Do people care for a sustainable future? Evidence from happiness data.

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Do people care for a sustainable future? Evidence from happiness data.

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Abstract

While the various streams of environmentalism agree in claiming that the current patterns of economic activity are unsustainable for natural resources, they disagree in answering the following question: who is the responsible? Two different answers have been provided: the people or the socio-economic system. The first answer claims that people are inter-temporally greedy. Unsustainable economic patterns simply reflect the little importance that current generations attribute to the living standard of future generations. According to the second answer instead, people would prefer a more sustainable path of the economy but some failure of the socio-economic system prevent this outcome. We provide a test of the basic hypothesis on which these two views diverge: the degree of people's concern for the conditions of life of future generations. We derive this information by estimating the relationship between people's current subjective well-being and their expectations about the living standard of future generations, i.e. a future far enough to concern only future generations. According to the first view, people's expectations about the future should have weak or null influence on people's current well-being. On the contrary, the second view implies that such influence should be positive and remarkable. We use various international and national survey data to estimate a standard happiness regression augmented with people's expectation about the future. Results suggest that current well-being is sharply and negatively associated to a negative expectation of the future. Where possible, we use 2SLS to account for possible endogeneity between the expectations about the future and current well-being. We find that expecting the worst (the best) for future generations has a very large negative (positive) impact on subjective well-being. This conclusion supports the view that current problems of sustainability are due to some failure of the socio-economic organization and not to the inter-temporal greed of human beings.

Keywords: Sustainability, well-being, life satisfaction, Endogenous Growth, economic growth, discount rate, happiness, intergenerational equity, time preference.

JEL classification codes: D62, D64, D91, I31.

1 Introduction

Environmentalism has traditionally emphasized that current generations do not adequately protect the interests of future generations. According to this view, current generations are over-exploiting local and global resources, threatening their sustainability and the living standards of future generations. This situation violates all plausible criteria of equity in the intergenerational allocation of resources.

All streams of environmentalism converge on these claims. Yet, they diverge in answering the following question: who is the responsible? Two different answers have been provided: the people or the socio-economic system.

According to the first answer, the problem lies in people's time preference. The threats posed by the current over-exploitation of resources to their sustainability simply reflect the little importance attributed to the living standards of future generations by a humanity obsessed by its own ones (Pearce et al., 1990, Bromley, 1998). In the jargon of economists this amounts to say that people have high rates of time preference, or high discount rates, i.e. the current value of future natural resources is excessively low. According to this approach, the root of the problem of sustainability lies in human nature – that is in its alleged inter-temporal greed. Hence, we label this explanation of the problem of sustainability as "naturalist". Note that the possibility of rooting the problem of sustainability in human nature rests entirely on the assumption that the behaviour of the economic systems reflects the time preference of the individuals.

On the contrary, according to the second answer – also widespread in the environmentalist hodgedodge – the culprit to target for unsustainability is some failure of the economic, political, social or cultural organization. People desire a more sustainable economy, but this option is prevented by some systemic failure. This point is supported by a variety of approaches. For example, many emphasise an informational problem: people are not adequately informed of the relevance and urgency of policies for sustainability. According to this view, if the public were fully aware of the actual situation, it would urge the political system to adopt such policies. Hence, the problem of sustainability is the outcome of a failure of the cultural organization that prevents a correct information able to support proper collective actions [1].

[1] Some scientists or scientific institutions have been accused to produce reports that intentionally distort the

Others emphasize that some failure of the economic organization may be responsible for global ecological crises. For instance, climate change has been defined as "a result of the greatest market failure the world has seen".[2] Others blame the global corporations, whose shortsightedness and political influence built an unsustainable economy[3]. Some others blame capitalism *tout-court*, an economic system whose engine – the pursuit of profit – does not slow down even in the face of the damages it is providing to future generations[4].

All these views share the idea that unsustainability is not rooted in the inter-temporal greed of human beings, rather it lies in some failure of the institutions of our societies that prevents the economic system from reflecting the time preference of individuals. Hence, we label these views as "institutionalists".

It is worth to remark that in presence of systemic failures a low discount rate might exacerbate the threats to sustainability. This apparently paradoxical outcome is put forward by another institutionalist approach labelled Negative Endogenous Growth (NEG) (see for example Antoci and Bartolini, 2004, Bartolini and Bonatti, 2003, 2008).

In this kind of growth models the well-being and productive capacity of individuals depend largely on goods that are not purchased on the market but are freely provided by the natural environment. The growth process generates negative externalities that reduce the capacity of the environment to provide such goods. However, markets can supply costly substitutes for the diminishing free goods[5]. Thus, individuals react to the decline in their well-being or productive capacity by increasing their use of tradable goods. In other words negative externalities force

evidence for economic interests. One of these examples is the Heartland Institute of Chicago, a conservative think tank claiming that global warming does not have human causes, has limited dimensions and presents benefits beyond costs. (`http://climatechangereconsidered.org/`). Another example concerns the American Enterprise Institute, an ExxonMobil-funded think tank, that offered rewards to scientists writing articles emphasising the shortcomings of a report from the UN's Intergovernmental Panel on Climate Change (IPCC) urging governments to adopt policies against global warming.

[2]Definition given by Nicholas Stern in his 2007 lecture to the Royal Economic Society.

[3]According to this view, the multinational corporations are responsible of producing environmental threats ranging from the oversized role of fossil fuel in the energy supply, to the adoption of GMOs, to the promotion of consumerism (see for instance Shiva, 2013, Latouche, 2009). These positions are supported, for example, by the antiglobalization movements who fiercely accuse the global corporate capitalism of multinationals (Boveé and Dufour, 2005).

[4]See, for example, Naomi Klein 2011, `http://www.thenation.com/print/article/164497/capitalism-vs`

[5]Examples include, double glazing as a defense against noise; the use of mineral water as a substitute for tap water; the purchase of a swimming pool as a response to the deterioration of the local swimming water. Expenditures for pollution abatement or prevention, for the treatment of illnesses caused by pollution, for soil restoration, for global warming mitigation (as investment in energy saving, green transport, and conservation agriculture), for emergencies and reconstruction after extreme climate events, are a direct response to environmental degradation

individuals to increasingly rely on private goods to prevent a decline in their well-being or productive capacity. In this way individuals contribute to an increase in output. This feeds back into negative externalities, giving rise to a further diminution in free goods to which individuals react by increasing output, and so on. A self-reinforcing mechanism thus operates whereby growth generates negative externalities and negative externalities generate growth. In this context growth is the result of a substitution process in which free final (or intermediate) goods are progressively replaced with costly goods in the consumption (or production) patterns of individuals[6].

These models predict that the very long-term well-being (i.e. the well-being across generations) tends to decline the lower is individuals' rate of time preference of present generations. Why a greater concern of living individuals for future generations will worsen the well-being of the latter? In NEG models there are two relevant assets for present and future well-being: the output accumulated and the environmental resource. But only the former can be accumulated privately, given that the latter is a common. Hence individuals can defend the well-being of their descendants against the decline in the common resource by accumulating (and leaving them) the only asset that they are able to accumulate: the private good. In this context the dynamics of the economic system does not reflect the time preference of individuals. The more they are concerned for the well-being of their descendants, the more they will accumulate. But this greater accumulation of privately owned assets does not compensate for the lower environmental quality that it unintentionally causes, thus producing a decline in well-being across generations.

In this economy people's perception of future unsustainability feeds the accumulation of private assets. Since the environment can be accumulated only through collective action, these models describe the behavior of individuals who distrust the capacity of collective action to control negative externalities [7]. In other words, they describe a world in which the protection of one's descendants can be effectively achieved only through individual actions.

[6]This kind of growth process can be described by the metaphor of the "air conditioner syndrome" which refers to Tokyo. This city is very hot in summer and the temperature of the city is considerably increased by air conditioners, in general and constant use. Indeed, they cool the interior of buildings but emit heat to the exterior. Hence people are forced to buy air conditioners by their widespread use. This exemplifies the core of the NEG process: the increase in output – via negative externalities – raises the demand for output

[7]Both classical alternatives for the control of negative externalties – governmental regulations or privatizations – require collective action. Indeed, the definition of a private property right is the result of collective action although the latter is implied to a lesser extent compared to a regulation.

The NEG approach suggests that the declining trends of trust in political institutions in western countries – and the connected loss of confidence in the ability of societies to cope with global and local ecological crises – may boost the accumulation of private assets thus feeding an unsustainable growth path [8]. If people have low confidence in political institutions – which means scarce confidence that it is possible to pursue shared objectives to improve the future – they will arguably consider pursuing sustainable behaviours as useless and probably expensive. In this scenario, people will find more convenient to adopt individual solutions to provide their descendants with the necessary tools to face future difficulties. The aggregate result of such private defense strategies is to increase shared future difficulties. In turn, the decline in trust in political systems does not seem a perceptive phenomenon. Conversely, it may mirror effectively the decline of the capacity of western political systems to lead to decisions that reflect the interest of a vast majority of citizens[9].

In conclusion, according to the NEG approach, the problem of sustainability does not arise from intergenerational conflict, but from a failure to coordinate the actions among individuals belonging to the same generation. This co-ordination failure is nourished by the current generations' mistrust in the effectiveness of collective action.

Summarizing, beyond the variety of institutionalist approaches, they all share the idea that unsustainability is the undesired inter-temporal outcome (from the point of view of current generations) of some institutional failure. This failure results in a behavior of the economic system that is more aggressive towards the future than people would really desire.

Do people consider spoiling the future as a reasonable price to pay for current well-being? Or, in economic terms, are current threats to sustainability the outcome of an optimal intergenerational allocation of resources (from the point of view of current generations)? The difference between the institutionalist and the naturalist view is summarized by their answers to such questions: negative and positive, respectively.

In this paper we provide a test of the basic hypothesis on which these two views diverge:

[8] The trend of confidence in political institutions is sharply declining in the US since the 60s (Lipset and Schneider, 1983, Putnam, 2000, Bartolini et al., 2013) and it is similar in Western Europe (Sarracino, 2012) and Australia (Papadakis, 1999).

[9] Influential political scientists have defined the contemporary political systems as post-democracies, meaning that the growing influence of economic elites in the political decision-making process has regressed the exercise of political power to a pre-democratic situation, one in which this was the prerogative of closed elites (Crouch, 2004).

the degree of people's concern for the very long-term future. We derive information on this issue estimating the relationship between individuals' current well-being and their expectations about a future far enough to regard only the future generations. According to the naturalist view, one would expect the vision of the future of individuals – whatever it is - to have a weak or null influence on their current well-being. Instead, the institutionalist view assumes that such influence should be positive and sizable.

To estimate such relationship we use survey data from several international and national data-bases. We proxy current well-being with subjective well-being (SWB) and the expectations of the very long-term future with specific questions on the issue. We find that expecting the worst (the best) for future generations has a very large negative (positive) impact on subjective well-being. These results support the view that current problems of sustainability are due to some failure of the socio-economic organization and not to the inter-temporal greed of human beings.

2 Data

To perform our test we need individual level information about subjective well-being – our outcome variable – and people's perceptions about future, along with a standard set of socio-demographic control variables.

