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How do economic growth and social capital shape subjective well-being? Old question, new method

Małgorzata Mikucka
Universite catholique de Louvain Belgium & LCSR Russia

Francesco Sarracino
STATEC Luxembourg, Gesis Germany & LCSR Russia

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DRAFT

Abstract

The work of Easterlin questioned the relationship between economic growth and life satisfaction. Subsequent research on “Easterlin paradox” provided conflicting evidence, which suggests that the paradox holds in some conditions but not in others. However, these conditions were only rarely investigated by the literature, in part because the debate has been limited by use of country-level aggregated data. Our paper fills this gap by investigating the relationship between economic growth and life satisfaction with individual-level data. Additionally, we test the hypotheses that economic growth has positive effect on subjective well-being in the presence of high social capital and low income inequality.

We use large comparative data set of World Values Survey and European Values Study. Multilevel regression allows us to estimate the effect of GDP and economic growth on individual subjective well-being, controlling for its individual-level determinants. We also test if social capital and income inequality moderate this relationship.

Our results show that the Easterlin paradox, stating that economic growth does not increase people’s well-being, is true only under specific conditions. In particular, in developed countries, economic growth has a positive effect on life satisfaction if it occurs in conditions of low growth of income inequality, high levels of social trust, and high growth of social capital. However, our results also show that economic growth had a predominantly negative effect on subjective well-being in developing countries.

Our study is the first one to re-examine Easterlin paradox with multilevel model and to investigate the conditions under which it holds. Our results point out to the importance of socially sustainable economic growth.

Comments received during the previous presentation

1. it would be interesting to add interaction terms to verify in which conditions does economic growth contribute to life satisfaction, and in which it does not
we investigated interaction terms to account for the levels and changes of income inequality and social capital
2. we got suggestion to improve the description to make clear the contribution of the paper
we edited the text
3. we got suggestion to clarify the data and method section
we edited the text

1 Introduction

There seems to be few doubts that the history of human societies is characterized by the quest for better lives. Generation by generation, people have constantly tried to improve their life experience. However, discrepancies arise when it comes to establish how to pursue quality of life and, in particular, what is the role of economic growth. Indeed, the pursue of better lives has been going hand in hand with material improvements and it is strictly connected with economic growth. Not by chance people's quality of life has significantly improved over the last two centuries, i.e. the same period when modern economic systems were born and developed. This was also the period when the belief matured that income is a good proxy of well-being and that economic growth is the way to pursue better lives.

However, the recent development of social sciences, and in particular of economics, questioned the role of economic growth for well-being. Three main views seem to prevail in this regard: 1. economic growth does not improve people's lives; 2. economic growth improves people's lives; 3. economic growth matters, but other aspects – such as social capital – matter more.

According to the first view, initially supported by Richard Easterlin's evidence of a null relationship between economic growth and well-being over time (Easterlin, 1974), GDP is not a reliable measure of people's well-being and policy-makers should give up the idea of promoting economic growth if they are interested in durable improvements in people's well-being (Easterlin and Angelescu, 2009, Easterlin et al., 2010).

The second view, instead, radically rejects the hypothesis that economic growth is not correlated to well-being. According to this view, GDP is a good measure of well-being and current economic policies are the ways to enhance people's well-being (Deaton, 2008, Inglehart et al., 2008, Sacks et al., 2010, Veenhoven and Vergunst, 2013).

The third view acknowledges that economic growth is not the only ingredient of well-being and that also other aspects, such as social capital, freedom and tolerance, matter for well-being (Bartolini et al., 2013a,b, Bruni and Porta, 2007). According to this view, policies to enhance people's well-being should made economic growth compatible with people's relational needs, i.e. with those aspects coming from the relationships with others and with the surrounding environment.

Summarizing, the current academic and political discussion concerns the role of economic growth for well-being, and whether and in which direction we should change modern economic policies. However, large part of the literature supporting these alternative views relies on country aggregate data to analyze individuals' characteristics. The fact that one of the main variables, economic growth, is clearly a country-level factor, pushed researchers towards research designs in which the countries were the units of analysis. As a result, individual-level variables such as life satisfaction, happiness, membership in groups or associations, or trust in others were also aggregated at national level and included as country characteristics. However, this strategy is subject to many shortcomings. For example, since the dependent variable – subjective well-being – is individual in nature, the inferences based on aggregate data may conceal the within-country variation, thus creating a risk of ecological fallacy. Such design does not allow to distinguish between the effects of country- and individual-level factors, for example income and GDP, or individual membership and membership prevalent in a country. In such cases, multilevel regression is a better inference method as it allows to properly combine individual and aggregate level variables, maximizing the use of the available information. However, so far this technique has not been used in the debate about economic growth and well-being.

