Happiness, freedom and control

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Abstract:

How do people value *freedom of choice*? Drawing on economics and psychology the paper provides an hypothesis and empirical evidence on how individuals may value freedom of choice and derive utility from it. It is argued that the degree of perceived control that individuals have over choice - a construct known as the *locus of control* in psychology - regulates how we value freedom of choice. People who believe that the outcome of their actions depends on internal factors such as effort and skills (the 'internals') have a greater appreciation of freedom of choice than people who believe that the outcome of their actions depends on external factors such as fate or destiny (the 'externals'). We find some evidence in support of this hypothesis using a combination of all rounds of the World and European Values Surveys. A variable that measures freedom of choice and the locus of control is found to predict life satisfaction better than any other known factor such as health, employment, income, marriage or religion, across countries and within countries. We show that this variable is not a proxy of happiness and measures well both freedom of choice and the locus of control. 'Internals' are found to appreciate freedom of choice more than 'externals' and to be happier. These findings have important implications for individual utility, social welfare and public policies.

Keywords: Happiness, utility, freedom of choice, locus of control

JEL Classification: D1, D6, D7, D9, H4, O1

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Happiness, Freedom and Control

1 Introduction

That people are in constant quest of happiness is not a novelty of our times. As noted repeatedly by happiness researchers, Greek and Roman philosophers since Aristotle have been concerned about the causes of happiness although progress in this field has been hard to come. Seneca in his opening statement of the *De Vita Beata* writes to his brother: "*Brother Gallio, all want to be happy, but when it comes to see clearly what makes life happy they are shadowed by obscurity*".[1]

What distinguishes modern from ancient times in this respect is that we have begun to have some empirical evidence about what may determine happiness. The last four decades have provided a stream of contributions to happiness research in several disciplines such as psychology, sociology and economics that significantly changed the way we understand happiness. We are starting to lift the "shadow of obscurity" by finding elements that seem to explain well fluctuations in self-perceived happiness.

Drawing on economics and psychology, the paper follows this recent tradition by focusing on one possible predictor of happiness: Freedom of choice. It is generally accepted that freedom of choice increases happiness but it is unclear how more freedom of choice turns into more happiness. In this paper, we hypothesize that the appreciation of freedom of choice depends on one aspect of personality known as the locus of control. We argue that people who believe that the outcome of their actions depends on internal factors such as effort and skills (the internals) have a greater appreciation of freedom of choice than people who believe that the

[1] "Vivere, Gallio frater, omnes beate volunt, sed ad pervidendum quid sit quod beatam vitam efficiat caligant." Seneca (1996, p. 32).

outcome of their actions depends on external factors such as fate or destiny (the externals). If this is the case, we should find that a measure that combines freedom of choice with the locus of control predicts happiness better than measures of freedom alone.

An empirical investigation that covers over 260,000 individuals from 84 countries during a period of 25 years finds evidence in support of this hypothesis. A very strong association between life satisfaction and a variable that measures both freedom of choice and the locus of control is found controlling for country and individual characteristics, personal values and social attitudes. This association is stronger and more consistent than the association between life satisfaction and any of the other known predictors of life satisfaction in a cross-country and within country context. Two tests show that the variable freedom and control is not a proxy of life satisfaction and that both concepts of freedom of choice and locus of control are captured by the variable. A third test confirms that the 'internals' have a greater preference for freedom of choice than the 'externals'. These very preliminary findings open an interesting agenda for future research on freedom and happiness and have important implications for public policies.

We start in section two by outlining the main hypothesis of the paper building on theory and empirics drawn from economics and psychology. Section three reviews some of the main contributions to happiness research and suggests how this paper can contribute to such literature. Section four presents data, model and variables used and section five discusses the results. Section six provides various tests to check on the robustness of our hypothesis. Section seven concludes by discussing the possible implications of the findings for public policies.[2]

[2]Note that this paper will use the concepts of utility and happiness as one concept and measure it with life satisfaction as in Easterlin (2001) or Alesina et al. (2004).

2 Freedom of choice, the locus of control and happiness

We can simply define freedom of choice as the size of an opportunity set with mutually exclusive alternatives. The larger is the set of alternatives (choices) the more is freedom of choice. A restaurant menu listing ten alternatives provides more freedom of choice than a restaurant menu listing five alternatives.

The appreciation of freedom of choice and the utility derived from freedom of choice may depend on individual preferences. Some people may appreciate freedom of choice more than others. Mary may be happier with ten choices on a restaurant menu while John may be happier with five choices. We can list at least four possible views on how people may appreciate freedom of choice:

1) One view is that the size of the choice set does not matter. What really matters is that the choice set contains the utility maximizing solution. If the same utility maximizing solution is found in two or more choice sets of different sizes, these choice sets are equivalent in terms of utility. Neoclassical utility theories, for example, focus on utility maximization and do not attribute to freedom of choice an intrinsic value. They also tend to ignore individual heterogeneity and assume that all individuals are equal. In such a framework, increasing the size of the choice set matters only if the probability of capturing a utility maximizing solution increases with size. For example, with more competitors in the market we should expect the likelihood that prices will decrease to be higher. However, it is also possible that increasing the choice set leads to a decreased probability of finding an optimal solution. The voting paradox is one example. We could call this view the *heterotonic/homogeneous* view where *heterotonic* refers to possible outcomes in terms of utility and *homogeneous* refers to the characteristics of the agents. According to this view, increasing the choice set (freedom of choice) may

lead to more or less utility (heterotonic outcomes) but the impact will be the same for all agents (homogeneous individuals).

2) A second view is that freedom of choice is always good for individuals, the larger the choice set the better for individuals, and this is the same for all individuals. We can call this view the *monotonic/homogeneous* view. Increasing the choice set leads invariably to more utility and this applies equally to all individuals.

3) A third view is what we could call the *monotonic/heterogeneous* view. In this case, individuals are different in preferences and an increase in choice has a different impact on individuals but this impact is always positive. Happiness is non decreasing in choice. One example would be Sen's capability theory where freedom of choice contributes to define utility in a world of heterogeneous individuals. Sen (1987) and others have argued that the size of the choice set or the degree of freedom of choice has an *intrinsic value* for individuals.[3] Expanding the range of possible freedoms such as political and economic freedoms should be valuable to individuals even if people do not vote or do not profit from the economic possibilities offered.

4) A fourth view is that preferences for freedom of choice change across individuals so that increasing the choice set may have positive or negative consequences on utility. We can call this the *heterotonic/heterogeneous* view. If some people have a taste for ease of choice rather than for freedom of choice, an increase in the set of options may lead to reduced utility. Various explanations have been offered for such kind of attitude. One is that enlarging the choice set leads to an increased computational cost for individuals so that - at some point - individuals self-restrict the choice problem to be able to take a decision (Simon 1955). Others have argued that increasing the choice set increases the likelihood of disappointment for choosing a wrong alternative (Bell 1985) or the regret for foregone options (Bell

[3]See Gravel (1994) and Bavetta (2004) for critical reviews of this literature.

1982). Indeed, various experiments have shown that consumers may be adverse to excessive choice. For example, Iyengar and Lepper (2000) and Sethi-Iyengar et al. (2004) have shown that some consumers prefer not to make a choice if the choice set is too large.

These last explanations of why some individuals may not favour an increase in the choice set have to do with the degree of control that individuals think they exercise on the outcome of choices. If John believes that he cannot cope with more than five choices in a restaurant menu and Mary believes that she can cope with up to ten choices, six choices will result in less happiness for John and more happiness for Mary. It is therefore important to understand how expectations in relation to control over choice are formed. Why does John believe that he cannot cope with six choices while Mary thinks she can?

Social and personality psychology offer one interesting concept that could help to explain how people shape expectations about the outcome of their own choices. This concept is known as the locus of control and was initially proposed by Rotter (1954).

Rotter (1966, 1990) has distinguished between people who attribute the outcomes of their actions to internal factors such as their own efforts and skills (the 'internals') and people who tend to attribute the outcome of their own actions to external factors such as fate or destiny (the 'externals'). Rotter remarked that individuals can be ranked according to the locus of control and devised a scale (known as the Rotter scale) to measure how close are personalities to an external type as opposed to an internal type. The locus of control has become a very popular concept since its introduction and is now accepted in psychology as one of the useful constructs that help to describe personalities.[4]

[4]Note that the locus of control is a very different construct from self-control. Self-control is the ability to control the manifestation of emotions. It is generally regarded as a facet of

How does the locus of control relate to freedom of choice? Our hypothesis is that the locus of control acts as a *regulator* of the intrinsic value that people attribute to freedom of choice. The 'internals' should attribute more importance to freedom of choice than the 'externals'. If I believe that fate alone is managing my life I will not consider having an opportunity to choose among alternatives as an asset that could improve my life. Vice-versa, if I feel in control of my life and trust that my own choices will have an impact on my future life I will give a greater value to freedom of choice. Thus, more freedom of choice should deliver more happiness to internals than to externals.