This information is available in various national and international data-sets. Among these, the World Values Survey (WVS)[10] is the largest source of information covering many developed, developing and transition countries. The WVS has been established in 1981 and is conducted in more than 80 countries world-wide on nationally representative samples. In each wave, between 800 and 4000 people are surveyed in each country with a total of about 250,000 observations. The WVS has been administered in 1981-1984, 1989-1993, 1994-1999, 1999-2004 and 2005-2007. Our baseline analysis is performed on the WVS because, besides the large world coverage, it also provides a reliable instrument to check for potential endogeneity. However, useful information is present also in the American General Social Survey (GSS), the American's Changing Lives of 2002 (ACL), the Eurobarometer of 2009, the German General Social Survey (GGSS) of 2008 and the European Quality of Life of 2007 (EQL). We use

[10]World Values Survey 1981-2008 official aggregate v.20090901, 2009. World Values Survey Association (www.worldvaluessurvey.org). Aggregate File Producer: ASEP/JDS, Madrid.

figures from these data-sets to check the robustness of our findings (see section 4.2).

2.1 Subjective Well-Being

People's well-being is proxied by *subjective well-being* (subjective well-being), a concept developed in social psychology since the early '50s, but increasingly adopted in social sciences, including economics (Dolan et al., 2008, Powdthavee, 2010). subjective well-being is the reported evaluation of one's own well-being and is commonly observed through answers to questions about people's *happiness* or *life satisfaction* (Van Praag et al., 2003).

The wording of the happiness question in the WVS is: "Taking all things together, would you say you are: 1 Very happy, 2 Quite happy, 3 Not very happy or 4 Not at all happy.", whereas the wording of the question about life satisfaction is: "All things considered, how satisfied are you with your life as a whole these days? Please use this card to help with your answer.", the card displaying a scale from 1 to 10, where 1 is "dissatisfied" and 10 is "satisfied".

For the purposes of present work, we will refer to subjective well-being as proxied by life satisfaction. However, our conclusions are also confirmed in case happiness substitutes for life satisfaction to proxy people's well-being. In this case we reverted the scale of the happiness question so that higher values are associated with stronger feelings of well-being. Results for the happiness variable are provided in the appendix.

The reliability of subjective well-being has been intensively investigated by an interdisciplinary literature. Subjective well-being data is not "reality free" and it proved to reflect real phenomena. For instance, subjective well-being is well correlated with objective measures of well-being such as the heart rate, blood pressure, frequency of Duchenne smiles and neurological tests of brain activity (Blanchflower and Oswald, 2004, van Reekum et al., 2007). Moreover, subjective measures of well-being are strongly correlated with other proxies of subjective well-being (Schwarz and Strack, 1999, Wanous and Hudy, 2001, Schimmack et al., 2010) and with the evaluations about the respondent's happiness provided by friends, relatives or clinical experts (Schneider and Schimmack, 2009, Kahneman and Krueger, 2006, Layard, 2005).

2.2 Perception about the future

We are interested in a question that asks people's perception about the future. In order to capture the preference for a sustainable future such question should have two features. First, it should consider the very long-term, i.e. a future remote enough not to regard the respondent. Second, since environmental quality concerns general conditions of life, this question has to regard a future affecting very large numbers of people.

The wording of the question on expectations about the future available in the WVS is:

"For each of the following pairs of statements, please tell me which one comes closest to your own views: (A) Humanity has a bright future; (B) Humanity has a bleak future." This variable has been recoded to 1 if the respondent expects that humanity has a bleak future and 0 otherwise.

We include such variable in a standard happiness regression to check whether people's expectations for the future are related to their current well-being. The naturalist view of people's high discount rate implies a weak or non-significant relationship between subjective well-being and the perception of the future. Instead, the institutionalist approach implies that people's expectations of the future should significantly impact people's current well-being. In particular, the more negative are the expectations for the future, the more negative should be the impact on subjective well-being.

Table 1: Cross-tabulation of life satisfaction and the expectations about the future

Life satisfaction	0 *Bright future*	1 *Bleak future*	Total
1 *Dissatisfied*	43	93	136
2	24	84	108
3	112	207	319
4	137	247	384
5	409	810	1219
6	519	639	1158
7	990	1074	2064
8	1641	1343	2984
9	1058	811	1869
10 *Satisfied*	978	657	1635
Total	5911	5965	11876

Table 1 informs about the distribution of life satisfaction among people having a bright and

a bleak perception of the future. It shows that there are more people who are dissatisfied with their life and think that humanity has a bleak future than dissatisfied people with good expectations for future. This suggests a positive correlation between life satisfaction and the variable of interest. A similar pattern can be observed when using happiness instead of life satisfaction (see table 7 in the appendix). Remarkably, the sample is equally distributed between the two categories on the expectations about the future.

2.3 Control variables

Finally, we include a standard set of socio-demographic and economic control variables. In particular, we include a variable on gender, taking the value 1 if the respondent is female, 0 otherwise.

We control for age and age squared to account for the non linear relationship between aging and well-being[11].

We include a set of dummies to control for the marital status of the respondent as well. The dummies are: "married", "living together as married", "divorced", "separated" and "widowed", whereas "single" is used as the reference category.

Regressors also include the number of children of the respondent. The variable has been recoded in three dummies: one child, two children and three or more children. Having no child constitutes the reference category. We likewise control whether the respondent is living with his/her parents with a dichotomous variable.

To control for the employment status of the respondent, we included a further set of dummy variables, namely: "retired", "housewife", "students" and "unemployed", leaving "employed" as the reference category.

We control for the education of the respondent including a categorical variable taking values on a scale from 1 to 8, 1 and 8 representing an "inadequately completed elementary education" and a "University with degree/Higher education - upper-level tertiary certificate", respectively.

Household income is observed through people's self-reports. Each respondent is asked to declare to which income interval he/she belongs. The variable is organized in 10 intervals,

[11] We divided age squared by 100 to indicate the minimum of the parabolic age curve.

where 1 and 10 stand for the lowest and the highest income class, respectively.

Finally, we control for the years and the countries where the interviews were taken. The appendix provides a table of descriptive statistics of the control variables.

2.4 Sample selection

We begin our investigation from the sample of developed countries available in the WVS, from which we derive our main results. The reason for this choice is that such countries bear the main responsibility for environmental threats. Indeed, current environmental global challenges are largely the legacy of two centuries of industrial history. Hence, we begin our analysis considering first the time preference of people living in the countries where the problem of unsustainability originated. However, in section 4.2 we extend our analysis to developing and transition countries.

Table 2 provides the list of countries and years in which the question on humanity's future was asked. Overall, our sample includes 17,493 observations collected over a period of six years between 1994 and 1998. Only New Zealand has been surveyed twice for our question of interest in 1998 and 2004.

Section 4.2 is devoted to some robustness checks. We first show that our conclusion holds also for developing and transition countries separately and for all countries together. Table 13 in the appendix provides an overview of the 54 countries in the WVS for which data on well-being and future expectations are available. Secondly, we check the robustness of our results using all the available data-sets where questions on well-being are available along with information on people's perceptions about the future. This gives us the possibility to test our relationship in a variety of contexts and using various wordings.

2.5 Instrumenting expectations about the future

In our model we assume that the expectations about the future are an explanatory factor of subjective well-being . However, it is also plausible that people's well-being affects the way people perceive the future. For example, it might be the case that happier people tend to have a more optimistic view about the future and vice versa. In other words, the two variables may be endogenous. Possible endogeneity does not necessarily point to a positive correlation between

Table 2: Availability of data over time

	Developed countries						
	1994	1995	1996	1997	1998	2004	Total
Australia	0	2048	0	0	0	0	2048
Taiwan	780	0	0	0	0	0	780
Finland	0	0	987	0	0	0	987
Germany	0	0	0	2026	0	0	2026
Japan	0	1054	0	0	0	0	1054
South Korea	0	0	1249	0	0	0	1249
New Zealand	0	0	0	0	1201	954	2155
Norway	0	0	1127	0	0	0	1127
Spain	0	1211	0	0	0	0	1211
Sweden	0	0	1009	0	0	0	1009
Switzerland	0	0	1212	0	0	0	1212
Great Britain	0	0	0	0	1093	0	1093
United States	0	1542	0	0	0	0	1542
Total	780	5855	5584	2026	2294	954	17493

the expected future and subjective well-being . For instance, more depressed people tend to self-identify as losers: they may expect for themselves a bleak future, while exaggerating the brightness of the future of the others.

To deal with this possible endogeneity we instrument the expectations about the future with *political distrust*. The rationale for this choice rests on the fact that the effectiveness of collective action is a crucial component of any possibility to pursue sustainable goals. Of course political institutions are the main form of collective action. Thus, low confidence in political institutions implies low confidence that it is possible to pursue shared objectives to improve future conditions of life. If people do not trust the effectiveness of political action, they will not consider reliable any commitment to pursue sustainable goals. In other words, since any solution or mitigation of sustainability problems has a strong component of collective action, if people do not trust the main institutions it is more probable that they will see the future as bleak. Low trust in institutional actions mirrors low confidence in the possibility of coordinating individual actions towards a desirable shared future.

Conversely, in the literature on subjective well-being we did not find any evidence that political distrust affects well-being. Political distrust is not included in the standard regressors of happiness and there is a lack of papers on this argument, probably reflecting the lack of micro, cross-country and time-series correlation between subjective well-being and political

trust.

Thus, we consider *political distrust* a plausible candidate to instrument the expectations about the future because people who do not trust political institutions are more likely to foresee a bleak future. On the other side, there is no reason to expect that political distrust might affect well-being in other ways than through the possibility of pursuing socially coordinated actions aimed at improving the future.

In the WVS, people were asked about their confidence in the Parliament and in the Government. In both cases the wording is as follows:

"I am going to name a number of organisations. For each one, could you tell me how much confidence you have in them: is it (1) a great deal of confidence, (2) quite a lot of confidence, (3) not very much confidence or (4) none at all?".

Based on these two items, we create a dummy variable that takes the value 1 if the respondent answered "not very much" or "not at all" to at least one of the two questions, 0 in all other cases.

The argument that people's distrust in politics does not affect subjective well-being , while it strongly influences the vision that one has about the future, finds confirmation in our evidence showing that the correlation between political distrust and well-being is basically flat. On the contrary, our instrument is strongly and significantly correlated with the expectations about the future. This suggests that political distrust satisfies the conditions of validity, which requires that the instrument is orthogonal to the error term. These relationships are statistically tested in the first step of regression 2 presented below and the results are discussed in section 4 (see table 4 in section 4.1).

3 Methodological issues

To test our hypothesis we use OLS regressions. We are aware that, given the ordinal nature of our dependent variable, ordered probit or logit models should be preferred. However, the recent literature demonstrated that, when the dependent variable has a sufficient number of categories, OLS provide equivalent results and have the advantage of making comparisons across different models easier (Ferrer-i Carbonell and Frijters, 2004). In particular, Ferrer-i Carbonell and Frijters (2004) conclude that assumptions on ordinality or cardinality

of the answers to a subjective well-being question are "relatively unimportant to results"[12].