Moreover, the analyses using aggregate data rely usually on small sample sizes as the number of countries available for the analysis – especially countries with sufficiently long time-series – is limited. In this respect, the techniques currently adopted summarize a large amount and variability of information in single measures at the cost of losing precision and power. A

possible way to overcome this shortcoming is to use information on several time points for each country, rather than characterizing each country with a single value representing the time trend of the variable of interest (Goldthorpe, 1997). This strategy would increase the number of observations, the degrees of freedom, and would result in more accurate estimates.

This point is particularly relevant because previous analyses – relying on aggregated, country-level data – drew their conclusions from simple bivariate correlations, or from regression models with just one or two predictors. This design is partially imposed by the small size of the samples (and low number of degrees of freedom) available for these studies. This implies that current results might be the outcome of some spurious correlations due to the omission of potential confounding variables.

Finally, part of the literature misses to explicitly distinguish between relationships between the levels (observed at single point in time) and the relationships between trends (i.e. changes which occur within countries). Although this distinction is sometimes neglected in interpreting regression results, it is relevant in this particular field of study. The Easterlin paradox, as well as the broader literature on the topic, is based on the evidence that the cross-sectional relationships (e.g., between levels of subjective well-being and GDP) differ from the relationships between the changes over time (e.g. between economic growth and changes of subjective well-being over time). For this reason, explicitly accounting for the difference between levels and trends of macro factors would allow to refine previous results improving their reliability.

The aim of this study is to contribute to the literature on subjective well-being overcoming the methodological limitations of previous work to provide evidence in two regards: 1. the role of economic growth for well-being over time; 2. the conditions under which economic growth improves people's well-being.

We adopt a large sample of developed, developing, and transition countries surveyed over a period of about 30 years, from early 1980s to late 2000s, using World Values Survey and European Values Study data (WVS-EVS), and multilevel regression analysis. This technique allows to account for the effect of both macro factors and individual-level variables, thus overcoming the methodological weaknesses of large part of the existing research. Accounting for several time points for each country allows us to increase the macro-level sample size, as well as to explicitly distinguish between the levels of the macro factors and their trends. Furthermore, the literature only rarely examined the conditions under which economic growth exerts a positive effect on subjective well-being. Previous studies documented that factors such as social capital or income inequality are important ingredients of people's well-being. It is plausible that these factors mediate the role of economic growth for well-being. Our analysis explicitly tests the hypothesis that economic growth positively affects people's subjective well-being when it is accompanied by low income inequality and high social capital.

The paper proceeds as follows: in the next section we summarize the current state of the literature on the role of economic growth for well-being. Section 3 illustrates the data and the method adopted in the analysis. We describe our results in section 4, whereas section 5 draws the conclusion of our work, the policy implications and the lines for future research.

2 The debate on economic growth and well-being

In recent years the public and scientific debate has paid considerable attention to subjective well-being. The number of scientific articles, conferences and journals dealing with people's well-being increased significantly. The media, from magazines to TV shows, have been increasingly ready to report the latest discoveries and to emphasize their implications for people's lives. This debate became so relevant that governments, international institutions and political organizations started coining this knowledge into policy-oriented guidelines for better societies. For example, in 2007 the European Commission and other organizations hosted a conference titled "Beyond GDP" leading – two years later – to the institution's commitment to

improve Europeans' quality of life (European Commission, 2009). At the same time the French Economic Commission directed by Stiglitz, Sen and Fitoussi (Stiglitz et al., 2009) published a report recommending the development of indices of well-being to supplement the more commonly used income-based measures. In the same vein, in 2011 the Organization for Economic Co-operation and Development (OECD) launched the "Better Life Initiative" to bring together internationally comparable measures of well-being and to inform about how well people are doing in modern societies (OECD, 2011).