We can model this hypothesis with a simple graph (Figure 1). Suppose that we have two agents, John and Mary. John is an 'external' who scores low on the Rotter's scale of control and Mary is an 'internal' who scores high on the Rotter's scale of control. According to our hypothesis, internals have a greater appreciation of freedom implying that Mary will derive greater happiness than John at all levels of freedom. Both John and Mary will reach a point where more freedom will turn into disutility rather than utility but this point will be higher for Mary as compared to John.[5]

conscientiousness, one of the Big Five constructs popular in personality psychology (Goldberg 1981). The locus of control is a much earlier construct, has never really found a proper location in the Big Five and is clearly different from self-control in that is related to the inner and self-evaluation of individuals, not the external manifestation of emotions. There may be a relation between self-control and the locus of control but the two constructs are clearly different. Skinner (1996) provides a comprehensive review and taxonomy of the various constructs related to control.

[5]An analogy may illustrate further this point. We could think of agents as sailing boats, freedom as the wind in the ocean, control as the size and strength of the sails and happiness as the speed of the sailing boat. The stronger is the wind the faster the boat can go. A boat (agent) with larger and stronger sails (control) will be able to go faster and further (happiness) but eventually any sail will reach its breaking point, beyond which speed (happiness) will inevitably decrease. Note that this same idea could be applied to societies rather than individuals. We may think of societies with an internal as opposed to an external locus of control and we may think

[Figure 1]

The question of personality is generally ignored in the economic discourse. In the neoclassical decision utility framework, all individuals are considered equal in terms of personal characteristics. In Sen's capabilities theory individual characteristics are seen as measurable characteristics such as age and education but not as personality. Even in Kahneman's moment based framework (Kahneman et al. 1997 and Kahneman 2000), personality is not explicitly treated.

By contrast, it is well known in psychology that personality is associated with happiness. For example, it has been shown that pleasant and unpleasant affects have a strong genetic basis (Lykken and Tellegen, 1996) and that optimism, self-esteem, extraversion and neuroticism are all aspects of personality correlated with happiness (Diener et al. 1997, Myers and Diener 1995).

It is also known that the locus of control is related to happiness. Lower order constructs of personality that include the locus of control have been found to be closely associated with both job satisfaction and life satisfaction (Judge et al. 1997 and Judge et al., 1998)[6] and internals are consistently found to be happier than externals (Langer 1983 and Strickland 1989). Research on the locus of control has evidenced how an internal locus of control is associated with a variety of positive outcomes in adults and children (Lefcourt 1982).

Moreover, according to Haworth et al. (1997), there is an established relation between freedom of choice and leisure: "*Freedom of choice in the activity being*

of a freedom level where more freedom turns into anarchy and delivers social disutility rather than social utility.

[6]Judge et al. (1997) proposed the concept of core evaluations, a core set of conclusions that individuals reach about themselves. These include the locus of control as well as self-esteem, self-efficacy and neuroticism. Judge et al. (1997) found these four core evaluations to be closely related to job satisfaction and Judge et al. (1998) found them to be related to both job satisfaction and life satisfaction.

undertaken has been regarded as a critical regulator of what becomes leisure in people's minds. (...) Obtaining intrinsic rewards from engaging in freely chosen activities has been almost unquestionably accepted by researchers (...)." (pp. 347-348).

In substance, happiness is strongly rooted in personality and the locus of control as well as freedom of choice seem to play a relevant role in explaining happiness. Both freedom of choice and the locus of control have a direct impact on happiness and the locus of control may regulate the impact of freedom of choice on happiness. It seems natural therefore to argue that the combination of the notions of freedom of choice and the locus of control can deliver a very powerful predictor of happiness.

The policy implications of our hypothesis are multiple. If the locus of control plays a pivotal role in the determination of happiness and the appreciation of freedom of choice, then we should be concerned about the evolution of the locus of control from childhood to adulthood and about the intergenerational transmission of the locus of control. Can parents, teachers and governments contribute to improve the likelihood of happiness in future adults by encouraging the development of internal personalities as opposed to external personalities?

Existing research across the social sciences would suggest that this is the case. We know from studies conducted by Heckman and various co-authors how relevant are early childhood interventions in the cognitive and non cognitive spheres for the development of successful adults. We also know how primary and secondary education build on early childhood interventions to improve individual abilities and capabilities. "*The best evidence suggests that learning begets learning. (...) Learning is a dynamic process and is most effective when it begins at a young age and continues through to adulthood*" (Heckman 2000). We have evidence that success in the labor market is partly determined by behavioral traits and that these traits are genetically and socially transmitted (Bowles et al. 2001a and 2001b). A few

studies have also found a positive association between parents and children locus of control suggesting that the locus of control can be transmitted across generations (see Morton 1997 for the results of an experiment and a literature review). As discussed more in detail in Section 5 of this paper, research is attributing increasingly more importance to the role of personality in explaining life outcomes and there is increasingly more evidence that personality, beliefs and values can be shaped through social policies and are relevant for individuals and nations alike.

3 Predicting happiness

Research on happiness over the past four decades has made tremendous progress in identifying predictors of happiness. The World Database of Happiness,[7] which makes an effort to catalogue empirical findings, lists hundreds of variables that have been found to be correlated with various measures of happiness. For some of these variables, there is quasi unanimous recognition of their importance. For example, there is a wealth of evidence and little disagreement about the fact that unemployment and poor health tend to reduce happiness while marriage and religion increase it (Wilson 1967, Veenhoven 1996, Diener et al. 1997, Clark and Oswald 1994, Blanchflower and Oswald 1997, Winkelmann and Winkelmann 1998). It is also generally accepted that individuals or countries with a higher income tend to be happier on average (Blanchflower and Oswald 2000, Di Tella, MacCulloch and Oswald 2001, Inglehart 1990, Diener et al. 1995).

More controversial is the relation between happiness and income in longitudinal and life-cycle studies. Easterlin (1974) was one of the first to note that the increase in GDP per capita in the United States since the 1950s had not been accompanied

[7] R. Veenhoven, World Database of Happiness, Correlational Findings: http://worlddatabaseofhappiness.eur.nl (2007).

by an increase in self-perceived happiness. This finding was confirmed by later studies on the part of the same author (1995, 2001) and by other authors for the USA (Diener et al. 1999) and for other countries as diverse as Japan (Veenhoven, 1993), the Philippines (Mangahas 1995), Russia (Ravallion and Lokshin 2000) and the UK (Clark and Oswald 1994). Easterlin (2001) also noticed that income and happiness do not move together over the life-cycle. People tend to recall that they were worse off in the past and generally forecast that they will be better off in the future while in fact they report the same level of happiness at different times during their life-time.

The inconsistent relation between happiness and income in longitudinal studies is generally explained with theories of relative deprivation or rising expectations. Similar theories have been elaborated by psychologists, sociologists and economists alike and seem to explain well why happiness does not increase consistently with income over time. In substance, people make judgments on the relative position they occupy within a reference group (Runciman 1966) or adjust quickly to changed circumstances (Diener et al. 1997, Brickman et al. 1978, Brickman and Campbell 1971). Easterlin (2001) explains the finding that happiness does not seem to vary much over the life-cycle arguing that aspirations move upwards together with income during the life-cycle. This finding not only reinforces what the literature on longitudinal studies finds about income and happiness but is also consistent with the finding in psychological research that people are not generally good in either remembering or forecasting feelings and that they tend to undervalue the past and overvalue the future (Gilbert et al. 1998, Loewenstein and Schkade 1999).

A model of utility which includes the locus of control could also contribute to explain the lack of covariance between income and happiness over time or over the life-cycle for individuals. Income expands freedom of choice by definition and we suggested that the appreciation of freedom of choice (the intrinsic value of

freedom of choice) is partly affected by the locus of control. At very low levels of income, more income turns into more freedom and more happiness for internals and externals alike. But above a certain level of income and freedom, more income and more freedom can turn into more happiness only if individuals become more 'internals'. If the locus of control in adults who live in wealthy countries changes very little over the working life, more income and more freedom have little effect on happiness.

For countries and in the long run this may be very different. When countries move from autocracies to democracies, improve their educational system and try to empower their people they are in fact fostering the development of internals over externals. Vice-versa, if countries are authoritarian and encourage obedience rather than critical attitudes they tend to reward and prefer externals over internals. Countries try intentionally to shape the personality of their citizens via public policies such as educational policies. Economic development often (but not always) coincides with the transition from autocracy to democracy and the development of internal over external personalities allowing more and more people to enjoy the benefit of more freedom. However, this effect can only be observed if a transition from autocracy to democracy is occurring, over the very long period when generational changes occur and for countries rather for individuals. Individuals may have rather stable personalities over the life-cycle but the average personality in a given country may change significantly across generations. We will discuss this point in greater detail in section five at the end of the paper.

