)	0.0190 (0.16)
Risk Aversion2	-0.0005 (-0.02)	-0.0280 (-1.50)	-0.0002 (-0.01)
Security	0.1483*** (3.50)	0.1815*** (4.96)	0.1722*** (4.88)
Health satisfaction	0.1068** (2.84)	0.0628 (1.93)	0.0276 (0.88)
Free time satisfaction	0.1809*** (4.96)	0.1371*** (4.35)	0.1414*** (4.65)
Age	-0.0338 (-1.62)	-0.0635*** (-3.52)	-0.0404* (-2.32)
Age2	0.0003 (1.74)	0.0006*** (3.47)	0.0004* (2.31)
Unemployed	-0.4670** (-2.64)	-0.3980** (-2.60)	-0.2689 (-1.82)
N. of children	0.0217 (0.17)	0.2426* (2.14)	0.2483* (2.27)
N. of children 2	-0.0041 (-0.12)	-0.0426 (-1.43)	-0.0701* (-2.44)
Education	-0.1294 (-0.54)	-0.0435 (-0.21)	0.3306 (1.67)
Education2	0.0170 (0.65)	0.0106 (0.47)	-0.0241 (-1.12)
Fixed Partner	0.4629*** (4.42)	0.3922*** (4.34)	0.3222*** (3.69)
Alessandria	-0.0332 (-0.28)	-0.3214** (-3.17)	-0.3353*** (-3.43)
Cherasco	0.1237 (0.64)	-0.1119 (-0.67)	0.0693 (0.43)
Manager	0.4833 (1.07)	-0.0881 (-0.23)	0.1040 (0.28)
White Collar	0.2411 (1.79)	0.0966 (0.83)	0.1451 (1.29)
Student	0.2019 (0.86)	-0.0283 (-0.14)	0.4243* (2.16)
Retired	-0.0446 (-0.15)	0.2564 (0.97)	0.0880 (0.35)
Other occupation	0.0343 (0.19)	-0.0883 (-0.57)	-0.0108 (-0.07)
Constant	1.6391* (2.31)	2.5412*** (4.15)	1.0534 (1.78)
Observations	560	560	560
Adjusted R <sup>2</sup>	0.39	0.41	0.48

Note: *t*-statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 7.A Happiness VS Happiness Unipolar, Satisfaction Verbal VS Satisfaction Bipolar**

	Satisfaction Verbal	Satisfaction Bipolar	Happiness Verbal	Happiness Unipolar
Economic Satisfaction	0.2189*** (7.49)	0.1885*** (6.84)	0.1890*** (7.51)	0.1885*** (6.73)
Freedom	0.0759** (3.20)	0.1290*** (5.77)	0.1063*** (5.20)	0.1215*** (5.34)
Trust	0.0707** (2.80)	0.0855*** (3.59)	0.0529* (2.43)	0.0947*** (3.91)
Optimism	0.1946** (2.64)	0.0422 (0.61)	0.1232 (1.94)	0.1082 (1.53)
Good Social Life	0.3294*** (3.36)	0.4155*** (4.50)	0.2031* (2.41)	0.2723** (2.90)
Easy Life	0.1576* (2.21)	0.1624* (2.41)	0.1826** (2.97)	0.0970 (1.42)
Risk Aversion	-0.2268* (-2.18)	-0.2954** (-3.01)	-0.0924 (-1.03)	0.0562 (0.56)
Risk Aversion2	0.0331* (2.20)	0.0439** (3.10)	0.0129 (1.00)	-0.0081 (-0.56)
Security	0.1673*** (5.04)	0.2036*** (6.51)	0.1618*** (5.65)	0.1757*** (5.51)
Health satisfaction	0.1375*** (4.79)	0.1199*** (4.43)	0.1200*** (4.87)	0.1186*** (4.32)
Free time satisfaction	0.1035*** (3.68)	0.1242*** (4.68)	0.0896*** (3.70)	0.1328*** (4.92)
Male	0.0010 (0.01)	-0.0179 (-0.27)	-0.0300 (-0.50)	0.0161 (0.24)
Age	-0.0330* (-2.24)	-0.0120 (-0.86)	-0.0387** (-3.05)	-0.0229 (-1.62)
Age2	0.0004* (2.53)	0.0001 (1.13)	0.0003** (2.81)	0.0002 (1.32)
Unemployed	-0.4508*** (-3.64)	-0.5217*** (-4.46)	-0.5370*** (-5.03)	-0.3574** (-3.01)
N. of children	0.0947 (0.98)	-0.0150 (-0.16)	0.1738* (2.08)	0.0416 (0.45)
N. of children 2	-0.0183 (-0.69)	0.0275 (1.10)	-0.0243 (-1.07)	0.0222 (0.88)
Education	0.2043 (1.16)	-0.0933 (-0.56)	0.0845 (0.56)	0.0390 (0.23)
Education2	-0.0211 (-1.09)	0.0141 (0.77)	-0.0073 (-0.44)	-0.0051 (-0.28)
Fixed_part	0.3605*** (4.60)	0.3717*** (5.02)	0.2879*** (4.26)	0.3874*** (5.14)
Alessandria	-0.1212 (-1.41)	-0.3008*** (-3.70)	-0.3136*** (-4.23)	-0.2673** (-3.24)
Cherasco	0.0333 (0.23)	0.0432 (0.32)	-0.1564 (-1.28)	-0.1874 (-1.38)
Manager	0.2412 (1.05)	-0.1593 (-0.73)	-0.1419 (-0.72)	0.2752 (1.25)
White Collar	0.1546 (1.55)	0.1140 (1.21)	0.0859 (1.00)	0.1107 (1.16)
Student	-0.0236 (-0.14)	0.2288 (1.42)	-0.1275 (-0.87)	-0.0674 (-0.41)
Retired	0.1234 (0.50)	0.2366 (1.01)	0.2141 (1.00)	0.1929 (0.81)
Other occupation	-0.0213 (-0.13)	0.1891 (1.19)	-0.1532 (-1.06)	0.1026 (0.64)
Constant	1.2637* (2.37)	1.3753** (2.73)	2.1493*** (4.67)	1.0140* (1.98)
Observations	1047	1047	1044	1044
Adjusted R <sup>2</sup>	0.40	0.46	0.42	0.41