However, to check the consistency of our results, we replicate our estimates using ordered probit and logit models as well. Results are provided in the appendix on page 27.

The baseline regression model is:

$$SWB_i = \alpha + \boldsymbol{\beta} \cdot \mathbf{X_i} + \epsilon_i \tag{1}$$

where SWB is proxied by life satisfaction and happiness, respectively; $\boldsymbol{\beta}$ is the vector of parameters to be estimated; $\mathbf{X_i}$ represents the vector of independent variables, including the expectations about the future, socio-demographic control variables, country and time dummies; ϵ_i is the error term and the index *i* stands for individuals.

In a second step, we instrument the variable of interest in order to check for causality.

3.1 Testing for causality

The coefficients from equation 1 inform about the sign and magnitude of partial correlations among variables, but they do not allow any causal interpretation.

To address this issue, we run a further set of regressions with instrumental variables using the two stage least squares (2SLS) model (Wooldridge, 2002). The method consists in identifying one or more suitable instruments for each endogenous variables. If such variable exists, it can be used in a first step to predict the endogenous variable and, in a second step, its predicted values can be used as regressors. Our instrument is political distrust and it is used to predict the expectations about the future in the first step regression. The predicted values are subsequently used in the second step regression to explain subjective well-being . In this case the 2SLS model can be written as:

$$bleakfuture_i = \pi_1 + \pi_2 \cdot political\_distrust + \boldsymbol{\pi_3} \cdot \mathbf{X_i} + \nu_i \tag{2}$$

$$SWB_i = \alpha + \boldsymbol{\theta} \cdot \mathbf{X_i} + \gamma \cdot \widehat{bleak\_future}_i + \epsilon_i \tag{3}$$

[12]Ferrer-i Carbonell and Frijters (2004)

where SWB is proxied by life satisfaction and happiness, respectively; $\boldsymbol{\theta}$ is a vector of parameters of the control variables $\mathbf{X}$ including year dummies and time dummies; γ is the coefficient of the expectations about the future; $bleakfuture_i$ is the variable of interest; ϵ_i is the error term; $E[\epsilon_i|x_i, political\_distrust_i] = 0$ with $political\_distrust_i$ being the instrument as defined in section 2.5.

Each regression uses robust standard errors clustered by year and country.

4 Results

Table 3 shows the estimation results for developed countries. The correlation between expecting a bleak future and life satisfaction is largely negative and highly significant. Having the perception that the future will be bleak rather than bright goes with about 5.2% lower life satisfaction. This is a remarkably high correlation, comparable with the coefficients of the well-established most important correlates of well-being, as being married or being unemployed. The same result is confirmed in case we use happiness as a dependent variable rather than life satisfaction. Happiness is 4.25% lower for those who tend to see the future as bleak compared to those who see it bright (see table 11 in the appendix).

The sign and magnitude of the coefficient on future expectations suggest that this variable is an important component of people's well-being. In other words, people are less satisfied with their lives if they expect the future generations to have a bleak life. This result is robust to the inclusion of all the standard ingredients of a happiness regression.

For what concerns the other control variables, they all have the expected signs and are consistent with previous findings from the literature.

4.1 Test of causality

To identify the causal relationship between the two variables we adopt a two stage least square (2SLS) model with instrumental variable. Our instrument, as defined in section 2.5, is political distrust. The first column of tab. 4 shows the coefficients of the first step where the variable bleak future is regressed on political distrust and a set of control variables using clustered standard errors; the second column of tab. 4 provides the coefficients from the standard OLS model for ease of comparison; the last column reports the coefficients from the second step of

Table 3: Expectations about the future and life satisfaction in developed countries

	life satisfaction	
bleak future	-0.515^{***}	(-8.42)
woman	0.166^{**}	(3.64)
married	0.664^{***}	(5.88)
living together	0.594^{**}	(4.02)
divorced	0.0300	(0.24)
separated	-0.643^{***}	(-5.57)
widowed	0.00102	(0.01)
retired	-0.0696	(-0.91)
housewife	0.0188	(0.28)
student	0.102	(1.02)
unemployed	-0.741^{**}	(-3.75)
one child	-0.0677	(-1.20)
two children	-0.111	(-1.51)
three or more children	-0.0606	(-0.86)
living with parents	-0.0784	(-0.97)
age	-0.0680^{***}	(-10.11)
age^2/100	0.0756^{***}	(11.59)
education level	0.0296	(2.00)
scale of income	0.0724^{**}	(4.28)
Constant	7.068^{***}	(30.59)
Observations	8989	
Adjusted R^2	0.134	

t statistics in parentheses

Regressors include both year and country dummies, but coefficients are omitted for brevity.

$^{*}\ p < 0.05$, $^{**}\ p < 0.01$, $^{***}\ p < 0.001$

the 2SLS regression where life satisfaction is regressed on the predicted values of bleak future, along with the set of control variables and using clustered standard errors.

The results of the estimated reduced form model validate the relevance condition of the instrument (see section 3.1): political distrust is positively and significantly correlated to expectations about the future. The relevance of the instrument is further confirmed in the first stage regression by the high value of the F-statistic[13]. The correlation between our instrument and subjective well-being is basically flat, satisfying the conditions of validity, which requires that the instrument is orthogonal to the error term.

Results from the 2SLS show that the coefficient of expectations about the future becomes about two times bigger than in the OLS case and it remains statistically very significant. Similarly, several significant coefficients of control variables in the OLS estimation turn even more significant in the 2SLS case. Estimates suggest that a respondent who expects humanity to have a bleak future is 12.85% less satisfied with his life than a respondent having positive expectations.

The happiness regression shows similar results: having bad expectations about the future reduces current well-being by about 7% (see tab. 12 in the appendix).

[13]The rule of thumb suggests that values larger than ten indicate a strong instrument (Gujarati, 2011).

Table 4: Political distrust as an instrument for the expectations about the future.

	Reduced form	OLS	2SLS
Dependent variable	*Bleak future*	*Life satisfaction*	*Life satisfaction*
bleak future		-0.515^{***}	-1.285^{***}
		(-8.42)	(-4.73)
political distrust	0.176^{***}		
	(12.93)		
woman	0.0279	0.166^{**}	0.191^{***}
	(1.01)	(3.64)	(3.52)
married	-0.0208	0.664^{***}	0.643^{***}
	(-1.41)	(5.88)	(6.03)
living together	0.00867	0.594^{**}	0.602^{***}
	(0.44)	(4.02)	(4.29)
divorced	0.0407	0.0300	0.0618
	(1.57)	(0.24)	(0.54)
separated	-0.0784	-0.643^{***}	-0.697^{***}
	(-1.53)	(-5.57)	(-5.91)
widowed	-0.000778	0.00102	-0.00715
	(-0.03)	(0.01)	(-0.06)
retired	0.0514	-0.0696	-0.0320
	(2.18)	(-0.91)	(-0.41)
housewife	-0.0190	0.0188	0.00103
	(-1.05)	(0.28)	(0.02)
student	-0.0349	0.102	0.0691
	(-1.51)	(1.02)	(0.76)
unemployed	0.0503^{*}	-0.741^{**}	-0.698^{***}
	(2.89)	(-3.75)	(-3.90)
one child	0.0169	-0.0677	-0.0501
	(0.67)	(-1.20)	(-0.90)
two children	0.0106	-0.111	-0.0993
	(1.11)	(-1.51)	(-1.43)
three or more children	-0.00781	-0.0606	-0.0657
	(-0.39)	(-0.86)	(-0.92)
living with parents	0.0275	-0.0784	-0.0588
	(1.08)	(-0.97)	(-0.74)
age	-0.00144	-0.0680^{***}	-0.0690^{***}
	(-0.51)	(-10.11)	(-11.78)
age^2/100	0.000905	0.0756^{***}	0.0762^{***}
	(0.32)	(11.59)	(11.44)
education level	-0.0175^{**}	0.0296	0.0154
	(-4.14)	(2.00)	(1.31)
scale of income	-0.00783^{*}	0.0724^{**}	0.0655^{***}
	(-2.67)	(4.28)	(3.85)
Constant	0.491^{***}	7.068^{***}	7.354^{***}
	(7.33)	(30.59)	(38.23)
Observations	9008	8989	8989
Adjusted R^2	0.134	0.134	–
F-statistic			166.22

t statistics in parentheses
Regressors include both year and country dummies, but coefficients are omitted for brevity.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.2 Robustness checks

4.2.1 Estimates using different sets of countries

How much does the selection of the countries affect the results? To what extent our results can be extended to contexts different from the industrialized one? The WVS allows to answer this questions as it provides information on a large number of countries, including many developing and transition ones[14].

Results are presented in table 5. For comparative reasons, the first two columns report the results of the OLS and the 2SLS regressions for the sample of developed countries. Columns 3 and 4 provide the same information for transition economies, columns 5 and 6 refer to developing countries, whereas the last two columns provide the results of regressions including all the countries available in the WVS[15].

Results concerning the relationship between expectations about the future and life satisfaction are very consistent across samples. The F-statistics from the first-stage regressions are large enough to confirm the relevance of the instrument and its strength. The signs of the instrumented variables are always negative, very large and significant. Moreover, the coefficients for transition and developing countries are always larger than the ones for developed countries. In case of the 2SLS regressions, a bleak perception of the future lowers people's life satisfaction by 31.65% in transition countries and 27.73% in developing ones (12.85% in developed ones). In other words, the expectations about the future matter more for the well-being of people in transition countries, than for people in developing and, lastly, in developed countries. This evidence is inconsistent with the idea that concerns for environmental quality tend to emerge in societies where basic needs are generally satisfied. In the overall sample having bad expectations about the future lowers life satisfaction by 23.8%.

Moreover, the signs and the significance of the control variables are quite consistent across samples and in line with previous results from the literature.

Our results are confirmed when life satisfaction is substituted by happiness as dependent variable (see table 15 in the Appendix).

[14]For a complete list of countries, their sample sizes and the years of observation, please, refer to table 13 in the Appendix.

[15]Results using happiness as dependent variable are available in Appendix D.

Table 5: Estimated effect of the expectations about the future on life satisfaction considering various groups of countries.