In our knowledge, research on happiness, freedom of choice and the locus of control has only one precedent, a study by Veenhoven (2000) that focused on the relation between freedom and happiness. The author devised two measures of freedom, one based on the *opportunity* to choose and the second based on the *capability* to choose. In particular, capability to choose is measured with two

variables, one capturing individualistic work values and the other measuring what the author defines as 'perceived fate-control', which is what social psychologists define as the locus of control. The author finds a positive and significant correlation between happiness and each of the components of freedom described including perceived fate-control. The relation seems to be linear and richer nations are shown to be happier and freer as compared to poorer nations.

The 'perceived fate-control' variable used by Veenhoven has been taken from a question present in the World Values Survey.[8] The question asked was: "*Please use this scale where '1' means "none at all" and '10' means "a great deal" to indicate how much freedom of choice and control you feel you have over the way your life turns out.*" More recently, Inglehart et al. (2008) have used this same variable as a measure of freedom of choice. In our view, the question combines information on freedom of choice with information on the locus of control. It is therefore the ideal instrument to start our investigation on the relation between happiness and freedom.

[8]Available at http://www.worldvaluessurvey.org/. Veenhoven refers to the World Values Survey 2, item 95 but this same question has been asked in all rounds of the World and European Values Surveys.

4 Data, model and variables

We use a large data set compiled from the European and the World values surveys.[9] These surveys have been carried out since the early 1980s and question individuals worldwide on happiness, personal values, social attitudes and individual attributes. The version of the data set we use contains 267,870 observations on individuals from 84 countries surveyed between 1981 and 2004 where each country has been surveyed from a minimum of one to a maximum of four times.

The full data set contains 913 variables most of which could be used as predictors of life satisfaction. In an effort to learn from the data as much as possible and avoid missing on important variables we first run OLS bivariate regressions between life satisfaction and all the possible regressors of life satisfaction present in the database. We then ranked variables on the basis of the R squared values. As expected, the variables with the highest R squared were proxies of life satisfaction such as happiness or satisfaction with income, family or job. This type of variables occupied the top ten positions in terms of R squared in a list of over 800 variables. With one exception. This was the freedom and control variable used

[9]Values surveys 1981-2004, integrated questionnaire version 20060423. Data can be freely downloaded from: http://www.jdsurvey.net. We are grateful to the Values Study Group and World Values Survey Association for creating and making accessible the EUROPEAN AND WORLD VALUES SURVEYS FOUR-WAVE INTEGRATED DATA FILE, 1981-2004, (v.20060423, 2006). Aggregate File Producers: Análisis Sociológicos Económicos y Políticos (ASEP) and JD Systems (JDS), Madrid, Spain/Tilburg University, Tilburg, The Netherlands. Data Files Suppliers: Analisis Sociologicos Economicos y Politicos (ASEP) and JD Systems (JDS), Madrid, Spain/Tillburg University, Tillburg, The Netherlands/Zentralarchiv fur Empirische Sozialforschung (ZA), Cologne, Germany. Aggregate File Distributors: Análisis Sociológicos Económicos y Políticos (ASEP) and JD Systems (JDS), Madrid, Spain/Tillburg University, Tilburg, The Netherlands/Zentralarchiv fur Empirische Sozialforschung (ZA) Cologne, Germany.

by Veenhoven (2000) and described in the previous section, which ranked in 7th place. Subjective health and income were also very relevant in this classification with the first variable in 15th place and the second variable in 25th place but the real surprise of this exercise was the variable freedom and control which had an R squared of 0.165 as compared to an R-squared for subjective health of 0.0873 and of 0.0412 for income rank. Freedom and control seemed to explain life satisfaction twice as well as subjective health and four times as well as income rank.

Many variables in the database were only present for some years or for some country and the number of observations available varied significantly across variables. This made the R squared comparison across variables difficult as we compared different sets of observations. Restricting the possible predictors of life satisfaction to only those variables with at least 100,000 observations reduced the database to about a fourth of the original number of variables. Among these variables, freedom and control ranked 3rd in terms of R squared after two proxies of life satisfaction (happiness and satisfaction with the financial situation of the household). Subjective health followed in 4th place and relative income in 8th place. Restricting further the database to variables with at least 200,000 observations reduced the data set to a further half of the variables leaving approximately 100 variables. If we exclude the proxies of life satisfaction which occupied the top two positions, the top three variables in order of importance were freedom and control, subjective health and income rank in this order. In a bivariate context, the variable freedom and control emerged as the best explanatory factor of life satisfaction.

On the basis of the happiness literature discussed in the previous section and on the basis of the bivariate exercise described above we defined the multivariate equation as follows:

$$H_i = \alpha + \nu F_i + \rho C_c + \beta E_i + \gamma P_i + \delta V_i + \tau S_i + \epsilon_i$$

where H is subjective happiness; F is the variable that measures freedom of choice and control over one own life (freedom and control for short); C is a vector of macroeconomic country variables; E is a vector of individual entitlements such as income and work; P is a vector of personal and family characteristics, V is a vector of variables standing for individual values; S is a vector of variables standing for individual social attitudes; $\alpha, \nu, \rho, \beta, \gamma, \delta$ and τ are the parameters to be estimated and ε is the error term. The subscript i stands for individuals and the subscript c stands for countries. The regression is estimated first for the pooled world sample and in a second stage for all countries available omitting the macroeconomic country variables. For all estimations, we use an ordered logit model, the robust Huber-White sandwich estimator and regional cluster estimates.[10]

Subjective happiness (H) is measured with a question on life satisfaction. The question asked is: "*All things considered, how satisfied are you with your life as a whole these days?*" Answers include a ten steps ladder where '1' is equal to "Dissatisfied" and '10' is equal to "Satisfied". This question is a rather standard question used in happiness research and validation studies in various disciplines have shown that answers to this question are reliable (Lepper 1998, Sandvik et al. 1993, Fordyce 1988, Inglehart 1990, Saris et al. 1996).

The variable freedom (F) is the variable already described where the question asked is: "*Please use this scale where '1' means "none at all" and '10' means "a great deal" to indicate how much freedom of choice and control you feel you have over the way your life turns out.*" From the formulation of the question we derive that this variable captures two aspects which we said are closely related:

[10]Regional cluster estimates are indicated in our case for at least two reasons. One is that regressing summary country measures such as GDP on individual measures such as life satisfaction may provide bias estimates (Moulton 1986). And the second is that within regions the number of observations is generally small and interviews may have been concentrated in restricted spatial areas failing to capture the full within region variance.

Freedom of choice and the locus of control. Personality being equal, two persons who enjoy a different degree of individual freedom should provide different scores to this question. Vice-versa, freedom of choice being equal, two persons with a different locus of control should provide different answers. Further in the paper we will test whether this variable captures effectively both aspects of freedom and control.

We use two *macroeconomic variables* (C) to account for country economic heterogeneity. The first variable is GDP per capita estimated at Purchasing Power Parity (2000 prices). This variable is extracted from the World Bank Indicators database[11] and is the only variable which is exogenous to the database used. The second variable is the country employment rate calculated as the number of employed people divided by the working age population. This was preferred to the unemployment rate because unemployment is used already as an individual variable and because the ILO unemployment definition is not suited for informal and developing economies which are largely represented in our database.[12]

Two variables were selected to capture *individual economic status* (E). These are income and unemployment. Income is measured as self-positioning in a ten-steps income scale where the income brackets have been measured in local currency in each country. This is not self-perceived income but the positioning of individuals into income brackets. In some sense, this is a more accurate indicator than self-reported income which is known to be underreported in household surveys

[11] Available at www.worldbank.org.

[12] Where unemployment benefits are non existent and in rural areas the real poor cannot afford to seek employment and engage themselves in survival activities. In such situations the ILO unemployment rate is a very poor indicator of labor market status. On the other hand, the employment rate is affected by variations in the working age population and provides no information about the quality of employment. Both GDP and the employment rate are also introduced in the equation in squared form.

worldwide. That is because people are not asked to tell how much they earn but simply to say to which income brackets they belong to. A categorical variable constrains the variance of the income variable as compared to a continuous variable but this is not a great shortcoming considering that the dependent variable is categorical (also based on a ten-steps ladder) and that coefficients are estimated with an ordered logit model. We call this variable 'income rank' because it measures the income rank of individuals rather than the value of income. The unemployment status is the self-reported unemployment status measured with a binary variable.

A set of variables measures *individual attributes* (P). These are sex (1=female and 0=males), age (continuous with the addition of age squared), a dummy for tertiary education and marriage status (dummy where '1' includes: "married" and "living together as married").

Personal values (V) are taken into account with four variables. These include the importance attributed by individuals to family, work, religion and politics. All these variables were originally measured on a scale from one to four where one was "Very important" and four was "Not important at all". We created dummies for each variable with one equal to "Very important" or "Rather important" and zero equal to "Not very important" and "Not at all important". Values matter for at least two reasons. One is that they contribute to define individual personalities as they are partly an expression of personality. And the second is that they contribute to determine how much importance people give to the different attributes they have. For example, being married or being unemployed have an impact on life-satisfaction but we should expect these variables to have a different impact depending on the importance that people give to family or to work.