The information underlying the whole debate is trivial for it comes from a very simple question: in the course of surveys, people are asked to evaluate their lives as a whole, i.e. their subjective well-being. Usually these questions ask directly the respondents to state how happy or satisfied with their lives they are. For example, subjective well-being, sometimes also referred to as "happiness" or "life satisfaction", is usually observed through answers to survey questions such as: "Taking all things together, how happy would you say you are?" or "All things considered, how satisfied are you with your life as a whole these days?" (van Praag et al., 2003).

These measures proved to be reliable sources of information about individuals' well-being and, in the last decades, have been employed in many fields of applied social research, including testing the hypothesis that economic growth improves the human lot. The reliability of these measures has been corroborated by experimental evidence from several disciplines. For example, subjective well-being correlates 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 (Schimmack et al., 2010, Schwarz and Strack, 1999, Wanous and Hudy, 2001) and with the judgements about the respondent's happiness provided by friends, relatives or clinical experts (Kahneman and Krueger, 2006, Layard, 2005, Schneider and Schimmack, 2009).

The reliability and the wide availability of these measures allowed to adopt these tools in various domains. For example, happiness measures have been adopted in macro as well as micro-economics (Alesina et al., 2004, Di Tella and MacCulloch, 2008), they have been used for policy evaluations and to study poverty and inequality (Clark et al., 2013, 2012, Diener et al., 2009). Happiness measures have also been used to analyse the impact of non economic aspects such as age, gender, marital and employment status on well-being (Powdthavee, 2007, Stutzer and Frey, 2012) as well as the relationship between the quality of political institutions and subjective well-being (Frey and Stutzer, 2000).

Probably the reason why the debate on subjective well-being became so prominent is because happiness measures allow to answer a fundamental question: after years of almost uninterrupted economic growth, to what extent have modern societies truly benefited? Paraphrasing Easterlin (1974): did economic growth keep its promise of improving the human lot?

The answer to this question is ambiguous: some scholars argue that contemporary societies should not expect significant improvements for well-being from economic growth (Easterlin, 1974); some others contend this result showing that economic growth and increasing well-being are associated over time (see e.g. Deaton, 2008, Sacks et al., 2010, Stevenson and Wolfers, 2008, Veenhoven and Vergunst, 2013); other scholars point out that the sign of the relationship between these two dimensions is a matter of the considered countries (developed and developing countries vs. transition countries) or of the considered time perspective: economic growth and the trends of well-being are associated in the short run, but this correlation vanishes in the long run (Becchetti et al., 2011, Clark et al., 2012, Easterlin and Angelescu, 2009, Easterlin et al., 2010).

Hence, to date, whether economic growth brings about a higher well-being or not is still a debated issue. However, the literature on quality of life pointed out that beyond economic growth, other factors matter for well-being and, among these, social capital seems to be a

particularly relevant one (Bartolini et al., 2013a, Helliwell, 2002, 2008, Uhlaner, 1989).

Consistently with the definitions provided by Putnam (2000) and the OECD (2001), these studies consider social capital as “networks together with shared norms, values and understandings that facilitate co-operation within or among groups” (OECD, 2001, p. 41). Remarkably, a number of recent experiments document that social capital is related to subjective well-being. In particular, it seems that the relational quality of people’s experience, that is to say the quality of the relationships among people, has a predominant impact on well-being (Becchetti et al., 2009, Bruni and Stanca, 2008, Helliwell, 2006, Helliwell and Putnam, 2004).

2.1 Role of social capital

What do we know about the relationship between economic growth, social capital and well-being? A large share of the economic literature agrees on ascribing an important role to social capital in enhancing economic growth. Recent economic research pointed to social capital as a catalyst of economic interactions. Many works refer to Arrow’s words describing trust as one of the elements of every commercial transaction and ascribing some of the backwardness in the world - at least in part - to the lack of confidence in other people (Arrow, 1972).

Many empirical works found evidence of a positive cross-sectional correlation between proxies of social capital and economic growth (Beugelsdijk et al., 2004, della Giusta, 2010, La Porta et al., 1999, Whiteley, 2000, Zak and Knack, 2001). For example, Knack and Keefer (1997) – one of the most cited works in this field – find that economic performance and social capital, as proxied by trust and civic cooperation, are strongly and positively associated. Similarly, Helliwell and Putnam (1995) investigating Italian regions find a positive association between levels of “civic community” and GDP growth rates between 1950 and 1990 after controlling for the initial income level. In a similar vein, Narayan and Pritchett (1997) find evidence that higher levels of social capital, as proxied by group membership, are correlated with higher incomes.