Note: *t*- statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 7.B Well being VS Well being Unipolar, Well being Verbal VS Well being Bipolar**

	Well-being Verbal	Well-being Unipolar	Well being verbal	Well being Bipolar
Economic Satisfaction	0.2230 <sup>***</sup> (6.43)	0.3593 <sup>***</sup> (10.26)	0.1909 <sup>***</sup> (5.52)	0.1517 <sup>**</sup> (3.08)
Freedom	0.1032 <sup>***</sup> (3.40)	0.1265 <sup>***</sup> (4.13)	0.0992 <sup>***</sup> (3.74)	0.1773 <sup>***</sup> (4.70)
Trust	0.0848 <sup>**</sup> (2.72)	0.1503 <sup>***</sup> (4.78)	0.0447 (1.56)	0.0469 (1.15)
Optimism	0.2948 <sup>**</sup> (3.14)	0.0009 (0.01)	0.0665 (0.82)	0.3317 <sup>**</sup> (2.88)
Good social life	0.1344 (1.14)	0.1521 (1.28)	0.2220 (1.96)	0.3036 (1.88)
Easy life	0.2058 <sup>*</sup> (2.34)	0.1163 (1.31)	0.2083 <sup>*</sup> (2.55)	0.1408 (1.21)
Risk aversion	0.0950 (0.73)	-0.0861 (-0.65)	-0.1654 (-1.43)	-0.6165 <sup>***</sup> (-3.73)
Risk aversion2	-0.0087 (-0.46)	0.0109 (0.57)	0.0232 (1.40)	0.0778 <sup>**</sup> (3.30)
Security	0.2160 <sup>**</sup> (5.02)	0.1393 <sup>**</sup> (3.21)	0.1868 <sup>***</sup> (5.05)	0.2147 <sup>***</sup> (4.08)
Health satisfaction	0.0967 <sup>**</sup> (2.72)	0.1971 <sup>***</sup> (5.49)	0.0472 (1.44)	0.0698 (1.49)
Free Time Satisfaction	0.1294 <sup>***</sup> (3.73)	0.0260 (0.74)	0.1164 <sup>***</sup> (3.58)	0.0819 (1.77)
Male	-0.1062 (-1.25)	0.0252 (0.29)	-0.0569 (-0.72)	0.0460 (0.41)
Age	-0.0383 <sup>*</sup> (-2.08)	-0.0385 <sup>*</sup> (-2.07)	-0.0102 (-0.61)	-0.0138 (-0.58)
Age2	0.0003 (1.83)	0.0004 <sup>*</sup> (2.01)	0.0001 (0.58)	0.0000 (0.07)
Unemployed	-0.3412 <sup>*</sup> (-2.17)	-0.1102 (-0.70)	-0.4608 <sup>***</sup> (-3.38)	-0.2110 (-1.09)
N. of children	0.3591 <sup>**</sup> (2.80)	0.3862 <sup>**</sup> (2.98)	-0.0922 (-0.88)	0.1370 (0.92)
N. of children 2	-0.0968 <sup>**</sup> (-2.91)	-0.0870 <sup>**</sup> (-2.59)	0.0476 (1.60)	0.0110 (0.26)
Education	-0.1319 (-0.63)	0.0149 (0.07)	0.5059 <sup>*</sup> (2.46)	0.7871 <sup>**</sup> (2.69)
Education2	0.0220 (0.97)	-0.0066 (-0.29)	-0.0513 <sup>*</sup> (-2.24)	-0.0766 <sup>*</sup> (-2.35)
Fixed Partner	0.1904 (1.84)	0.1732 (1.66)	0.2591 <sup>**</sup> (3.04)	0.1079 (0.89)
Alessandria	-0.3526 <sup>***</sup> (-3.37)	-0.2456 <sup>*</sup> (-2.33)	-0.4055 <sup>***</sup> (-4.13)	-0.0723 (-0.52)
Cherasco	-0.1726 (-0.94)	-0.2465 (-1.32)	0.4152 <sup>**</sup> (2.71)	-0.1851 (-0.85)
Manager	0.2977 (0.98)	0.1510 (0.49)	-0.0665 (-0.27)	0.3324 (0.95)
White Collar	0.1626 (1.31)	0.1129 (0.90)	0.0892 (0.79)	-0.3270 <sup>*</sup> (-2.04)