Another set of variables captures what we call *social attitudes* (S). One variable measures on a scale from one to ten how people think is justifiable to cheat on taxes where one corresponds to "Never" and ten to "Always". This seemed an

important control for social cooperation and also an aspect which may contribute to define personality. Another variable measures the political orientation of people on a scale from one to ten where one corresponds to "Left" and ten corresponds to "Right". This variable has been used in the past and found to be an important predictor of happiness (Alesina et al. 2004). A third variable measures the degree of trust in institutions that people have. The surveys asked respondents to rank from one to four the degree of trust in various types of national institutions where one was equal to "A great deal" and four to "None at all". We calculated the individual average trust for the institutions of the army, police, justice, parliament, civil service, press, private companies and trade unions and we then reversed the score to make trust increasing in happiness. Thus, this variable ranges from one to four but entered the equation as a continuous rather than a categorical variable. A last variable is trust in people measured with a dummy variable where one is "Most people can be trusted" and zero is "Can't be too careful". The trust variables account for the mutual trust present in society and can be considered as a measure of social capital as in Helliwell (2003).

5 Results

In table 1 we report the multivariate results for the life satisfaction equation estimated on the world pooled sample with an ordered logit model, robust standard errors, regional clusters and year fixed effects. The world sample for which the specified equation could be estimated includes 75 countries, 1,119 regions and 160,405 observations. The sample is reduced vis-à-vis the original sample given that not all variables have a full set of observations. Selection bias can be checked in table A1 which provides descriptive statistics for each variable and for the full and reduced sample used in table 1. As it can be seen from the table, means and

standard deviations are very close between the reduced sample and the full sample and we should exclude that our reduced sample is significantly biased vis-à-vis the full sample of 84 countries.

The variable *freedom and control* is by far the most significant predictor of life satisfaction. It shows the highest coefficient, the highest odds ratio, the highest z-score and one of the lowest standard errors. For a one step increase in the one to ten freedom and control scale, happiness is expected to change by about 36% of a step on the one to ten happiness scale (considering the ordered log-odds scale with the other variables held constant).

Individual economic status. Income rank has also a positive effect but with decreasing marginal effects as rank increases. This conforms to previous results on various income variables. Income is a powerful predictor of life satisfaction at low levels of income but its predicting capacity decreases as income increases. Also, as shown by previous studies, unemployment is a strong predictor of unhappiness.

Individual characteristics. Across the world sample, females seem to be happier than males on average while increasing age decreases happiness up until a certain age when the trend reverses. Tertiary education marginally increases happiness and being married is a very strong predictor of happiness as it is well known in the literature.

Individual social attitudes. In societies where people trust other people and the national institutions people are happier while individuals who have a lax attitude towards tax cheating seem to be more unhappy. This conforms to and reinforces what we know about social capital and its role for happiness.

Individual values. Including a high importance attributed to family, work and religion are all good predictors of happiness with a positive sign. Religion in particular seems to be the strongest predictor of happiness among the 'values' variables. Instead, individuals who attribute a great importance to politics seem

to be less happy on average, although the effect is rather weak. These are all results consistent with previous literature.

Country economic status. Both GDP per capita in purchasing power parity and the employment rate have a positive effect on life satisfaction and both with decreasing returns. At low levels of GDP, a rise in output generates a significant rise in life satisfaction. This effect disappears as GDP per capita reaches high values. The effect for the employment rate is also positive at low levels of employment and diminishes for high levels. Thus, both GDP and the employment rate can help to improve happiness in poor countries but improving happiness simply with increases in these two measures becomes a very hard task for rich nations. Again, these results are largely consistent with the existing literature.

[Table 1]

The pooled sample we used in table 1 took into account some aspects of the economic country situation captured by the country variables described but could not take into account the full country heterogeneity. Deriving lessons for individual countries from a pooled world sample is also difficult as economic policies are still largely made within countries. With very large samples is also easier to detect covariances among variables but these covariances are not necessarily valid for each country.

We decided therefore to run the same equation we used for the world pooled sample (excluding the country economic variables) for all 75 countries considered in Table 1. Full results cannot be shown for all countries. In Table 2A we report, as an illustration, full results for ten representative countries.[13] In Table 2B, we

[13]The selection of the ten countries was made on the basis of cultural diversity, population size and geographical location. In terms of number of observations, the ten countries selected represent over a quarter of the sample used in Table 1 and in terms of population they represent over half of the world population.

report only the number of times each predictor is significant across the 75 countries and whether significant predictors take a negative or a positive sign. As before, we use ordered logit estimations, robust standard errors, regional clusters and year fixed effects to make results as robust as possible.

Freedom and control is the only variable that is consistently significant with a positive sign across all ten countries in Table 2A. The coefficient and the z-score is always very high ranging from 0.548 in Canada to 0.242 in Nigeria. We can also observe that the coefficient of the freedom and control variable tends to decrease as we move from developed to developing countries which is in line with the hypothesis that the locus of control is likely to become more important as countries develop and improve freedom. Across the full sample of 75 countries (Table 2B) the freedom and control variable is always significant with one exception (Turkey) and varies in size between 0.08 (Egypt) and 0.712 (New Zealand), always with a positive sign.

In terms of cross-country consistency, age follows freedom and control with nine countries where this variable is significant in Table 2A and 58 countries in table 2B. With one exception, age takes always a negative sign. Age squared is also significant in 43 countries and always with a negative sign indicating that this variable is concave. Happiness tends to increase with age but only up to a point when it starts to decline.

Marriage comes in third place in terms of importance with nine countries where this variable is significant in Table 2A and 54 countries in Table 2B, always with a positive sign. The only country in Table 2A where marriage is not significant is India. This country is the only of the ten countries considered in Table 2A that uses the practice of arranged marriage extensively. Despite evidence that arranged marriages can work, it could be that - on average - non arranged marriages are more successfull. However, India is not the only country in Table 2B where marriage is

non significant and other factors such as the role of women in society may well be at work.

Trust in institutions is significant and with a positive sign in seven of the ten countries in Table 2A and in 49 of the 75 countries in Table 2B. With one exception, the sign of this variable is always positive. Trust in people is also significant and with a positive sign in 30 countries. In Table 2A, the countries where trust in institutions is not significant are South-Africa, Mexico and India, three very large, culturally diverse, democratic and developing nations. On the contrary, trust in institutions is positive and significant in Russia and China, two countries also very large and caught in a process of development but more autocratic and less culturally diverse. Social capital is very relevant overall but not everywhere and it is unclear from our data what are the factors that make social capital a good predictor of life satisfaction.

The status of unemployed is found to be a significant predictor of happiness in six countries in Table 2A and in 46 countries in Table 2B. Together with religion, this is the only other variable which is significant in over 50% of the countries considered.

The importance of religion is significant in eight countries in Table 2A and in 39 countries in Table 2B. It is worth noting in Table 2A that the importance of religion is not significant in China as we may expect and in Mexico which is instead a deeply devoted Catholic country. In table 2B we also show that in three countries the sign of this variable is significant and negative which is contrary to what is expected. Therefore, despite the quasi universal consensus on the part of researchers in accepting the relevance of religion for life satisfaction, we find this variable significant in only half of the countries and not always with the expected sign.

Income rank is significant in only two countries in Table 2A and in 31 countries

(41.3% of the sample of countries) in Table 2B. The effect on happiness is positive with the exception of two countries where the effect is negative. This is surprising particularly in the light of the fact that both income and relative income have been found in the past to be relevant in most countries studied and especially in poor countries. The variable we used is neither income nor relative income but we should expect income rank to show a consistent positive sign. Instead, in Table 2A, income rank is significant for only Spain and South-Africa and among the 31 countries where this variable is significant we find both rich and poor nations and also two negative signs.

Our results indicate that countries heterogeneity is remarkable and reading in world data or in single countries data universal findings can be very misleading. However, this statement does not apply to the variable freedom and control which is a remarkable stable predictor of life satisfaction in all countries. If we had to bet on what variables best predict life satisfaction anywhere in the world our money would certainly go on freedom and control.

[Table 2A and Table 2B]

6 Tests

We have established with a certain degree of confidence that freedom and control is the best predictor of life satisfaction worldwide among the variables we dispose of. In this section we want to address three questions which may challenge the validity of our hypothesis.

1) The first question is whether freedom and control and life satisfaction are, in fact, proxies (we call this the 'proxies' hypothesis). The questions asked are different and relate to different objects but it could be that people perceive the two questions as the same. We have already shown that psychologists found freedom of

choice and leisure to be closely related in people's mind (Haworth et al. 1997) and it could be that people consciously or unconsciously reply to the two questions as if they were answering the same question. We had this question posed on several occasions when this paper was presented in seminars and conferences.