There are many reasons to argue that social capital supports economic growth. Social capital lowers the possibilities for opportunistic behaviors and makes economic transactions safer and cheaper. This - in turn - makes people free to devote their energies to develop new techniques and investing in productive activities rather than protecting themselves from opportunistic behaviors. Hence, it is commonly held that more social capital, in the form of more trust, frees economic resources and enhances business. By the same token, higher social capital reduces the need for formal institutions to enforce agreements reducing “principal-agent” problems. Similarly, reliability of public officers is a good condition to attract greater investments and further economic activity (Knack and Keefer, 1997). Social capital, in the form of social norms, favors the provision and maintenance of public goods solving collective action problems thanks to social stigma and ostracism. Finally, social capital can enhance economic activity also through some indirect channels. For example, “civic norms help voters overcome the collective action problem in monitoring officials” (Knack and Keefer, 1997, p. 1254).

In summary, there seems to be a general agreement that social capital and economic growth are correlated. However, some authors argue that economic growth can have detrimental effects on social capital (see Hirsch (1976), Olson (1982), Polanyi (1968) and more recently Bartolini and Bonatti (2008)).

In his interesting work Roth (2009) claimed that a vibrant society – rich in associational activity and trust – can efficiently drive collective action against policies for economic growth. For example, labor market reforms liable to enhance economic activity can be impaired by an efficient social action resting upon social capital. In a pioneering study on 17 developed countries, Helliwell (1996) provides evidence of a negative relationship between trust in others and productivity growth from 1960 to 1992. Moreover, Putnam (2000) provides convincing evidence that over the last 30 years US – one of the richest countries in the world – experienced an erosion of social capital while growing more prosperous (Bartolini et al., 2013a, Costa and

Kahn, 2003, Sarracino, 2012).

Some recent studies also document that: i. social capital is not crystallized and it can vary over time even in a relatively short term (Sarracino, 2012); ii. economic growth can be the outcome of social erosion Bartolini and Bonatti (2002, 2008).

Hence, there are reasons to carefully reconsider the relationship between social capital and economic growth investigating their correlation over time. Using data on social capital from the first three waves of the World Values Survey, the third European Value Study wave and the Eurobarometer 25 for 1986, Roth (2009) documents that the changes of trust over time are negatively correlated with economic growth during the '90s. However, Roth's work is constrained by the availability of a relatively short time-series (1980 - 2002) and considers only one proxy of social capital, namely trust in others. More recently Sarracino (2011) confirms the previously observed positive correlation between the stock of social capital and GDP across countries, but he documents a negative and significant relationship between the time-trends of social capital and economic growth.

2.2 Role of income inequality

Available evidence suggests that, whenever economic growth is accompanied by an increase in economic inequality, social linkages and feelings of solidarity and cooperation can get weaker resulting in an erosion of social capital. Vice-versa, when economic growth is not associated with increasing economic inequality, the effects of economic growth on social capital over time are non significant. Hence, this evidence points also to the moderating role played by economic inequality (Frank, 2007). It is also worth noticing that over the last two decades many OECD countries have been characterized not only by economic growth, disappointing trends of social capital and of well-being, but also by increasing economic inequality (OECD, 2008). There are many possible pathways explaining this correlation. The most common one refers to the decreasing marginal utility of income. According to this interpretation, since richer people gets relatively less utility from an additional income compared to poorer people, than the more unequal the distribution of income is, the lower is the average well-being in the society. Another argument is that income inequality can result in negative social externalities (such as crime, violence, social cleavages) hindering people's well-being (Alesina and Giuliano, 2009). Another possible explanation refers to risk aversion and the prospects for future mobility: the more people are concerned about their own situation and prospects, the more they will be inequality averse to minimize the risk of experiencing a worsening of their status quo. The impact of inequality on well-being can also be mediated by other-regarding preferences such as fairness and reciprocity (Fong et al., 2006). According to this view, economic inequality hinders people's well-being when it is considered the outcome of an unfair process (Chapple et al., 2009). It is worth emphasizing that the above mentioned mechanisms are not mutually exclusive. On the contrary, they can coexist and reinforce each other.