	Developed countries		Transition countries		Developing countries		All countries	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
bleak future	-0.515^{***}	-1.285^{***}	-0.908^{***}	-3.165^{***}	-0.367^{**}	-2.773^{**}	-0.582^{***}	-2.380^{***}
	(-8.42)	(-4.73)	(-14.61)	(-8.65)	(-3.46)	(-2.83)	(-8.42)	(-5.16)
woman	0.166^{**}	0.191^{***}	-0.00789	-0.00246	0.0344	0.0373	0.0464	0.0643
	(3.64)	(3.52)	(-0.14)	(-0.04)	(0.64)	(0.79)	(1.34)	(1.68)
married	0.664^{***}	0.643^{***}	0.185	0.174	0.483^{***}	0.503^{***}	0.465^{***}	0.459^{***}
	(5.88)	(6.03)	(1.74)	(1.29)	(5.06)	(4.57)	(6.44)	(5.77)
living together	0.594^{**}	0.602^{***}	-0.0259	0.00296	0.133	0.144	0.218^{*}	0.219^{**}
	(4.02)	(4.29)	(-0.20)	(0.02)	(1.11)	(1.20)	(2.50)	(2.59)
divorced	0.0300	0.0618	-0.269	-0.227	-0.114	0.0258	-0.0580	0.0243
	(0.24)	(0.54)	(-2.05)	(-1.43)	(-0.65)	(0.17)	(-0.63)	(0.26)
separated	-0.643^{***}	-0.697^{***}	-0.576^{*}	-0.497^{*}	-0.156	-0.0711	-0.299^{*}	-0.278^{*}
	(-5.57)	(-5.91)	(-2.92)	(-2.54)	(-1.06)	(-0.44)	(-2.59)	(-2.07)
widowed	0.00102	-0.00715	-0.179	-0.169	0.0141	0.00645	-0.0184	-0.0127
	(0.01)	(-0.06)	(-1.41)	(-1.43)	(0.10)	(0.03)	(-0.22)	(-0.13)
retired	-0.0696	-0.0320	-0.0176	0.0379	0.127	0.159	-0.0309	0.0362
	(-0.91)	(-0.41)	(-0.30)	(0.71)	(0.97)	(1.41)	(-0.51)	(0.66)
housewife	0.0188	0.00103	-0.194	-0.266	0.178	0.206^{*}	0.0973	0.0777
	(0.28)	(0.02)	(-1.34)	(-1.92)	(1.98)	(2.06)	(1.31)	(0.89)
student	0.102	0.0691	0.108	0.0217	0.0817	0.0491	0.0789	0.0378
	(1.02)	(0.76)	(0.78)	(0.15)	(0.93)	(0.46)	(1.17)	(0.53)
unemployed	-0.741^{**}	-0.698^{***}	-0.521^{**}	-0.480^{***}	-0.375^{**}	-0.366^{**}	-0.475^{***}	-0.446^{***}
	(-3.75)	(-3.90)	(-3.63)	(-3.55)	(-3.21)	(-2.78)	(-5.67)	(-5.14)
one child	-0.0677	-0.0501	-0.0575	-0.0336	-0.0673	-0.102	-0.0942	-0.0938
	(-1.20)	(-0.90)	(-0.69)	(-0.33)	(-0.74)	(-0.93)	(-1.66)	(-1.39)
two children	-0.111	-0.0993	-0.0189	0.0451	-0.0614	-0.0469	-0.0926	-0.0666
	(-1.51)	(-1.43)	(-0.21)	(0.39)	(-0.75)	(-0.43)	(-1.46)	(-0.90)
three or more children	-0.0606	-0.0657	0.0374	0.0851	-0.0269	-0.0489	-0.00167	-0.00823
	(-0.86)	(-0.92)	(0.37)	(0.68)	(-0.25)	(-0.35)	(-0.02)	(-0.10)
living with parents	-0.0784	-0.0588	-0.0433	-0.0145	0.0357	-0.000802	0.0302	0.0224
	(-0.97)	(-0.74)	(-0.49)	(-0.15)	(0.52)	(-0.01)	(0.61)	(0.43)
age	-0.0680^{***}	-0.0690^{***}	-0.0960^{***}	-0.0908^{***}	-0.0495^{***}	-0.0505^{***}	-0.0733^{***}	-0.0738^{***}
	(-10.11)	(-11.78)	(-10.60)	(-11.45)	(-4.85)	(-4.89)	(-10.99)	(-10.55)
age^2/100	0.0756^{***}	0.0762^{***}	0.0899^{***}	0.0848^{***}	0.0557^{***}	0.0565^{***}	0.0768^{***}	0.0773^{***}
	(11.59)	(11.44)	(8.53)	(10.25)	(4.43)	(4.44)	(10.75)	(10.09)
education level	0.0296	0.0154	0.0745^{***}	0.0589^{***}	0.0404	0.0729^{**}	0.0511^{**}	0.0542^{**}
	(2.00)	(1.31)	(4.17)	(3.88)	(1.36)	(2.68)	(2.91)	(2.94)
scale of income	0.0724^{**}	0.0655^{***}	0.155^{**}	0.148^{***}	0.176^{***}	0.185^{***}	0.149^{***}	0.148^{***}
	(4.28)	(3.85)	(4.07)	(4.38)	(6.35)	(5.95)	(7.33)	(6.69)
Constant	7.068^{***}	7.354^{***}	6.074^{***}	6.661^{***}	7.395^{***}	10.15^{***}	5.302^{***}	7.203^{***}
	(30.59)	(38.23)	(23.87)	(27.98)	(28.15)	(10.97)	(21.62)	(23.37)
Observations	8989	8989	14766	14766	21046	21046	44801	44801
Adjusted R^2	0.134	–	0.176	–	0.146	–	0.281	–
F-statistic		166.22		74.74		32.98		136.29

t statistics in parentheses
Regressors include control variables, year and country dummies, but coefficients are omitted for brevity. All the regressions include robust standard errors clustered by year and country.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.2.2 Estimates using different data-sets

Besides the WVS, we found other 5 data-sets providing information about people's expectations about the future and subjective well-being along with a set of control variables. We replicate our regressions on these other data-sets to check the robustness of our results.

The complete list of available data-sets, the exact wording of the proxies of well-being and of expectations about the future and eventual transformations applied to these variables are presented in table 6. As illustrated in columns 2 and 3, these data-sets provide a rich set of alternative wordings against which to test the robustness of our findings.

Table 6: Description of the data-sets and of the proxies of well-being and expectations about the future available for present study.

Dataset	**Subjective Well-Being**	**Proxy for future expectations**	**Transformations of the proxy**
World Value Survey (WVS)	*Satisfaction with your life*: "All things considered, how satisfied are you with your life as a whole these days? 1 Dissatisfied . . . 10 Satisfied." *Feeling of happiness*: "All things together, would you say you are: 1 Very happy, 2 Quite happy, 3 Not very happy, Not at all happy."	*Humanity has a bright or bleak future*: "For each of the following pairs of statements, please tell me which one comes closest to your own views. *A* Humanity has a bright future; *B* Humanity has a bleak future. 1 Bright future, 2 Bleak future, 3 Both, 4 Neither, 5 Other."	Recoded so that 0 is "Bright Future" and 1 is "Bleak Future".
General Social Survey (GSS)	*Happiness*: "Taken all together, how would you say things are these days-would you say that you are 1 very happy, 2 pretty happy, or 3 not too happy?"	*No children with this future, agree or disagree*: "It's hardly fair to bring children into the world with the way things look for the future. 1 Agree, 2 Disagree, 8 Don't know."	Recoded so that 0 is "Disagree" and 1 is "Agree".
American's Changing Lives (ACL) - Wave 4 (2002)	*Life Satisfaction*: "Now please think about your life as a whole. How satisfied are you with it - are you 1 completely satisfied, 2 very satisfied, 3 somewhat satisfied, 4 not very satisfied or 5 not at all satisfied."	*Hopeless Future*: "The future seems hopeless to me and I can't believe that things are changing for the better. 1 Agree strongly, 2 Agree Somewhat, 3 Disagree somewhat, 4 Disagree strongly."	Recoded so that 1,2,3,4 become 4,3,2,1, respectively.
Eurobarometer 72.4 (Oct-Nov 2009)	*Life Satisfaction*: "On the whole, are you 1 very satisfied, 2 fairly satisfied, 3 not very satisfied or 4 not at all satisfied with your life?"	*Life for next generation*: "Generally speaking, do you think that the life of those who are children today will be 1 easier, 2 more difficult or 3 neither easier nor more difficult of those from your own generation?"	Recoded so that 2 is "Neither easier not more difficult" and 3 is "more difficult" (with 1 remaining "Easier").
German General Social Survey (2008)	*Life Satisfaction*: "Considering your life today, what would you say, on the whole, how happy or unhappy are you? 1 very happy, 2 pretty happy, 3 not really happy, 4 not happy at all, 8 I can't say."	*No children with this future, agree or disagree*: "Given the future, one can hardly take responsibility to bring children into the world. 1 I agree, 2 I disagree, 8 I don't know."	Recoded so that 0 is "I disagree" and 1 is "I agree".
European Quality of Life (EQL) - 2007	*Life Satisfaction*: "All things considered, how satisfied would you say you are with your life these days? Please use a scale from 1 to 10 where 1 means 'very dissatisfied' and 10 means 'very satisfied'." *Happiness*: "Taking all things together on a scale of 1 to 10, how happy would you say you are? Here 1 means you are very unhappy and 10 means you are very happy."	*Optimism about future*: "I am optimistic about the future. Please tell me whether you 1 strongly agree, 2 agree, 3 neither agree nor disagree, 4 disagree or 5 strongly disagree."	Not recoded.

Results are presented in tables from 16 to 24 in Appendix E. For each data-set we run three different models: the first one, where the proxy of well-being is regressed only on the expectations about the future; the second one, includes year or, in case of cross-national surveys, country control variables; the third one includes also a set of control variables that are standard in happiness regressions. We adopted ordered probit models with robust standard errors reporting marginal effects. In case of the European Quality of Life survey we run an OLS with

robust standard errors as the dependent variable ranges on a 1 to 10 points scale.

Results are very consistent with the pattern already identified in the WVS. Data from the American GSS collected between 1973 and 1994 confirm that agreeing that it is hardly fair to bring children into the world with the way things look for the future, correlates with -9.34% in people's happiness.

Similarly, the fourth wave of the American's Changing Lives survey administered in 2002 informs that those who strongly believe that the future is hopeless and that things are not changing for the better, report on average a 10.6% lower life satisfaction than those who strongly disagree. Remarkably, this coefficient is very similar to the one of people who somewhat believe that the future is hopeless, while those who somewhat disagree report a milder decrease in well-being of about 6%.

In 2009 the respondents from 33 European countries were asked by Eurobarometer whether they expected the younger generations to have an easier or more difficult life than the one of current generations. In this case the figures from Eurobarometer show that those with worst expectations report on average a 7.33% lower life satisfaction, that is to say a coefficient two times larger than the one relative to neutral expectations.

The German General Social Survey in 2008 asked to its respondents whether they agreed or disagreed with the idea that, given the future, one can hardly take responsibility to bring children into the world. Estimates document that those more worried for the future tend to report a 9.25% lower life satisfaction than the others.

Finally, in 2007 the European Quality of Life survey asked about people's optimism for the future in 31 European countries[16]. Life satisfaction and happiness are available, both ranging on a 1 to 10 points scale.

Estimates are in line with previous results and consistent between life satisfaction and happiness. Strongly disagreeing with an optimistic view about the future goes with a 27% lower life satisfaction and a 21% lower happiness than those in the reference group (strongly agreeing). Similarly to the results from the American's Changing Lives survey, the more

[16]The list of countries includes: Belgium, Denmark, Germany, Greece, Spain, Finland, France, Ireland, Italy, Luxembourg, Netherlands, Austria, Portugal, Sweden, Great Britain, Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovak Republic, Slovenia, Turkey, Norway, Croatia and Macedonia.

people tend to agree with an optimistic view about the future, the lower is the relationship with people's well-being.