2) The second question is whether freedom and control is a variable that relates only to freedom of choice or only to the locus of control or to both (we call this the 'double role' hypothesis). The formulation of the question would suggest that people considers both components when answering the question but we did not provide evidence of that. Also, as already discussed, research in psychology has shown how close freedom of choice and the locus of control are (Langer 1983, Strickland 1989). It is difficult to separate freedom of choice from the locus of control but we can check if the variable freedom and control is correlated to both sentiments or to just one of the two.

We address these two questions with the estimations proposed in table 3. This time we regressed the same set of variables on life satisfaction and on freedom and control separately. We tested the 'proxies' and 'double role' hypotheses as follows. First, among the variables already used, we picked two variables that we expected to have a positive impact on life satisfaction but a negative effect on freedom. These are 'being married' and the 'importance of religion'. We know the institutions of marriage and religion to enhance happiness but we also expected these two institutions to limit freedom of choice.

Second, we picked two other variables which could be considered as correlates of the locus of control but with opposite signs. These are the importance attributed to child obedience and the importance attributed to child independence. We expected child obedience to be a feature that would be most appreciated by the externals, those who think that what happens to them depends on factors outside their control, and child independence to be a feature most appreciated by the internals,

those who think that they can determine their own future. We expected these two variables to have opposite signs within each equation and between the two equations. If these expectations are met, then life satisfaction and freedom cannot be considered as proxies and the freedom variable would show to have elements of both freedom of choice and the locus of control.

In the two equations we also added a number of controls including income rank, income rank squared, unemployed, female, age, age squared and tertiary education. We also included freedom as regressor in the life satisfaction equation and life satisfaction as regressor in the freedom equation so as to remove all noise due to other factors unrelated to our four variables of interest. Estimates were conducted on the world pooled sample using ordered logit estimates with robust standard errors, country and year fixed effects and regional clusters.

As shown in table 3, signs are all as expected. Being married and the importance of religion have both a positive and significant coefficient in the life satisfaction equation while they have a negative and significant coefficient in the freedom equation. Child obedience has the expected negative and significant sign in the freedom equation while child independence has a positive and significant sign. All coefficients in the table are significant and they all show opposite signs for the life satisfaction and freedom equations. We conclude that life satisfaction and freedom and control cannot be interpreted as proxies and that the variable freedom and control is related to both aspects of freedom of choice and the locus of control.

[Table 3]

3) Next we want to check whether the hypothesis that internals have a greater appreciation of freedom than externals is actually true (we call this the 'freedom lovers' hypothesis). The locus of control is generally measured with questionnaires aiming to capture personality traits typical of internals and externals. For example, two popular questionnaires are Rotter's and Duttweiler's questionnaires which

are extensively used in psychology (see Fischer and Corcoran 2007 for examples of these questionnaires). Questions identical to those used in the named questionnaires are not available in the database we use and we cannot construct a precise locus of control scale. However, some of the questions we have measure personality traits very similar to those generally attributed to internals such as self-confidence, positive attitudes towards responsibilities and a taste for hard work. Using these questions, we could construct two variables able to capture internal personalities: An ordinal scale ranging from external to internal personalities and a dummy variable for internals.[14]

We also disposed of questions on the appreciation of various forms of freedom. For example, we had questions asking to respondents whether they preferred freedom over equality or freedom over order or the importance attributed to individual economic freedom and to freedom of speech.[15] We could therefore check whether internals have effectively a greater appreciation of freedom than externals by regressing the dummies constructed to capture the appreciation of freedom on the two constructed measures of internal personality.[16]

Results of these estimations for the pooled world sample are presented in Table 4. As expected, internals show a significantly greater appreciation of freedom as compared to externals. Individuals who have a greater appreciation for economic individual freedom and who have a preference for freedom over equality tend to score high on the internal scale that we constructed (Columns 1 and 2). And individuals who have a greater appreciation of freedom over order and a greater appreciation of freedom of speech tend to be internals rather than externals (columns 3

[14]See Table 4 for a description of these variables.

[15]See Table 4 for a description of these variables.

[16]Note that some of the questions selected were available for only two of the surveys included into the database and that the sample used is small. Estimations cannot be considered as representative of the full sample of 84 countries.

and 4). All the appreciation of freedom variables constructed show a positive and significant sign at the one percent level.

[Table 4]

7 Some implications for public policies

We have established that freedom of choice combined with the locus of control is a very powerful predictor of life satisfaction. But does this matter for public policies and why? We think it matters in many different respects.

Personality, or at least one of the aspects of personality - the locus of control - seems to contribute to shape the preference attributed by individuals to freedom of choice and this, in turn, has an impact on utility. Utility theory and modern critiques of utility theories have largely ignored the question of personality whereas we know from psychology and confirmed by this study that personality has a great role in explaining choice and utility. It is not sufficient to have more choice, we need to feel in control of these choices to be happier.

Moreover, personality seems to matter not only for individuals but also for nations as if countries had personalities. Transitional economies provide a concrete example of this phenomenon. The European and the World Values Surveys show that transitional economies were almost invariably at the bottom of the happiness league at the end of the 1990s and beyond. These economies went through a deep recession during the 1990s and this may explain the low scores on happiness. However, freedom of choice has increased in many respects and transitional economies continued to score very low on happiness during the more recent growth phase. Happiness levels are much lower than in other countries with a similar level of income per capita. Opinion polls across transitional economies also indicate that the majority of citizens still expresses a preference for the old socialist times. How-

ever, this is true for the old generation but not for the new generation and this is precisely what our model predicts. The old generation, trained to delegate responsibilities for family and work to the state, has experienced the transition to more freedom as a negative rather than a positive shock whereas the new generation may be better equipped to make use of more freedom.

Several recent studies seem to come to the same conclusion. Inglehart et al. (2008) found that countries where liberties have increased have also been countries where the perception of freedom of choice has increased, and this has been an important factor in explaining increased happiness. In the words of these authors: "*Happiness reflects not only people's objective experiences, but also how they evaluate these experiences. (...) In recent years, economic growth, democratization, and these changing cultural strategies actually seem to have raised happiness levels in much of the world. The evidence indicates that these factors were conducive to happiness mainly through their common tendency to increase human freedom*" (p. 279). Transitions in preferences also require a generational shift. Alesina and Fuchs-Schndeln (2007) found East-Germans to have different preferences in relation to the redistribution of income as compared to West-Germans (controlling for socioeconomic factors). However, they note that this effect is the most evident among the older generations and is expected to disappear within one or two generations determining a convergence in preferences between East and West Germans. A recent study on Central Europe (Varnum, 2008) remarks that: "*Since the collapse of communism, Central Europeans have a more internal sense of control and make more dispositional attributions for others behavior*" (p. 1). A report by the South-African Center for International and Comparative Politics (CICP 2007) noted that: "*South Africans feel that they have much more control over their lives than they did in 1990; especially the black population whose lives were controlled by repressive laws under Apartheid. This may account for the previously noted rise*

in happiness" (p. 8).

The institutional setting of a nation has an important role in shaping preferences. A country that forms its educational system around values such as obedience evidently produces pupils who are different from those of a country that encourages independence and creativity. The Japanese government is struggling to reform its educational system in the direction of encouraging more creativity and independence of thought as opposed to obedience. On the contrary, Italy now thinks that undiscipline and the lax educational policies that are the heritage of the 1960s have gone too far and is now trying to reverse the trend. Governments try actively to 'form' citizens with public policies and by doing so they shape personalities. This paper provided some additional evidence that these policies may well have an impact on the future well-being of individuals.

References

Alesina, A., Di Tella, R., McCulloch, R., 2004. Inequality and happiness: Are Europeans and Americans different? Journal of Public Economics 88, 2009-2042.

Alesina, A., Fuchs-Schndeln, N., 2007. Goodbye Lenin (or not?): The effect of communism on people. American Economic Review 97, 1507-1528.

Bavetta, S., 2004. Measuring freedom of choice: An alternative view of a recent literature. Social Choice and Welfare 22, 29-48.

Bell, D. E., 1982. Regret in decision making under uncertainty. Operations Research 30, 961-981.

Bell, D. E., 1985. Disappointment in decision making under uncertainty. Operations Research 33, 1-27.

Blanchflower, D. G., Oswald, A. J., 1997. A study of labour market and youth unemployment in Eastern Europe. Warwick Economic Research Papers 499, University of Warwick, United Kingdom.

Blanchflower, D. G., Oswald A. J., 2000. Well-being over time in Britain and

the USA. Mimeo. Available at: http://www.dartmouth.edu/ blnchr/papers/Wel lbeingnew.pdf.

Bowles, S., Gintis, H., Osborne, M., 2001a. Incentive-enhancing preferences: Personality, behavior, and earnings. The American Economic Review 91, 155-158.

Bowles, S., Gintis, H., Osborne, M., 2001b. The determinants of earnings: A behavioral approach. Journal of Economic Literature 39, 1137-1176.

Brickman, P., Campbell, D. T., 1971. Hedonic relativism and planning the good society. In: Apley M. H. (Ed.). Adaptation-level Theory: A Symposium. New York: New York Academic Press, 287-301.