Several papers document that higher income inequality is associated with lower social capital (Alesina and La Ferrara, 2006, Kawachi et al., 1997, Putnam, 2000, Rothstein and Uslaner, 2005), and lower well-being (Clark and D'Ambrosio, 2014, Clark et al., 2008, Graham and Felton, 2006, Oswald, 1997, Senik, 2009), whereas the relationship with economic growth is more controversial (see Aghion et al., 1999, for a review). At least three different interpretations can be identified in the literature: 1. there is a trade-off between distributional equity and economic growth according to which people can not divide the economic pie more equally and, at the same time, have more of it; 2. income distribution does not directly affect economic growth, but eventual redistributive policies can be detrimental to savings and growth; 3. initial economic inequality can be detrimental to long-run economic growth (Benabou, 1996). Independently from the underlying mechanisms, there are many reasons to believe that income inequality can contribute to shaping the relationship over time between economic growth, social capital and well-being. In particular, it is plausible to expect that when economic growth

is associated to income inequality and to declining social capital, the trends of well-being are disappointing (Josten, 2004). The postulated mechanism for this outcome is that the positive impact of economic growth on well-being is more than compensated by the erosion of social capital, by the increase in economic inequality and by the interaction between the latter two forces. Various cross-national and within country studies explored the relationship between economic growth, social capital and well-being.

2.3 Cross-national studies

A recent study by Bartolini and Sarracino (2011) explore the relationship among these variables at aggregated level using WVS-EVS data. The authors compare the trends of social capital – as proxied by the participation of people in groups and associations – with the trends of subjective well-being and of GDP per capita considering all the countries with at least 15 years and three waves of observations, a reasonable long-term.

Results inform that in the long run the trends of group membership is significantly and positively correlated with subjective well-being and that this result is robust to a control for the trends of GDP per capita. This result is consistent with Easterlin's evidence that in the long run economic growth is not correlated with the trends of subjective well-being and it adds that the trends of group membership are positively correlated with the trends of well-being.

This result is confirmed also after adopting another proxy of social capital: social trust, available in the European Social Survey (ESS). Also in this case, the coefficients associated with the trends of social capital, computed over a period of 6 years – a medium rather than a long period, are strongly and significantly associated with the trends of well-being, whereas GDP shows a weaker correlation (Bartolini and Sarracino, 2011).

A somewhat consistent result has been provided also by two recent works: focusing on transition economies, Easterlin (2009) and Bartolini et al. (2012), show that even if economic growth does matter for people's well-being, social relationships are confirmed to be important for subjective well-being.

Summarizing, the evidence from two different data-sets providing internationally comparable information about social capital and well-being trends across countries confirms that economic growth is only weakly associated with the trend of well-being. The longer the perspective, the lower is the role of GDP and the more social capital matters for well-being.

However, this conclusion hinges on cross-country studies – analysis run with aggregated data on sample of various countries. This casts the doubt that present results are an artifact due to pulling together countries with different histories, socio-economic backgrounds and political and cultural systems. For this reason some further studies focused on single countries analysing the determinants of the trends of well-being on the level of individuals, i.e. within countries. Also in this case, results show that social capital is an important factor shaping people's well-being over time.

2.4 Within country studies

Using data from the US General Social Survey over the last 30 years, Bartolini et al. (2013a) show that a large portion of the declining American happiness trend is explained by four forces acting in contrasting directions. The first one is the increase in per capita income, which positively affects subjective well-being, while the remaining three negatively affect happiness: 1) social comparisons, which erode approximately 2/3 of the positive impact brought about by the increase in family income; 2) the decrease in the confidence in institutions, a further component of social capital and 3) the erosion of social capital whose magnitude is comparable to the one exerted by social comparisons.

The combined effect of these four forces on American subjective well-being is negative: the effects of *social comparisons*, *lower confidence in institutions* and the *erosion of social capital* more

than offset the positive impact of increasing income. Simulations reveal that, if social capital had stayed constant at its 1975 levels, American subjective well-being would have been higher today.

These relationships have been confirmed more recently also for two other countries: Germany and China. Using the German Socio-Economic Panel and a wider set of variables, Bartolini et al. (2013b) confirm previous results about the US showing that the variation in the German subjective well-being between 1994 and 2007 is explained by the same forces shaping the American well-being. The only difference, in this case, is that, during the last fifteen years, German social capital has been increasing with an overall positive effect on subjective well-being. Still, this study suggests that if social capital had not increased, the net result for subjective well-being would have been the same as the American one.