Summarizing, a set of regressions using different data from various countries, different years and with different wordings provide a substantially consistent picture confirming the results from the WVS. The expectations about the future are strongly associated to people's current well-being, in particular pessimistic (optimistic) expectations significantly lower (increase) people's well-being.

5 Concluding remarks

While the various streams of environmentalism agree in claiming that the current patterns of economic activity are unsustainable for natural resources, they disagree in answering the following question: who is the responsible for this situation? Two different answers have been provided: the people or the socio-economic system.

According to the first answer, the problem lies in people's time preference. The threats posed by the current over-exploitation of resources to their sustainability simply reflect the little importance attributed to the standards of life of future generations by a humanity obsessed by its own ones. According to this view, the problem lies in human nature, that is in its alleged inter-temporal greed. For this reason we label this answer naturalist.

According to the second answer instead, the culprit to target is some feature of the socio-economic system. People would prefer a more sustainable economy but this option is prevented by some systemic failure. This point is supported by a variety of approaches that share the idea that unsustainability is not rooted in the time preference of human beings, rather in some failure of the institutions of our societies. This is the reason why we label this views as institutionalist.

Summarizing, the contrast between the two approaches lies in the capacity of the economic system to reflect the time preference of individuals. In the naturalist view the behavior of the economy mirrors current generations' availability to sacrifice future well-being for the sake of their own one. Conversely, according to the naturalist view the problem lies in some failure of the socio-economic organization that drives the economy to produce more threats for future generations than those considered by people as a reasonable price to be paid for current

economic prosperity.

In this paper we provide a test of the basic hypothesis on which these two views diverge: the degree of people concerns for the very long-term future. We derive information on this issue by estimating the relationship between individuals' current well-being and their expectation about a future far enough to regard only future generations. According to the first view, one would expect the vision of the future of individuals – whatever it is – to have a weak or null influence on their current well-being. Instead, the second view assumes that such influence should be positive and sizable.

To estimate such relationship we use survey data from several international and national data-bases. We proxy current well-being with subjective well-being (SWB) and the expectations of the very long-term future with specific questions on the issue. We run SWB regressions where the standard controls are augmented with the perception of the future. We find that the importance of the latter is comparable to the well-known most important correlates of SWB, as being married or unemployed. In other words current well-being is sharply and negatively (positively) associated to a negative (positive) expectation of the future. This result holds for developed countries as well as for all the countries available in our data-sets. To account for possible endogeneity, we adopt – where possible – a 2SLS method to instrument the expectations about the future. Our instrument is political distrust. We find that expecting the worst (the best) for future generations has a very large negative (positive) impact on subjective well-being.

These results suggest that current problems of sustainability are due to some failure of the socio-economic organization and not to the inter-temporal greed of human beings.

5.1 Policy implications

The institutionalist and the naturalist views have different implications for the design of environmentally-friendly policies. Indeed, it is very different if such policies are aimed at leading the economy to correct (naturalist view) or to respect (institutionalist view) the time preference of individuals.

A relevant instance concerns the "third option" for the management of local commons emerged in the past few decades, beyond the traditional alternatives of governmental regulations and privatization: the empowerment of local communities. A wide range of current

and past experiences analyzed in the past 25 years "challenged the conventional wisdom by demonstrating how local property can be successfully managed by local commons without any regulation by central authorities or privatization".[17]. Contemporary examples of effective management of commons by local communities are not rare not only in developing countries but also in industrialized ones [18].

A pessimistic view of the discount rate tends to consider with pessimism the effectiveness of this third option and more in general of all bottom-up approaches to policies for sustainability. Other examples of this kind of approaches concern education to sustainability and the development of eco-labelling to allow consumers to choose sustainably produced goods. Eco-labelling for instance, is based on the idea that people are willing to pay a higher price for a good that they know to be produced sustainably. Of course, such willingness can only be based on a widespread preference for sustainability.

If the problem is to contrast people's time preferences, to empower people in any form – communitarian included – can hardly be seen as the solution. It is difficult to think that policies aimed at correcting preferences can gain wide consensus, support and participation. These policies imply some doses of coercion because their goal is to bring the economic system not to respect the preferences of individuals. The flavour of this coercion is hardly consistent with any bottom-up approach to collective action for sustainability [19].

Instead, if the goal of policies is to lead the economy to respect the time preference of individuals one can see bottom-up approaches to policies in a more favourable light. In this view, empowering people can solve some of the coordination failures that lead the economy not to respect the discount rate of individuals.

[17] The citation is drawn from the official motivation of the Nobel prize awarded to Elinor Ostrom. Her work (for instance Ostrom, 2000, 1990) is a prominent example of a wide range of anthropological and historical studies documenting literally hundreds of cases in which the regulation mechanisms that have guaranteed for centuries, if not millennia, the sustainability of commons in various parts of the world are not explicable without the extensive use of cooperative mechanisms based on pro-social motives (Bowles and Gintis, 2011)

[18] One may think for instance of the growing experience of urban gardens or to the European experience of recycling of urban waste, in which the most successful shares of recycling (around 85%) have been obtained through the involvement of local communities.

[19] The issue of the possible doses of coercion implied by policies for sustainability has always been present in the environmental debate since its early development. See for example the contrast that opposed two early ecologists, Ehrlich and Commoner, in the '70s. Commoner accused the policies proposed by Ehrlich for slowing population growth of being politically totalitarian and coercive (Ehrlich and Club, 1971, Holden, 1972)

A Descriptive Statistics of the sample of Developed countries from the WVS.

Table 7: Cross-tabulation of happiness and the expectations about the future

	0 *Bright future*	1 *Bleak future*	Total
1 *not at all happy*	40	108	148
2 *not very happy*	297	698	995
3 *quite happy*	3906	3989	7895
4 *very happy*	2484	1570	4054
Total	6727	6365	13092

Table 8: Descriptive statistics of control variables

Variable	*Mean*	*Sd*	*Min*	*Max*	*Obs.*
Female	0.519	0.500	0	1	17463
Married	0.584	0.493	0	1	17405
Living together as married	0.076	0.265	0	1	17405
Divorced	0.053	0.224	0	1	17405
Separated	0.019	0.137	0	1	17405
Widowed	0.063	0.243	0	1	17405
Retired	0.170	0.376	0	1	16404
Housewife	0.115	0.319	0	1	16404
Student	0.057	0.231	0	1	16404
Unemployed	0.056	0.230	0	1	16404
One child	0.141	0.348	0	1	17330
Two children	0.286	0.452	0	1	17330
Three or more children	0.267	0.442	0	1	17330
Living with parents	0.140	0.347	0	1	15000
Age	44.384	16.870	15	95	17407
$\text{Age}^2/100$	22.545	16.421	2.25	90.25	17407
Education level	4.751	2.266	1	8	16114
Income scale	5.489	2.737	1	10	15180

B Regressions with various estimation methods on the sample of Developed countries.

Table 9: Estimates using ordered probit, ordered logit and OLS models on WVS data using life satisfaction as a dependent variable.

	Ordered Probit	Ordered Logit	OLS
bleak future	-0.283^{***}	-0.469^{***}	-0.515^{***}
	(-8.44)	(-7.48)	(-8.42)
woman	0.108^{***}	0.194^{***}	0.166^{**}
	(3.85)	(3.90)	(3.64)
married	0.376^{***}	0.650^{***}	0.664^{***}
	(5.93)	(5.63)	(5.88)
living together	0.346^{***}	0.609^{***}	0.594^{**}
	(4.27)	(4.48)	(4.02)
divorced	0.0111	0.0178	0.0300
	(0.16)	(0.15)	(0.24)
separated	-0.311^{***}	-0.629^{***}	-0.643^{***}
	(-4.93)	(-6.07)	(-5.57)
widowed	0.000789	-0.0349	0.00102
	(0.01)	(-0.27)	(0.01)
retired	-0.0183	-0.0444	-0.0696
	(-0.42)	(-0.50)	(-0.91)
housewife	0.0141	0.0513	0.0188
	(0.38)	(0.93)	(0.28)
student	0.0696	0.114	0.102
	(1.17)	(1.09)	(1.02)
unemployed	-0.375^{***}	-0.685^{***}	-0.741^{**}
	(-3.72)	(-3.73)	(-3.75)
one child	-0.0308	-0.0673	-0.0677
	(-0.97)	(-1.10)	(-1.20)
two children	-0.0666	-0.112	-0.111
	(-1.65)	(-1.68)	(-1.51)
three or more children	-0.0316	-0.0570	-0.0606
	(-0.82)	(-0.86)	(-0.86)
living with parents	-0.0352	-0.0452	-0.0784
	(-0.79)	(-0.57)	(-0.97)
age	-0.0374^{***}	-0.0675^{***}	-0.0680^{***}
	(-7.58)	(-7.30)	(-10.11)
age^2/100	0.0429^{***}	0.0775^{***}	0.0756^{***}
	(8.32)	(7.88)	(11.59)
education level	0.0117	0.0262	0.0296
	(1.27)	(1.57)	(2.00)
scale of income	0.0379^{***}	0.0608^{***}	0.0724^{**}
	(3.99)	(3.60)	(4.28)
Observations	8989	8989	8989
Adjusted R^2			0.134
Pseudo R^2	0.036	0.038	

t statistics in parentheses
Regressors include both year and country dummies, but coefficients are omitted for brevity
$^{*}\ p < 0.05$, $^{**}\ p < 0.01$, $^{***}\ p < 0.001$

Table 10: Estimates using ordered probit, ordered logit and OLS models on WVS data using happiness as a dependent variable.