Brickman, P., Coates, D., Janoff-Bulman, R., 1978. Lottery winners and accident victims: Is happiness relative? Journal of Personality and Social Psychology 37, 917-927.

CICP, 2007. World values Surveys 1981-2006. Mimeo. Available at www.kas.de /wf/doc/kas 12577-544-2-30.pdf.

Clark, A. E., Oswald, A. J., 1994. Unhappiness and unemployment. Economic Journal 104, 648-659.

Diener, E., Diener, M., Diener, C., 1995. Factors predicting the subjective well-being of nations. Journal of Personality and Social Psychology 69, 851-864.

Diener, E., Suh, E. M., Oishi, S., 1997. Recent findings on subjective well-being. Indian Journal of Clinical Psychology 24, 25-41.

Diener, E., Suh, E. M., Lucas, R. E., Smith, H. L., 1999. Subjective well-being: Three decades of progress. Psychological Bulletin 125, 276-303.

DiTella, R., MacCulloch, R. J., Oswald, A. J., 2001. Preferences over inflation and unemployment: Evidence from surveys on happiness. American Economic Review 91, 335-341.

Easterlin, R. A., 1974. Does economic growth improve the human lot? In: David, P. A., Reder, M. W. (Eds.). Nations and Households in Economic Growth:

Essays in Honour of Moses Abramovitz. New York: New York Academic Press, 89-125.

Easterlin, R. A., 1995. Will raising the incomes of all increase the happiness of all? Journal of Economic Behavior and Organizations 27, 35-47.

Easterlin, R. A., 2001. Income and happiness: Towards a unified theory. The Economic Journal 111, 465-484.

Fischer, J., Corcoran, K., 2007. Measures for Clinical Practice and Research. A Sourcebook. Volume 2, Adults. New York: Oxford University Press.

Fordyce, M. A., 1988. A review of research on happiness measures: A sixty second index of happiness and mental health. Social Indicators Research 20, 355-381.

Gilbert, D. T., Pinel, E. C., Wilson, T. D., Blumberg, S. J., Wheatley, T., 1998. Immune neglect: A source of durability bias in affective forecasting. Journal of Personality and Social Psychology 75, 617-638.

Goldberg, L. R., 1981. Language and individual differences: The search for universals in personality lexicons. In: Wheeler, L. (Ed.). Review of Personality and Social Psychology 2. Beverly Hills, CA: Sage.

Gravel, N., 1994. Can a ranking of opportunity sets attach an intrinsic importance to freedom of choice? American Economic Review 84, 454-458.

Haworth, J. T., Jarman, M., Lee, S., 1997. Positive psychological states in the daily life of working women. Journal of Applied Social Psychology 27, 345-370.

Heckman, J. J., 2000. Policies to foster human capital. Research in Economics 54, 356.

Helliwell, J. F., 2003. How is life? Combining individual and national variables to explain subjective well-being. Economic Modelling 20, 331-360.

Inglehart, R. F., 1990. Culture Shift in Advanced Industrial Society. Princeton, NJ: Princeton University Press.

Inglehart, R., Foa, R., Peterson, C., Welzel, C. 2008. Development, freedom, and rising happiness: A global perspective (1981-2007). Perspectives on Psychological Science 3, 264-285.

Iyengar, S., Lepper, M., 2000. When choice is demotivating: Can one desire too much of a good thing? Journal of Personality and Social Psychology 79, 995-1006.

Judge, T., Locke, E. A., Durham, C. C., 1997. The dispositional causes of job satisfaction: A core evaluations approach. Research in Organizational Behavior 19, 151-188.

Judge, T., Locke, E. A., Durham, C. C., 1998. Dispositional effects on job and life satisfaction: The role of core evaluations. Journal of Applied Psychology 83, 17-34.

Kahneman, D., 2000. Experienced utility and objective happiness: A moment-based approach. In: Kahneman, D., Tversky, A. (Eds.). Choices, Values and Frames. Cambridge: Cambridge University Press and The Russell Sage Foundation, 673-692.

Kahneman, D., Wakker, P. P., Sarin R., 1997. Back to Bentham? An exploration of experienced utility. Quarterly Journal of Economics 112, 375-405.

Langer, E. J., 1983. The Psychology of Control. Beverley Hills, CA: Sage.

Lefcourt, H. M., 1982. Locus of Control: Current Trends in Theory and Research. New York: Wiley.

Lepper, H. S., 1998. Use of other-reports to validate subjective well-being measures. Social Indicators Research 44, 367-379.

Loewenstein, G., Schkade, D., 1999. Wouldn't it be nice: Predicting future feelings. In: Kahneman, D., Diener, E., Schwarz, D. (Eds.). Well-being: The Foundation of Hedonic Psychology. New York: Russell Sage, 85-108.

Lykken, D., Tellegen A., 1996. Happiness is a stochastic phenomenon. Psychological Science 7, 186-189.

Mangahas, M., 1995. Self-rated poverty in the Philippines, 1981-1992. International Journal of Public Opinion Research 7, 40-55.

Morton, T. L., 1997. The relationship between parental locus of control and children's perceptions of control. Journal of Genetic Psychology 158, 216-225.

Moulton, B. R., 1986. Random group effects and the precision of regression estimates. Journal of Econometrics 32, 385-397.

Myers, D. G., Diener, E., 1995. Who is happy? Psychological Science 6, 10-19.

Ravallion, M., Lokshin, M., 2000. Identifying welfare effects from subjective questions. Economica 68, 335-357.

Rotter, J. B., 1954. Social Learning and Clinical Psychology. New York: Prentice-Hall.

Rotter, J. B., 1966. Generalised expectancies of internal versus external control of reinforcements. Psychological Monographs 80, 1-28.

Rotter, J. B., 1990. Internal versus external locus of control of reinforcement: A case history of a variable. American Psychologist 45, 489-493.

Runciman, W. G., 1966. Relative Deprivation and Social Justice. Reports of the Institute of Community Studies. London, Boston and Henley: Routledge and Kegan Paul.

Sandvik, E., Diener, E., Seidlitz, L., 1993. Subjective well-being: The convergence and stability of self-report and non self-report measures. Journal of Personality 61, 317-342.

Saris, W. E., Scherpenzeel, A. C., Veenhoven, R., Bunting, B., 1996. A Comparative Study of Satisfaction with Life in Europe. Budapest: Eötvös University Press.

Sen, A., 1987. Commodities and Capabilities. Cambridge and New Dheli: Oxford University Press, Oxford Indian Paperbacks.

Seneca, L. A., 1996. Sulla Felicita' (De Vita Beata). Milano: Edizioni BUR.

Sethi-Iyengar, S. S., Jiang, W., Huberman, G., 2004. How much choice is too much?: Contributions to 401(k) retirement plans. In: Mitchell, O. S., Utkus, S. P. (Eds.). Pension Design and Structure: New Lessons from Behavioural Finance. New York: Oxford University Press, 83-97.

Simon, H. A., 1955. A behavioral model of rational choice. Quarterly Journal of Economics 69, 99-118.

Skinner, E. A., 1996. A guide to constructs of control. Journal of Personality and Social Psychology 71, 549-570.

Strickland, B. R., 1989. Internal-external control expectancies: From contingencies to creativity. American Psychologists 44, 1-12.

Varnum, M. E. W., 2008. Rapid adaptation to social change in Central Europe: Changes in locus of control, attribution, subjective well-being, self-direction, and trust. Slovak Sociological Review 3, 215-235.

Veenhoven, R., 1993. Happiness in nations: Subjective appreciation of life in 56 nations 1946-1992. Rotterdam: Erasmus University Press.

Veenhoven, R., 1996. Developments in satisfaction research. Social Indicators Research 37, 1-46.

Veenhoven, R., 2000. Freedom and happiness: A comparative study in 46 nations in the early 1990's. In: Diener, E., Suh, E. (Eds.). Culture and Subjective Well-being. Cambridge: MIT press, 257-288.

Veenhoven, R., 2007. World Database of Happiness. Available at http://world databaseofhappiness.eur.nl.

Wilson, W., 1967. Correlates of avowed happiness. Psychological Bulletin 67, 294-306.

Winkelmann, L., Winkelmann, R., 1998. Why are the unemployed so unhappy? Evidence from panel data. Economica 65, 1-15.