More recently Easterlin et al. (2012) and Brockmann et al. (2009) have used various datasets to explore the relationship among economic growth and well-being also in China, one of the countries that experienced the most impressive and sustained rate of economic growth over the last 20 years. It is reasonable to expect that an average yearly economic growth of 9.7% results in a general improvement of several social, economic and sanitary dimensions of people's life and on their well-being more in general. However, also in this case it seems that economic growth missed to keep its promise of improving the human lot.

Sarracino and Bartolini (2013) has looked into this paradoxical evidence using WVS data between 1990 and 2007 and the Blinder-Oaxaca decomposition. In line with previous results, the author finds that the increased importance of social comparisons largely contribute to explain the disappointing trend of well-being. However, a second force also contributed to shaping the trend of Chinese well-being: the erosion of social capital. Some estimates suggest that about 18.56% of the well-being loss in China is related to social capital. Hence, the Chinese economic growth has been going hand in hand with the erosion of social capital, an increase in social comparisons and decreasing subjective well-being.

Overall, there seems to be convincing evidence that in the long run social capital matters more for well-being than economic growth. Moreover, the relationship among these three variables is plausibly moderated by the role of economic inequality. This evidence calls for more nuanced economic policies to make economic growth compatible with well-being. However, despite the variety of studies available, present conclusion hinges on fairly simple econometric techniques, on small sample sizes or on single countries. Our contribution explores the relationship among economic growth, social capital, economic inequality and well-being trying to overcome the limitations of previous studies and to provide a sounder framework to define policies for well-being.

3 Data and method

3.1 Data

We use data from the full integrated data set of the World Values Survey and the European Values Study (WVS-EVS), covering the period 1981-2009 (EVS, 2011, WVS, 2009). In the course of both WVS and EVS research programs, individual country research agencies and institutions collected data on representative samples of adult populations (aged 18 or older). The questionnaires were uniformly structured and the translation into national languages from the English questionnaire was closely monitored. The modes of data collection included face-to-face and phone interviews in case of WVS, face-to-face interviews (either computer assisted (CAPI) or on pen-and-paper (PAPI)) in case of EVS, and an internet panel (Finland in EVS).

The integrated data set contains information for 102 countries and regions and over 420,000 respondents. However, as the time-trends of macro factors are of particular interest in this analysis, we include only countries with time series of at least 10 years and 2 waves of obser-

vation, which considerably limits our sample. Moreover, the analysis for transition countries is limited to the period after 1995, because of the characteristic, v-shaped economic growth in countries of this region (or, to be precise, to the economic crisis experienced by these countries during the early 1990s). With such a specific trajectory, estimating the long term trend of GDP is problematic, therefore we limit the observation span to the period of relatively monotonic growth. We also exclude from the analysis Bosnia and Herzegovina, Armenia, and Macedonia, because the estimated values of trends for these countries are outliers, which suggests problems with data quality. Overall, this leaves us with 46 countries, including 19 developed, 10 developing, and 17 transition countries. The countries, and the periods for which the relevant macro factors were observed are presented on Figure 1.

3.2 Variables

Subjective well-being As a proxy of subjective well-being we use an index created from two variables:

- life satisfaction: *“All things considered, how satisfied are you with your life as a whole these days? Please use this card to help with your answer”* with answers coded on a 10-point scale, from 1 – *dissatisfied* to 10 – *satisfied*, and
- happiness: *“Taking all things together, would you say you are (read out and code one answer): 1 Very happy, 2 Rather happy, 3 Not very happy, 4 Not at all happy”*.

We construct an index of subjective well being by standardizing and summing both variables (the scale of happiness variable is reversed for consistency).

GDP The real GDP per capita (retrieved from: Heston et al., 2012) is expressed in international dollars of the year 2000 transformed in the logarithm.