	Ordered Probit	Ordered Logit	OLS
bleak future	-0.343^{***}	-0.574^{***}	-0.171^{***}
	(-10.37)	(-9.57)	(-8.49)
woman	0.147^{***}	0.257^{***}	0.0711^{**}
	(3.78)	(3.74)	(3.62)
married	0.594^{***}	1.041^{***}	0.294^{***}
	(13.43)	(13.02)	(16.60)
living together	0.477^{***}	0.850^{***}	0.240^{***}
	(10.42)	(10.75)	(10.08)
divorced	0.0397	0.0920	0.00862
	(0.70)	(0.92)	(0.29)
separated	-0.115	-0.235	-0.0697
	(-1.87)	(-1.90)	(-1.94)
widowed	-0.0219	-0.0738	-0.0312
	(-0.24)	(-0.36)	(-0.60)
retired	-0.0369	-0.0685	-0.0228
	(-0.55)	(-0.56)	(-0.64)
housewife	-0.0296	-0.0245	-0.0173
	(-0.56)	(-0.27)	(-0.68)
student	0.0730	0.142	0.0347
	(0.84)	(0.90)	(0.83)
unemployed	-0.273^{*}	-0.500^{*}	-0.152
	(-2.30)	(-2.17)	(-2.21)
one child	-0.121^{***}	-0.219^{***}	-0.0622^{**}
	(-3.64)	(-3.57)	(-3.92)
two children	-0.0527	-0.103	-0.0256
	(-1.35)	(-1.50)	(-1.30)
three or more children	-0.0510	-0.103	-0.0232
	(-0.98)	(-1.02)	(-0.91)
living with parents	0.0776^{*}	0.135	0.0399
	(1.98)	(1.87)	(2.07)
age	-0.0341^{***}	-0.0584^{***}	-0.0173^{***}
	(-4.72)	(-4.33)	(-5.04)
age^2/100	0.0315^{***}	0.0548^{***}	0.0160^{**}
	(4.25)	(4.00)	(4.54)
education level	0.0115^{*}	0.0173	0.00607
	(2.07)	(1.62)	(2.23)
scale of income	0.0241^{**}	0.0372^{*}	0.0116^{*}
	(2.64)	(2.37)	(2.47)
Observations	8965	8965	8965
Adjusted R^2			0.138
Pseudo R^2	0.080	0.079	

t statistics in parentheses
Regressors include both year and country dummies, but coefficients are omitted for brevity
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

C Happiness Regressions

Table 11: Expectations about the future and happiness in developed countries

	happiness	
bleak future	-0.171^{***}	(-8.49)
woman	0.0711^{**}	(3.62)
married	0.294^{***}	(16.60)
living together	0.240^{***}	(10.08)
divorced	0.00862	(0.29)
separated	-0.0697	(-1.94)
widowed	-0.0312	(-0.60)
retired	-0.0228	(-0.64)
housewife	-0.0173	(-0.68)
student	0.0347	(0.83)
unemployed	-0.152	(-2.21)
one child	-0.0622^{**}	(-3.92)
two children	-0.0256	(-1.30)
three or more children	-0.0232	(-0.91)
living with parents	0.0399	(2.07)
age	-0.0173^{***}	(-5.04)
age^2/100	0.0160^{**}	(4.54)
education level	0.00607	(2.23)
scale of income	0.0116^{*}	(2.47)
Constant	3.310^{***}	(43.13)
Observations	8965	
Adjusted R^2	0.138	

t statistics in parentheses

Regressors include both year and country dummies, but coefficients are omitted for brevity.

$^{*}\ p < 0.05$, $^{**}\ p < 0.01$, $^{***}\ p < 0.001$

Table 12: Using political distrust as an instrument for the expectations about the future. The sample includes the Developed countries from the WVS.

	Reduced form	OLS	2SLS
Dependent variable	*Bleak future*	*Happiness*	*Happiness*
bleak future		-0.171^{***}	-0.289^{***}
		(-8.49)	(-3.64)
political distrust	0.176^{***}		
	(12.93)		
woman	0.0279	0.0711^{**}	0.0750^{***}
	(1.01)	(3.62)	(3.65)
married	-0.0208	0.294^{***}	0.291^{***}
	(-1.41)	(16.60)	(16.05)
living together	0.00867	0.240^{***}	0.241^{***}
	(0.44)	(10.08)	(11.17)
divorced	0.0407	0.00862	0.0135
	(1.57)	(0.29)	(0.46)
separated	-0.0784	-0.0697	-0.0787^{*}
	(-1.53)	(-1.94)	(-2.38)
widowed	-0.000778	-0.0312	-0.0325
	(-0.03)	(-0.60)	(-0.65)
retired	0.0514	-0.0228	-0.0169
	(2.18)	(-0.64)	(-0.49)
housewife	-0.0190	-0.0173	-0.0198
	(-1.05)	(-0.68)	(-0.81)
student	-0.0349	0.0347	0.0298
	(-1.51)	(0.83)	(0.77)
unemployed	0.0503^{*}	-0.152	-0.145^{*}
	(2.89)	(-2.21)	(-2.28)
one child	0.0169	-0.0622^{**}	-0.0593^{***}
	(0.67)	(-3.92)	(-3.72)
two children	0.0106	-0.0256	-0.0236
	(1.11)	(-1.30)	(-1.27)
three or more children	-0.00781	-0.0232	-0.0239
	(-0.39)	(-0.91)	(-0.97)
living with parents	0.0275	0.0399	0.0431^{*}
	(1.08)	(2.07)	(2.56)
age	-0.00144	-0.0173^{***}	-0.0174^{***}
	(-0.51)	(-5.04)	(-5.66)
age^2/100	0.000905	0.0160^{**}	0.0161^{***}
	(0.32)	(4.54)	(4.91)
education level	-0.0175^{**}	0.00607	0.00393
	(-4.14)	(2.23)	(1.81)
scale of income	-0.00783^{*}	0.0116^{*}	0.0106^{*}
	(-2.67)	(2.47)	(2.48)
Constant	0.491^{***}	3.310^{***}	3.353^{***}
	(7.33)	(43.13)	(47.33)
Observations	9008	8965	8965
Adjusted R^2	0.134	0.138	–
F-statistics			164.39

t statistics in parentheses
Regressors include both year and country dummies, but coefficients are omitted for brevity.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

D Regression including all the countries in the WVS

Table 13: Availability of data across countries and over time.

	1994	1995	1996	1997	1998	1999	2004	Total
Albania	0	0	0	0	999	0	0	999
Azerbaijan	0	0	0	2002	0	0	0	2002
Argentina	0	1079	0	0	0	0	0	1079
Australia	0	2048	0	0	0	0	0	2048
Bangladesh	0	0	1525	0	0	0	0	1525
Armenia	0	0	0	2000	0	0	0	2000
Bosnia and Herzegovina	0	0	0	0	1200	0	0	1200
Brazil	0	0	0	1149	0	0	0	1149
Bulgaria	0	0	0	1072	0	0	0	1072
Belarus	0	0	2092	0	0	0	0	2092
Chile	0	0	1000	0	0	0	0	1000
China	0	1500	0	0	0	0	0	1500
Taiwan	780	0	0	0	0	0	0	780
Colombia	0	0	0	3029	2996	0	0	6025
Croatia	0	0	1196	0	0	0	0	1196
Czech Republic	0	0	0	0	1147	0	0	1147
Dominican Republic	0	0	417	0	0	0	0	417
El Salvador	0	0	0	0	0	1254	0	1254
Estonia	0	0	1021	0	0	0	0	1021
Finland	0	0	987	0	0	0	0	987
Georgia	0	0	2008	0	0	0	0	2008
Germany	0	0	0	2026	0	0	0	2026
Hungary	0	0	0	0	650	0	0	650
India	0	2040	0	0	0	0	0	2040
Japan	0	1054	0	0	0	0	0	1054
South Korea	0	0	1249	0	0	0	0	1249
Latvia	0	0	1200	0	0	0	0	1200
Lithuania	0	0	0	1009	0	0	0	1009
Mexico	0	0	2364	0	0	0	0	2364
Moldova	0	0	984	0	0	0	0	984
New Zealand	0	0	0	0	1201	0	954	2155
Nigeria	0	1996	0	0	0	0	0	1996
Norway	0	0	1127	0	0	0	0	1127
Pakistan	0	0	0	733	0	0	0	733
Peru	0	0	1211	0	0	0	0	1211
Philippines	0	0	1200	0	0	0	0	1200
Poland	0	0	0	1153	0	0	0	1153
Puerto Rico	0	1164	0	0	0	0	0	1164
Romania	0	0	0	0	1239	0	0	1239
Russian Federation	0	2040	0	0	0	0	0	2040
Slovakia	0	0	0	0	1095	0	0	1095
Slovenia	0	1007	0	0	0	0	0	1007
South Africa	0	0	2935	0	0	0	0	2935
Spain	0	1211	0	0	0	0	0	1211
Sweden	0	0	1009	0	0	0	0	1009
Switzerland	0	0	1212	0	0	0	0	1212
Turkey	0	0	1907	0	0	0	0	1907
Ukraine	0	0	2811	0	0	0	0	2811
Macedonia	0	0	0	0	995	0	0	995
Great Britain	0	0	0	0	1093	0	0	1093
United States	0	1542	0	0	0	0	0	1542
Uruguay	0	0	1000	0	0	0	0	1000
Venezuela	0	0	1200	0	0	0	0	1200
Serbia and Montenegro	0	0	1520	0	0	0	0	1520
Total	780	16681	33175	14173	12615	1254	954	79632

Table 14: List of all countries available in the WVS ordered by level of development.

Developed countries	Developing countries	Transition economies
Australia	Argentina	Albania
Taiwan	Bangladesh	Azerbaijan
Finland	Brazil	Armenia
Germany	Chile	Bosnia and Herzegovina
Japan	China	Bulgaria
South Korea	Colombia	Belarus
New Zealand	Dominican Republic	Croatia
Norway	El Salvador	Czech Republic
Spain	India	Estonia
Sweden	Mexico	Georgia
Switzerland	Nigeria	Hungary
Great Britain	Pakistan	Latvia
United States	Peru	Lithuania
	Puerto Rico	Moldova
	South Africa	Poland
	Turkey	Romania
	Uruguay	Russian Federation
	Venezuela	Slovakia
	Serbia and Montenegro	Slovenia
		Ukraine
		Macedonia

Table 15: Estimated effect of the expectations about the future on happiness considering various groups of countries.