Figure 1 - Happiness, Freedom of Choice and the Locus of Control

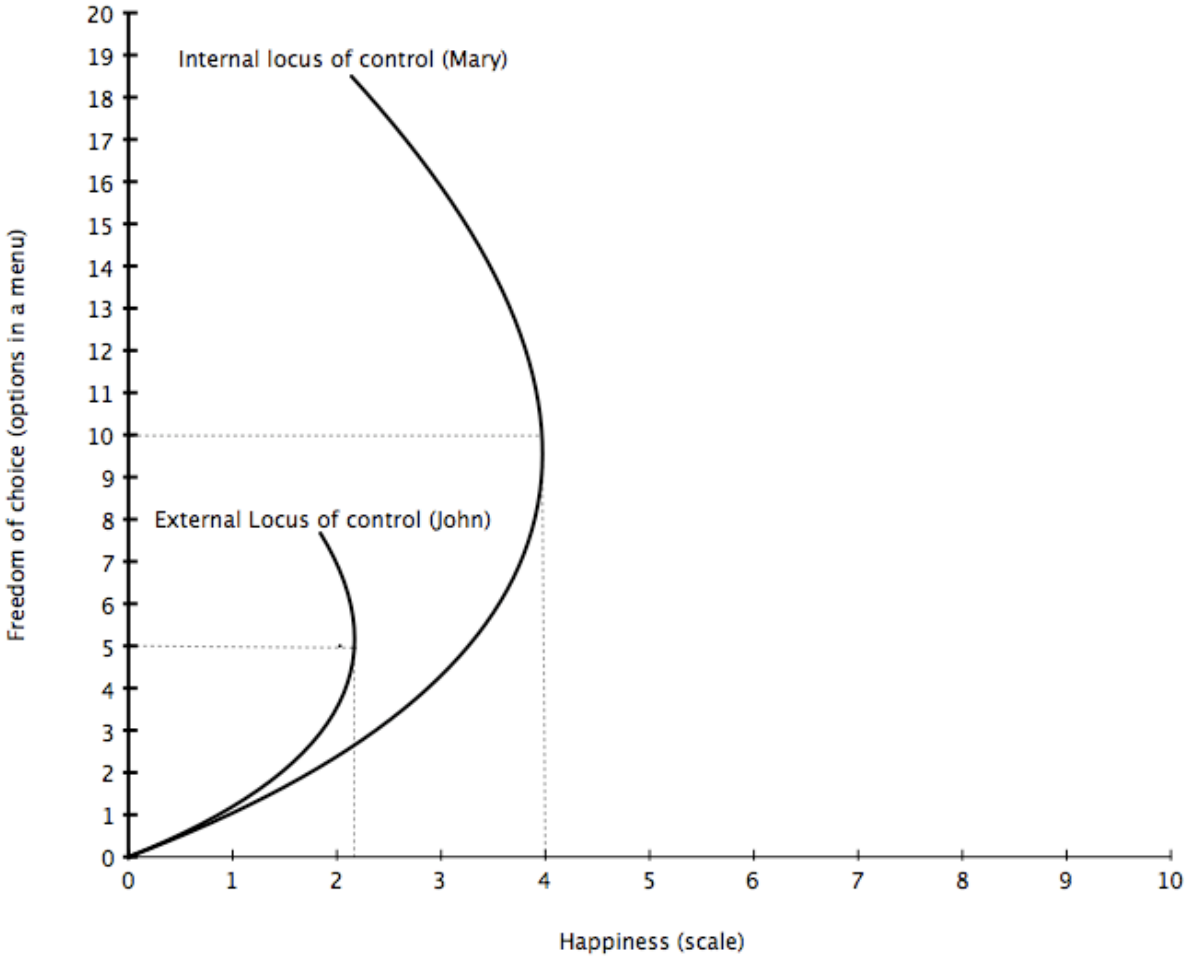

Table 1 - Life Satisfaction Equation - Pooled World Sample (*)

		Coef.	Std. Err.	Odds Ratio	Std. Err.	z
Freedom and Control	freedom and control	0.362	0.010	1.436	0.014	37.6
Individual Economic Status	income rank	0.164	0.021	1.178	0.025	7.8
	income rank squared	-0.008	0.002	0.992	0.002	-4.8
	unemployed	-0.431	0.026	0.650	0.017	-16.9
Individual Characteristics	female	0.052	0.011	1.053	0.011	4.9
	age	-0.054	0.003	0.947	0.003	-20.3
	age squared	0.001	0.000	1.001	0.000	17.4
	education-tertiary	0.105	0.022	1.110	0.024	4.8
	married	0.292	0.018	1.339	0.024	16.4
Individual Social Attitudes	tax cheat	-0.033	0.004	0.967	0.003	-9.4
	trust in people	0.127	0.021	1.135	0.023	6.2
	trust in institutions	0.212	0.021	1.236	0.026	10.2
Individual Values	family importance	0.351	0.040	1.421	0.057	8.8
	work importance	0.142	0.022	1.153	0.026	6.4
	religion importance	0.302	0.023	1.353	0.031	13.3
	politics importance	-0.047	0.016	0.954	0.015	-3.0
Country Economic Status	gdp (000)	0.064	0.006	1.067	0.007	10.2
	gdp squared (000)	-0.001	0.000	0.999	0.000	-3.7
	employment rate	0.016	0.006	1.016	0.006	2.9
	employment rate squared	0.000	0.000	1.000	0.000	-3.7

(*) Ordered logit estimations with robust standard errors, regional cluster and year fixed effects. 75 countries, 1,119 regions, 160,405 observations. The odds ratio is computed as 'e' to the power of the logistic coefficient.

Table 2A - Life Satisfaction Equations - Selected Countries (*)

	USA	Canada	Germany	Spain	South-Africa	Mexico	Russia	China	India	Nigeria	Signif. (#)	Change sign if signif.?
freedom and control	0.496	0.548	0.506	0.517	0.385	0.405	0.260	0.341	0.267	0.242	10	no
	(26.76)**	(27.96)**	(21.11)**	(29.99)**	(9.26)**	(5.92)**	(19.14)**	(10.34)**	(6.57)**	(13.00)**		
income rank	-0.039	0.017	0.055	0.186	0.44	0.112	0.062	0.169	-0.029	-0.053	2	no
	-0.81	-0.31	-1.15	(3.64)**	(10.59)**	-1.23	-0.84	-1.71	-0.21	-0.57		
income rank squared	0.01	0.001	-0.002	-0.01	-0.026	-0.006	0.003	-0.001	0.016	0.02	4	yes
	(2.76)**	-0.16	-0.44	(2.13)*	(6.85)**	-0.86	-0.55	-0.09	-1.14	(2.38)*		
unemployed	-0.268	-0.559	-1.432	-0.586	-0.539	0.09	-0.37	0.286	-0.165	0.019	6	no
	(2.08)*	(3.63)**	(12.69)**	(7.27)**	(6.72)**	-0.38	(3.51)**	-1.33	-1.42	-0.2		
female	0.002	0.045	0.129	-0.036	0.064	0.167	-0.019	0.188	0.055	0.168	4	no
	-0.03	-1.84	(2.41)*	-0.94	-1.14	(2.12)*	-0.21	(2.24)*	-1.31	(2.72)**		
age	-0.026	-0.042	-0.049	-0.06	-0.062	-0.062	-0.064	-0.06	-0.005	-0.065	9	no
	(2.46)*	(4.28)**	(6.15)**	(5.55)**	(6.86)**	(2.82)**	(3.91)**	(3.82)**	-0.38	(6.43)**		
age squared	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.00	0.001	9	no
	(3.07)**	(5.58)**	(5.92)**	(5.05)**	(6.30)**	(2.82)**	(3.41)**	(4.05)**	-0.25	(6.37)**		
education-tertiary	0.002	-0.121	0.252	0.253	-0.14	-0.068	0.335	-0.001	0.127	0.253	6	yes
	-0.02	(2.29)*	(2.59)**	(2.71)**	(2.81)**	-1.23	(4.48)**	-0.02	-1.88	(5.04)**		
married	0.589	0.691	0.506	0.554	0.302	0.35	0.29	0.509	0.118	0.217	9	no
	(5.15)**	(11.61)**	(9.61)**	(7.54)**	(5.43)**	(6.18)**	(4.02)**	(4.76)**	-1.76	(3.19)**		
tax cheat	-0.058	-0.013	-0.02	-0.029	-0.022	-0.049	-0.001	-0.094	-0.029	0.014	5	no
	(5.16)**	-0.88	(2.11)*	(2.83)**	-1.42	(4.04)**	-0.06	(3.63)**	-1.15	-0.58		
trust in people	0.156	0.054	0.427	0.082	0.193	-0.091	0.22	0.23	0.079	-0.041	4	no
	-1.78	-0.56	(10.30)**	-1.02	(3.00)**	-1.13	(3.43)**	(2.99)**	-0.65	-0.91		
trust in institutions	0.182	0.31	0.416	0.078	0.096	-0.018	0.418	0.337	0.127	0.241	7	no
	(2.20)*	(2.47)*	(4.82)**	(1.98)*	-1.16	-0.43	(6.21)**	(4.02)**	-1.17	(6.04)**		
family importance	0.371	0.58	0.195	0.32	0.315	0.367	0.178	0.274	-0.18	0.215	3	no
	-1.42	(2.97)**	-1.18	-0.96	-1.25	(3.38)**	(2.18)*	-1.24	-0.6	-0.43		
work importance	-0.222	-0.074	0.268	0.251	-0.017	0.3	0.069	0.265	-0.076	0.08	4	yes
	(2.57)*	-0.58	(3.22)**	(2.77)**	-0.17	(2.66)**	-1.21	-1.76	-0.51	-0.58		
religion importance	0.267	0.165	0.165	0.151	0.288	0.064	0.135	-0.119	0.343	0.668	8	no
	(3.76)**	(3.39)**	(2.89)**	(3.05)**	(5.96)**	-0.8	(2.29)*	-1.36	(3.06)**	(4.08)**		
politics importance	0.091	-0.059	0.037	-0.087	-0.1	-0.11	-0.038	0.173	0.03	0.044	2	yes
	-1.66	-1.15	-0.74	-1.74	(2.20)*	-1.42	-0.63	(2.47)*	-0.33	-0.95		
Observations	4071	3104	6016	5521	6848	4344	4980	2755	5053	4321		
Pseudo R-squared	0.08	0.09	0.1	0.08	0.09	0.07	0.05	0.07	0.06	0.04		
gdp/capita PPP (000, aver.)	*27.532*	*23.777*	*22.611*	*16.984*	*9.719*	*8.086*	*7.506*	*2.825*	*2.045*	*0.868*		

(*) Ordered logit estimations with regional clusters and year fixed effects. z statistics in parentheses. * significant at 5%; ** significant at 1%.