Student	0.2026 (0.97)	-0.0812 (-0.39)	0.4657 <sup>*</sup> (2.37)	-0.0549 (-0.20)
Retired	0.2089 (0.79)	0.3701 (1.38)	-0.0658 (-0.20)	-0.2520 (-0.53)
Other occupation	-0.0382 (-0.17)	0.1140 (0.51)	-0.1225 (-0.68)	-0.1009 (-0.39)
Constant	1.3816 <sup>*</sup> (2.16)	1.0111 (1.56)	0.8352 (1.33)	0.6616 (0.74)
Observations	501	501	547	547
Adjusted R <sup>2</sup>	0.50	0.50	0.49	0.31

Note: *t*- statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

## Appendix E Survey Questions-Variables construction

- **Economic satisfaction**  
*Overall how satisfied /dissatisfied are you with your family economic condition using the scale 1-7, where 1 represent the lowest evaluation and 7 the highest*
- **Health satisfaction**  
*Overall how satisfied /dissatisfied are you with your health condition using the scale 1-7, where 1 represent the lowest evaluation and 7 the highest*
- **Free-time satisfaction**  
*Overall how satisfied /dissatisfied are you with your free time using the scale 1-7, where 1 represent the lowest evaluation and 7 the highest*
- **Risk aversion**  
*Do you consider yourself a person ready to risk using the scale 1-7, where 1 represent the total risk aversion , 4 means that you are indifferent and 7 means you are a risk lover.*
- **Trust**  
*How much to you trust people using the scale 1-7, where 1 means I do not trust people at all and 7 means I do really trust people a lot*
- **Freedom**  
*How much do you thing you can manage your life independently using the scale 1-7, where 1 means I should completely adapt to other people willingness and 7 I can run my life in a completely independent way*
- **Security**  
*Overall how do you feel secure in your life using the scale -3 +3*

Some individual attitude has been observed using the following questions

- **Do you agree with the following sentences:**

### 1. Optimism

*I'm optimistic with the future*

*I strongly agree*

*I agree*

*I disagree*

*I strongly disagree*

We defined optimistic person those who answered “I strongly agree” and “I agree”

### 2. Social life

*I feel socially excluded*

*I strongly agree*

*I agree*

*I disagree*

*I strongly disagree*

We defined individuals with good social life those who answered “I strongly disagree” and “I disagree”

### **3. Easy life**

*Do you have a complicate life?*

*I strongly agree*

*I agree*

*I disagree*

*I strongly disagree*

We defined individuals with an easy life those who answered “I strongly disagree” and “I disagree”