	Developed countries		Transition countries		Developing countries		All countries	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
bleak future	-0.171^{***}	-0.289^{***}	-0.245^{***}	-0.849^{***}	-0.136^{***}	-0.777^{*}	-0.178^{***}	-0.643^{***}
	(-8.49)	(-3.64)	(-17.50)	(-6.32)	(-5.55)	(-2.23)	(-11.22)	(-4.17)
woman	0.0711^{**}	0.0750^{***}	-0.00678	-0.00618	0.0236	0.0257	0.0226^{*}	0.0276^{*}
	(3.62)	(3.65)	(-0.70)	(-0.54)	(1.34)	(1.68)	(2.17)	(2.40)
married	0.294^{***}	0.291^{***}	0.195^{***}	0.194^{***}	0.170^{***}	0.174^{***}	0.204^{***}	0.203^{***}
	(16.60)	(16.05)	(7.16)	(5.97)	(5.95)	(5.56)	(10.55)	(9.88)
living together	0.240^{***}	0.241^{***}	0.105^{**}	0.111^{***}	0.0561	0.0561	0.103^{***}	0.102^{***}
	(10.08)	(11.17)	(3.90)	(4.00)	(1.22)	(1.42)	(3.56)	(3.93)
divorced	0.00862	0.0135	-0.134^{***}	-0.119^{***}	-0.0848	-0.0516	-0.0828^{**}	-0.0617^{*}
	(0.29)	(0.46)	(-4.32)	(-3.50)	(-1.60)	(-1.11)	(-2.96)	(-2.24)
separated	-0.0697	-0.0787^{*}	-0.131	-0.106	-0.0979	-0.0756	-0.0938^{**}	-0.0885^{*}
	(-1.94)	(-2.38)	(-1.68)	(-1.39)	(-1.88)	(-1.39)	(-2.79)	(-2.42)
widowed	-0.0312	-0.0325	-0.0795^{*}	-0.0772^{*}	-0.0863	-0.0889	-0.0768^{**}	-0.0763^{**}
	(-0.60)	(-0.65)	(-2.19)	(-2.38)	(-1.86)	(-1.54)	(-2.80)	(-2.60)
retired	-0.0228	-0.0169	-0.00373	0.0125	0.0466	0.0534	-0.00318	0.0140
	(-0.64)	(-0.49)	(-0.13)	(0.43)	(1.05)	(1.26)	(-0.14)	(0.63)
housewife	-0.0173	-0.0198	-0.0173	-0.0364	0.0544	0.0622	0.0277	0.0236
	(-0.68)	(-0.81)	(-0.54)	(-1.08)	(1.42)	(1.64)	(1.06)	(0.84)
student	0.0347	0.0298	0.0206	-0.00202	0.0183	0.00867	0.0273	0.0166
	(0.83)	(0.77)	(0.75)	(-0.07)	(1.00)	(0.49)	(1.91)	(1.19)
unemployed	-0.152	-0.145^{*}	-0.135^{***}	-0.124^{***}	-0.0808^{*}	-0.0800^{*}	-0.107^{***}	-0.100^{***}
	(-2.21)	(-2.28)	(-4.16)	(-4.13)	(-2.73)	(-2.41)	(-5.12)	(-4.57)
one child	-0.0622^{**}	-0.0593^{***}	0.00445	0.00973	-0.0461	-0.0564	-0.0403^{*}	-0.0405
	(-3.92)	(-3.72)	(0.20)	(0.40)	(-1.33)	(-1.46)	(-2.14)	(-1.94)
two children	-0.0256	-0.0236	0.0382	0.0534^{*}	-0.0574	-0.0549	-0.0259	-0.0199
	(-1.30)	(-1.27)	(1.62)	(2.05)	(-1.56)	(-1.30)	(-1.25)	(-0.85)
three or more children	-0.0232	-0.0239	0.0464	0.0565^{*}	-0.0988	-0.105^{*}	-0.0412	-0.0435
	(-0.91)	(-0.97)	(1.66)	(2.00)	(-2.01)	(-2.01)	(-1.50)	(-1.48)
living with parents	0.0399	0.0431^{*}	0.0149	0.0238	0.0196	0.00881	0.0264	0.0242
	(2.07)	(2.56)	(0.76)	(1.05)	(0.77)	(0.33)	(1.65)	(1.43)
age	-0.0173^{***}	-0.0174^{***}	-0.0244^{***}	-0.0228^{***}	-0.0132^{***}	-0.0136^{***}	-0.0177^{***}	-0.0179^{***}
	(-5.04)	(-5.66)	(-8.09)	(-7.45)	(-4.36)	(-4.69)	(-8.32)	(-8.37)
age^2/100	0.0160^{**}	0.0161^{***}	0.0207^{***}	0.0191^{***}	0.0140^{***}	0.0144^{***}	0.0167^{***}	0.0168^{***}
	(4.54)	(4.91)	(5.77)	(5.66)	(4.46)	(4.79)	(7.85)	(7.69)
education level	0.00607	0.00393	0.0200^{***}	0.0155^{***}	0.0148^{*}	0.0231^{***}	0.0156^{***}	0.0163^{***}
	(2.23)	(1.81)	(4.62)	(4.57)	(2.55)	(3.89)	(4.37)	(4.05)
scale of income	0.0116^{*}	0.0106^{*}	0.0285^{***}	0.0266^{***}	0.0356^{***}	0.0375^{***}	0.0292^{***}	0.0288^{***}
	(2.47)	(2.48)	(4.42)	(4.90)	(5.19)	(5.03)	(6.41)	(5.66)
Constant	3.310^{***}	3.353^{***}	2.928^{***}	2.715^{***}	3.397^{***}	3.868^{***}	3.223^{***}	3.364^{***}
	(43.13)	(47.33)	(51.26)	(43.02)	(45.01)	(12.74)	(58.09)	(40.77)
Observations	8965	8965	14647	14647	21558	21558	45170	45170
Adjusted R^2	0.138	–	0.156	–	0.089	–	0.210	–
F-statistic		164.39		72.35		31.1		131.28

t statistics in parentheses
Regressors include control variables, year and country dummies, but coefficients are omitted for brevity. All the regressions include robust standard errors clustered by year and country.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

E Estimation using different data-sets

Table 16: General Social Survey, Ordered probit estimates for happiness

	(1)	(2)	(3)
happy			
unfair to give birth to child	-0.360^{***}	-0.361^{***}	-0.279^{***}
	(-21.45)	(-21.42)	(-14.85)
woman			0.166^{***}
			(8.37)
married			0.387^{***}
			(12.60)
widowed			-0.205^{***}
			(-4.48)
divorced			-0.115^{**}
			(-3.01)
separated			-0.255^{***}
			(-4.58)
part-time			-0.0385
			(-1.28)
temporary no work			-0.136^{*}
			(-2.34)
unemployed			-0.396^{***}
			(-7.31)
retired			0.0184
			(0.47)
school			0.0777
			(1.44)
housekeeping			-0.0598^{*}
			(-2.11)
other			-0.178^{*}
			(-2.05)
one child			-0.141^{***}
			(-4.63)
two children			-0.0747^{*}
			(-2.43)
three or more children			-0.100^{**}
			(-3.10)
age of respondent			-0.0167^{***}
			(-4.62)
age^2/100			0.0232^{***}
			(6.12)
degree			0.0173^{*}
			(1.96)
Inflation-adjusted family income (log)			0.151^{***}
			(12.45)
number of persons in household			-0.0135
			(-1.84)
cut1			
Constant	-1.317^{***}	-1.366^{***}	0.141
	(-98.97)	(-41.81)	(1.00)
cut2			
Constant	0.314^{***}	0.267^{***}	1.873^{***}
	(28.52)	(8.45)	(13.25)
Observations	19665	19665	17972
Pseudo R^2	0.013	0.014	0.054

Marginal effects; *t* statistics in parentheses
(1) The only regressor is the expectation about the future
(2) and (3) Regressors include year dummies, but coefficients are omitted for brevity
(d) for discrete change of dummy variable from 0 to 1
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 17: Dependent variable: happiness. Using confidence in the scientific community as an instrument for the expectations about the future.

	Reduced form	OLS	2SLS
main			
confidence in scientific community	0.200^{***}		
	(10.37)		
woman	0.0307	0.0840^{***}	0.105^{***}
	(1.27)	(8.98)	(8.53)
married	-0.0261	0.209^{***}	0.200^{***}
	(-0.61)	(12.96)	(9.51)
widowed	0.00646	-0.106^{***}	-0.115^{***}
	(0.10)	(-4.33)	(-3.49)
divorced	0.109^{*}	-0.0578^{**}	-0.0320
	(2.03)	(-2.84)	(-1.16)
separated	0.227^{**}	-0.137^{***}	-0.0655
	(3.03)	(-4.59)	(-1.59)
one child	0.00394	-0.0779^{***}	-0.0727^{***}
	(0.09)	(-4.86)	(-3.49)
two children	-0.00730	-0.0422^{**}	-0.0321
	(-0.18)	(-2.62)	(-1.54)
three or more children	-0.0612	-0.0558^{**}	-0.0541^{*}
	(-1.41)	(-3.27)	(-2.41)
age of respondent	0.0133^{**}	-0.00994^{***}	-0.00736^{**}
	(2.79)	(-5.35)	(-2.81)
age^2/100	-0.0136^{**}	0.0135^{***}	0.0116^{***}
	(-2.80)	(7.24)	(4.36)
degree	-0.291^{***}	0.0114^{*}	-0.0511^{***}
	(-22.08)	(2.49)	(-3.41)
Inflation-adjusted family income (log)	-0.184^{***}	0.0859^{***}	0.0488^{***}
	(-11.69)	(13.66)	(3.84)
number of persons in household	0.00604	-0.00772^{*}	-0.00542
	(0.64)	(-1.98)	(-1.09)
o.year==1985	0	-0.0386	0
	$(.)$	(-1.66)	$(.)$
unfair to give birth to child		-0.151^{***}	-0.744^{***}
		(-15.03)	(-5.39)
Constant	1.176^{***}	1.414^{***}	1.986^{***}
	(6.64)	(19.99)	(11.58)
Observations	12795	17972	12724
Adjusted R^2		0.093	.

t statistics in parentheses
Regressors include year dummies, but coefficients are omitted for brevity.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 18: American's Changing Lives W4 (2002), Ordered probit estimates for life satisfaction.

	(1)		(2)	
life satisfaction				
futhop==2	-0.270^{***}	(-4.28)	-0.322^{***}	(-4.90)
futhop==3	-0.437^{***}	(-5.08)	-0.562^{***}	(-6.11)
futhop==4	-0.498^{***}	(-3.59)	-0.589^{***}	(-4.13)
female			0.000229	(0.00)
married			0.256^{**}	(2.65)
separated			-0.0389	(-0.22)
divorced			-0.254^{*}	(-2.22)
widowed			-0.0800	(-0.63)
unemployed			-0.397^{**}	(-2.66)
retired			-0.0750	(-0.89)
disabled			-0.456^{**}	(-2.84)
housekeeping			-0.0407	(-0.40)
student			0.0123	(0.02)
age			0.0157	(1.06)
age^2/100			0.000468	(0.03)
9 < educ <= 11 years			-0.175	(-1.25)
educ = 12 years			-0.249^{*}	(-1.96)
13 < educ <= 15 years			-0.350^{**}	(-2.69)
educ > 16 years			-0.283^{*}	(-2.14)
Observations	1656		1654	
Pseudo R^2	0.012		0.043	

Marginal effects; *t* statistics in parentheses

Variable of interest:

The future seems hopeless to me and I can't believe that things are changing for the better

on a scale where 1 Strongly disagree and 4 Strongly agree

(d) for discrete change of dummy variable from 0 to 1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 19: Eurobarometer 72.4 (Oct-Nov 2009), Ordered probit estimates for life satisfaction.

	(1)		(2)		(3)	
life satisfaction						
lifefut==2	-0.0545^{**}	(-2.79)	-0.0849^{***}	(-4.09)	-0.101^{***}	(-4.79)
lifefut==3	-0.150^{***}	(-9.04)	-0.251^{***}	(-13.87)	-0.214^{***}	(-11.55)
woman					0.0333^{*}	(2.43)
married					0.257^{***}	(11.87)
living with partner					0.119^{***}	(4.25)
divorced					-0.105^{**}	(-3.29)
widowed					-0.0579	(-1.75)
student					0.507^{***}	(12.14)
unemployed					-0.584^{***}	(-22.90)
retired					-0.0628^{**}	(-2.71)
age					-0.0432^{***}	(-15.98)
age^2/100					0.0415^{***}	(15.21)
15 years					0.0822^{*}	(2.49)
16 years					0.160^{***}	(4.93)
17 years					0.160^{***}	(4.95)
18 years					0.276^{***}	(10.35)
19 years					0.318^{***}	(10.23)
20 years					0.298^{***}	(7.97)
21 years					0.433^{***}	(10.33)
22+ years					0.522^{***}	(19.02)
no full-time education					-0.139^{*}	(-2.03)
cut1						
Constant	-1.562^{***}	(-91.47)	-1.996^{***}	(-48.91)	-2.684^{***}	(-34.92)
cut2						
Constant	-0.738^{***}	(-48.95)	-1.056^{***}	(-26.85)	-1.687^{***}	(-22.25)
cut3						
Constant	0.727^{***}	(48.25)	0.658^{***}	(16.82)	0.111	(1.48)
Observations	29011		29011		28488	
Pseudo R^2	0.001		0.108		0.142	

Marginal effects; *t* statistics in parentheses
Variable of interest:
Generally speaking, do you think that the life of those who are children today will be easier,
more difficult or neither easier nor more difficult than the life of those from your own generation?
1 is Easier, 2 Neither easier nor more difficult, and 3 is more difficult
(1) The only regressor is the expectation about the future
(2) and (3) Regressors include only country dummies, but coefficients are omitted for brevity
(d) for discrete change of dummy variable from 0 to 1
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 20: ALLBUS - German General Social Survey, Ordered probit estimates for life satisfaction.