Table 2B - Life Satisfaction Country Regressions - Number and Sign of Significant Predictors

Variable	Sign		Tot.	%
	(+)	(-)		
freedom and control	74	0	74	98.7
age	1	57	58	77.3
married	54	0	54	72.0
trust institutions	48	1	49	65.3
unemployed	3	43	46	61.3
age squared	43	0	43	57.3
religion important in life	36	3	39	52.0
income rank	29	2	31	41.3
trust people	30	0	30	40.0
tertiary education	18	11	29	38.7
justifiable: cheating on taxes	1	27	28	37.3
family important in life	23	2	25	33.3
female	20	2	22	29.3
income rank squared	7	10	17	22.7
work important in life	11	5	16	21.3
politics important in life	4	6	10	13.3
Total countries			75	100.0

(*) Ordered logit estimations with regional clusters and year fixed effects. Variables significant at 1% or 5%

Table 3 - Life Satisfaction Vs. Freedom and Control

		lifesat	freedom
Constraints to freedom	married	0.338	-0.137
		(20.33)**	(9.84)**
	religion importance	0.201	-0.04
		(15.26)**	(2.10)*
Important child qualities	obedience	0.071	-0.042
		(5.73)**	(2.86)**
	independence	-0.05	0.09
		(4.32)**	(7.79)**
	freedom and control	0.319	
		(15.12)**	
	life satisfaction		0.344
			(18.62)**
	Observations	187198	187198

Ordered logit estimates with robust standard errors, country and year fixed effects, regional cluster and a set of controls. Controls are income rank, income rank squared, unemployed, female, age, age squared and tertiary education. Robust z statistics in parentheses. * significant at 5%; ** significant at 1%

Table 4 - The Appreciation of Freedom and the Locus of Control

Dep. Var.: Estimation:	Internal Scale (A) Ordered Logit	Internal Scale (A) Ordered Logit	Internal Dummy (B) Probit	Internal Dummy (B) Probit
freevseq (1)	0.0661*** (0.0249)			
freepeople (2)		0.118*** (0.0246)		
freespeech (3)			0.359*** (0.0514)	
freevsorder (4)				0.113*** (0.0317)
income rank	0.0255 (0.0216)	0.0188 (0.0216)	-0.0467 (0.0327)	-0.0438 (0.0281)
income rank squared	0.00450** (0.00179)	0.00525*** (0.00179)	0.00592** (0.00281)	0.00687*** (0.00247)
unemployed	-0.0730 (0.0493)	-0.0854* (0.0483)	-0.0541 (0.0626)	-0.0393 (0.0494)
female	-0.233*** (0.0244)	-0.227*** (0.0237)	-0.235*** (0.0342)	-0.233*** (0.0313)
age	0.00140 (0.00516)	-0.000345 (0.00548)	-0.0153** (0.00651)	-0.0160*** (0.00568)
age squared	-2.70e-05 (5.22e-05)	-2.64e-06 (5.49e-05)	0.000177** (6.91e-05)	0.000196*** (6.08e-05)
education-tertiary	0.214** (0.0838)	0.172** (0.0721)	0.381*** (0.0450)	0.391*** (0.0380)
married	-0.0163 (0.0244)	-0.0264 (0.0256)	0.0102 (0.0349)	0.0107 (0.0304)
tax cheat	0.0146*** (0.00542)	0.0129** (0.00527)	-0.0536*** (0.00704)	-0.0521*** (0.00651)
trust in people	0.0262 (0.0197)	0.0227 (0.0206)	0.0275 (0.0432)	0.0321 (0.0436)
trust in institutions	0.142*** (0.0275)	0.145*** (0.0266)	0.220*** (0.0392)	0.245*** (0.0348)
family importance	-0.0703 (0.0751)	-0.0157 (0.0803)	0.146 (0.116)	0.215** (0.105)
work importance	0.279*** (0.0461)	0.256*** (0.0497)	0.268*** (0.0701)	0.286*** (0.0554)
religion importance	0.0457** (0.0219)	0.0435** (0.0213)	0.0775* (0.0400)	0.0923*** (0.0300)
politics importance	0.222*** (0.0249)	0.216*** (0.0298)	0.216*** (0.0417)	0.222*** (0.0359)
Constant			0.337 (0.245)	0.0850 (0.206)
Observations	37625	37000	10547	14194

Significance level: *** p<0.01, ** p<0.05, * p<0.1

(A) 0-8 Scale. One point is given for each of the following statements: 1) I usually count on being successfull in everything I do; 2) I enjoy convincing others of my opininions; 3) I serve as a model for others; 4) I am good at getting what I want; 5) I own many things others envy me for; 6) I like to assume responsibility; 7) I am rarely unsure about how I should behave; 8) I often give others advice. Zero is given if respondents did not subscribe to any of the eight statements above.
(B) Dummy variable=1 if respondents mentioned that important in a job is responsibility and the opportunity to use initiative and if they considered hard work to bring success (Score 1-5 on a 1-10 scale where 1=Hard work brings success and 10=Hard work does not bring success). Dummy variable=0 if the two above mentioned job qualities were not mentioned and if respondents did not believe that hard work brings success (6-10 on the hard work scale above).
(1) Dummy variable. 1= Agree completely or agree somewhat and 0=Neither agree nor disagree, disagree somewhat or disagree completely with the following statement: "We are more likely to have a healthy economy if the government allows more freedom for individuals to do as they wish".
(2) Dummy variable. 1= I find that both freedom and equality are important. But if I were to choose one or the other, I would consider personal freedom more important, that is, everyone can live in freedom and develop without hinderance; 0= Certainly both freedom and equality are important. But if I were to choose one or the other, I would consider equality more important, that is, that nobody is underprivileged and that social class differences are not so strong.
(3) Dummy variable. 1=Very important; 0=Not very important or not at all important. Answers to the question of whether protecting freedom of speech is a national goal.
(4) Dummy variable. 1= To respect freedom for the individual; 0=To maintain order in society. Answers to the question of what is the most important responsibility for the government.

Table A1 - Descriptive Statistics - Full and Reduced Samples

	Full sample			Reduced sample (table 1)			Reduced sample (table 3)		
Variable	**Obs**	**Mean**	**Std. Dev.**	**Obs**	**Mean**	**Std. Dev.**	**Obs**	**Mean**	**Std. Dev.**
life satisfaction	224857	6.56	2.50	160405	6.58	2.49	187198	6.51	2.51
freedom and control	212083	6.61	2.45	160405	6.71	2.41	187198	6.62	2.47
income rank	228825	4.68	2.47	160405	4.67	2.46	187198	4.63	2.45
unemployed	228825	0.07	0.26	160405	0.08	0.27	187198	0.08	0.27
female	228825	0.51	0.50	160405	0.51	0.50	187198	0.51	0.50
age	227545	41.34	16.15	160405	41.28	15.92	187198	41.27	15.98
edutert	228825	0.15	0.36	160405	0.18	0.38	187198	0.17	0.38
married	228825	0.64	0.48	160405	0.65	0.48	187198	0.65	0.48
tax cheat	211751	2.39	2.32	160405	2.40	2.32			
trust in people	228825	0.28	0.45	160405	0.28	0.45			
trust in institutions	222826	2.45	0.59	160405	2.44	0.58			
family importance	206642	0.98	0.13	160405	0.98	0.13			
work importance	205139	0.92	0.27	160405	0.93	0.26			
religion importance	203450	0.65	0.48	160405	0.63	0.48	187198	0.64	0.48
politics importance	203136	0.39	0.49	160405	0.40	0.49			
gdp (000)	214439	12.27	8.96	160405	12.11	9.32			
employment rate	227883	58.95	13.03	160405	59.32	12.46			
important child qualities: obedience	226699	0.36	0.48				187198	0.37	0.48
important child qualities: independence	226706	0.44	0.50				187198	0.46	0.50