	(1)		(2)	
life satisfaction				
no more children with this future	-0.457^{***}	(-7.69)	-0.364^{***}	(-5.26)
woman			-0.0234	(-0.32)
married			0.412^{***}	(3.50)
separated			-0.911^{***}	(-4.09)
widowed			-0.0816	(-0.48)
divorced			-0.0393	(-0.26)
part-time emp.			0.00672	(0.05)
along-side job			0.263	(1.75)
unemployed			-0.0481	(-0.52)
number of persons in household			-0.000608	(-0.02)
age			-0.0473^{***}	(-3.65)
age^2/100			0.0427^{***}	(3.39)
degree			0.0391	(1.36)
net household income (log)			0.322^{***}	(4.84)
Observations	1605		1296	
Pseudo R^2	0.021		0.080	

Marginal effects; *t* statistics in parentheses

Variable of interest:

Given the future, one can hardly take responsibility to bring children into the world.

1 is agree and 0 is disagree

(1) The only regressor is the variable of interest. (2) Regressors also include control variables.

(d) for discrete change of dummy variable from 0 to 1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 21: Dependent variable: life satisfaction. Using distrust in the parliament as an instrument for the expectations about the future.

	Reduced form	OLS	2SLS
Main activity last 7 days			
Trust in country's parliament	-0.00360^{***}	0.0208^{***}	
	(-7.59)	(3.73)	
gender (gndr recoded)	-0.0236^{*}	-0.0937	-0.231^{*}
	(-2.09)	(-1.76)	(-2.49)
marsts==Legally married	0.162^{***}	-0.420	0.522
	(3.54)	(-1.78)	(1.15)
marsts==In a legally registered civil union	0.183	-0.330	0.895
	(1.75)	(-1.81)	(1.18)
marsts==Legally separated	0.135	-0.688	0.183
	(1.69)	(-1.53)	(0.26)
marsts==Legally divorced/civil union dissolved	0.0673^{***}	-0.594^{***}	-0.202
	(3.32)	(-5.56)	(-1.04)
marsts==Widowed/civil partner died	0.0957^{***}	-0.372^{**}	0.172
	(4.23)	(-2.81)	(0.69)
employment contract	-0.118^{***}	0.283^{***}	-0.413
	(-8.43)	(4.14)	(-1.79)
Age of respondent, calculated	0.00836^{***}	0.00476^{*}	0.0551^{***}
	(20.14)	(2.41)	(3.45)
age squared / 100	-0.000812^{***}	-0.000409	-0.00529^{***}
	(-18.83)	(-1.64)	(-3.39)
Number of people living regularly as member of household	-0.00676	-0.000854	-0.0415
	(-1.89)	(-0.08)	(-1.47)
Household's total net income, all sources	-0.000658^{**}	0.00626^{***}	0.00249
	(-3.16)	(4.70)	(1.15)
_Ifuthop_2		-0.313^{*}	
		(-2.03)	
_Ifuthop_3		-0.678^{***}	
		(-4.25)	
_Ifuthop_4		-1.094^{***}	
		(-6.87)	
_Ifuthop_5		-1.320^{***}	
		(-6.53)	
RECODE of nhpftr (Hard to be hopeful about the future of the world)			-6.608^{***}
			(-3.49)
Constant		7.739^{***}	27.38^{***}
		(42.84)	(4.73)
cut1			
Constant	-1.683^{***}		
	(-42.43)		
cut2			
Constant	-0.453^{***}		
	(-11.85)		
cut3			
Constant	0.271^{***}		
	(7.11)		
cut4			
Constant	1.488^{***}		
	(38.32)		
Observations	34529	34529	34529
Adjusted R^2		0.041	

t statistics in parentheses
Regressors include country dummies, but coefficients are omitted for brevity.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 22: Dependent variable: happiness. Using distrust in the parliament as an instrument for the expectations about the future.

	Reduced form	OLS	2SLS
Main activity last 7 days			
Trust in country's parliament	−0.00360***	0.0200***	
	(−7.59)	(3.45)	
gender (gndr recoded)	−0.0236*	−0.211**	−0.344***
	(−2.09)	(−3.09)	(−3.48)
marsts==Legally married	0.162***	−0.419	0.488
	(3.54)	(−1.53)	(1.04)
marsts==In a legally registered civil union	0.183	−0.0800	1.104
	(1.75)	(−0.50)	(1.44)
marsts==Legally separated	0.135	−0.535	0.309
	(1.69)	(−1.26)	(0.46)
marsts==Legally divorced/civil union dissolved	0.0673***	−0.517***	−0.138
	(3.32)	(−3.81)	(−0.64)
marsts==Widowed/civil partner died	0.0957***	−0.891***	−0.365
	(4.23)	(−5.59)	(−1.48)
employment contract	−0.118***	0.225**	−0.447
	(−8.43)	(2.81)	(−1.79)
Age of respondent, calculated	0.00836***	0.00969***	0.0583***
	(20.14)	(3.91)	(3.53)
age squared / 100	−0.000812***	−0.000367	−0.00508**
	(−18.83)	(−0.90)	(−3.09)
Number of people living regularly as member of household	−0.00676	0.0135	−0.0261
	(−1.89)	(1.09)	(−0.95)
Household's total net income, all sources	−0.000658**	0.00554***	0.00192
	(−3.16)	(3.66)	(0.87)
_Ifuthop_2		−0.384*	
		(−2.14)	
_Ifuthop_3		−0.591**	
		(−3.19)	
_Ifuthop_4		−1.100***	
		(−6.07)	
_Ifuthop_5		−1.338***	
		(−6.18)	
RECODE of nhpftr (Hard to be hopeful about the future of the world)			−6.389***
			(−3.32)
Constant		7.849***	26.82***
		(36.84)	(4.57)
cut1			
Constant	−1.683***		
	(−42.43)		
cut2			
Constant	−0.453***		
	(−11.85)		
cut3			
Constant	0.271***		
	(7.11)		
cut4			
Constant	1.488***		
	(38.32)		
Observations	34529	34529	34529
Adjusted R^2		0.018	.

t statistics in parentheses
Regressors include country dummies, but coefficients are omitted for brevity.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 23: European Quality of Life - Sept-2008, OLS estimates for life satisfaction.

	(1)		(2)		(3)	
futopt==2	-0.608^{***}	(-18.90)	-0.524^{***}	(-16.94)	-0.531^{***}	(-14.26)
futopt==3	-1.499^{***}	(-42.01)	-1.246^{***}	(-35.43)	-1.107^{***}	(-25.77)
futopt==4	-2.177^{***}	(-52.19)	-1.923^{***}	(-47.11)	-1.766^{***}	(-35.46)
futopt==5	-3.226^{***}	(-46.45)	-2.887^{***}	(-42.74)	-2.621^{***}	(-32.15)
woman					0.0708^{**}	(2.76)
married or living together					0.303^{***}	(6.23)
separated or divorced					-0.313^{***}	(-5.20)
widowed					-0.188^{**}	(-2.93)
unemployed					-0.779^{***}	(-12.28)
home making					-0.00172	(-0.04)
retired					-0.0378	(-0.72)
one child					0.136^{**}	(3.01)
two children					0.148^{**}	(3.27)
three or more children					0.152^{**}	(2.95)
age					-0.0441^{***}	(-8.92)
age^2/100					0.0482^{***}	(9.88)
Household income PPP (log)					0.489^{***}	(22.63)
number of people in household					0.0404^{**}	(3.11)
Constant	8.006^{***}	(280.94)	8.597^{***}	(141.19)	5.709^{***}	(26.99)
Observations	35065		35065		22632	
Adjusted R^2	0.152		0.257		0.333	

t statistics in parentheses
Variable of interest:
I am optimistic about the future, graded on a scale from 1 to 5, where 1 is strongly agree and 5 is strongly disagree
(1) The only regressor is the variable of interest
(2) Regressors include country dummies, but coefficients are omitted for brevity
(3) Regressors include control variables and country dummies, but coefficients of the latter are omitted for brevity.
$^{*}\ p < 0.05$, $^{**}\ p < 0.01$, $^{***}\ p < 0.001$

Table 24: European Quality of Life - Sept-2008, OLS estimates for happiness.

	(1)		(2)		(3)	
futopt==2	-0.544^{***}	(-19.61)	-0.513^{***}	(-18.66)	-0.472^{***}	(-14.27)
futopt==3	-1.230^{***}	(-39.33)	-1.113^{***}	(-35.19)	-0.925^{***}	(-23.84)
futopt==4	-1.741^{***}	(-46.73)	-1.628^{***}	(-43.53)	-1.388^{***}	(-30.50)
futopt==5	-2.507^{***}	(-38.77)	-2.347^{***}	(-36.80)	-2.035^{***}	(-26.41)
woman					0.0705^{**}	(2.98)
married or living together					0.440^{***}	(9.69)
separated or divorced					-0.344^{***}	(-5.97)
widowed					-0.368^{***}	(-6.07)
unemployed					-0.526^{***}	(-9.02)
home making					-0.0292	(-0.70)
retired					-0.0994^{*}	(-2.03)
one child					0.157^{***}	(3.70)
two children					0.194^{***}	(4.60)
three or more children					0.204^{***}	(4.21)
age					-0.0487^{***}	(-10.56)
age^2/100					0.0446^{***}	(9.69)
Household income PPP (log)					0.362^{***}	(18.27)
number of people in household					0.0483^{***}	(3.93)
Constant	8.260^{***}	(340.36)	8.728^{***}	(160.86)	6.868^{***}	(35.59)
Observations	34963		34963		22605	
Adjusted R^2	0.116		0.185		0.266	

t statistics in parentheses
Variable of interest:
I am optimistic about the future, graded on a scale from 1 to 5, where 1 is strongly agree and 5 is strongly disagree
(1) The only regressor is the variable of interest
(2) Regressors include country dummies, but coefficients are omitted for brevity
(3) Regressors include control variables and country dummies, but coefficients of the latter are omitted for brevity.
$^{*}\ p < 0.05$, $^{**}\ p < 0.01$, $^{***}\ p < 0.001$

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