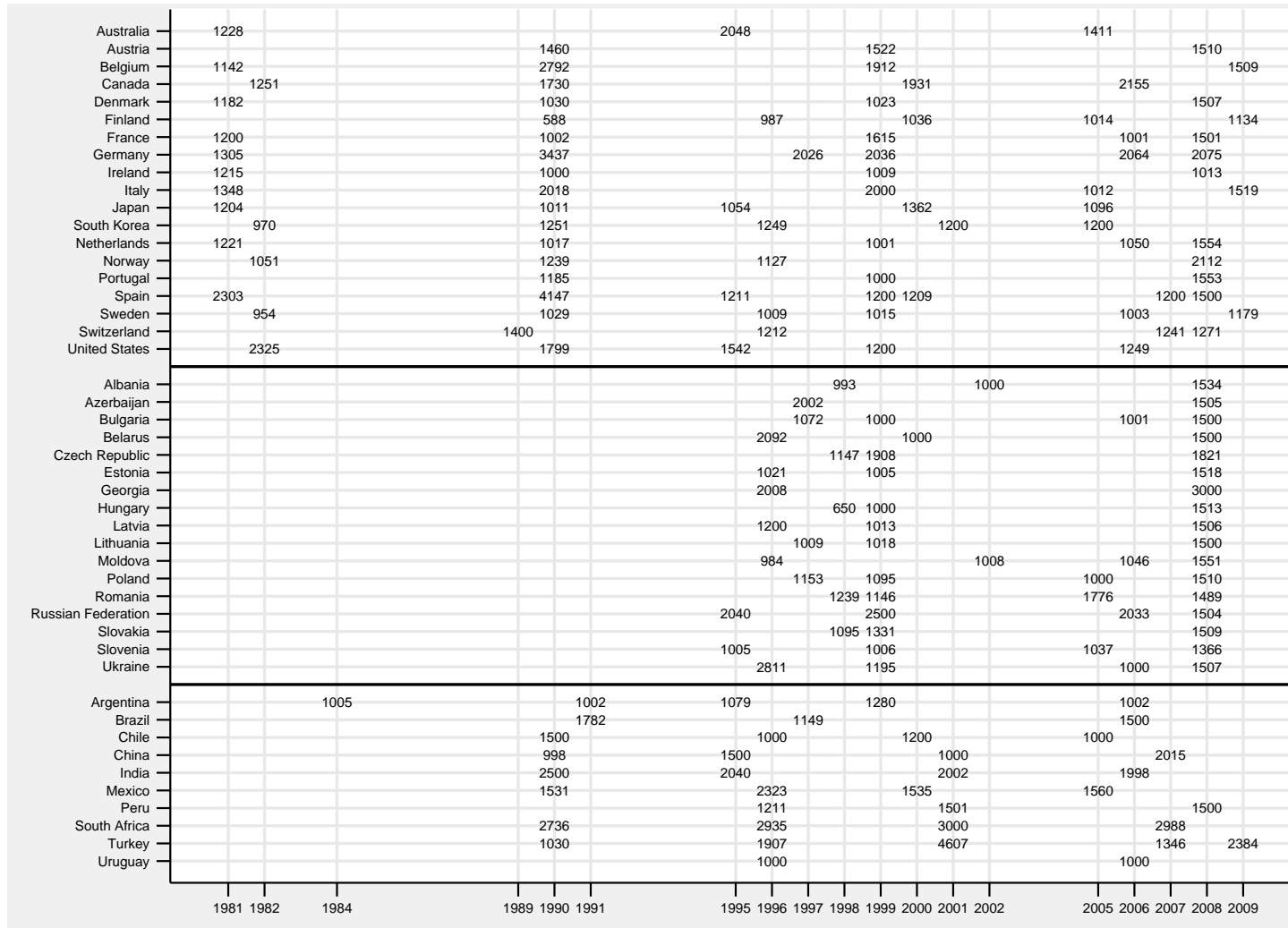
Income inequality As a measure of income inequality we use the Gini coefficients from the UNU Wider Database database (REF).

Social capital We use two measures of social capital: social trust and membership in groups and associations. Social trust is captured by the answers to the question *“Generally speaking, would you say that most people can be trusted, or that you can’t be too careful in dealing with people”*. Our individual-level variable is dichotomous and codes as 1 people who declared that people can be trusted (for a discussion of validity of this question see: Johnson and Mislin, 2012).

Membership at individual level is a dichotomous variable taking the value of 1 for persons who are members of at least one association or organization. The list of associations includes: religious organization; education, arts, music or cultural activities; labour unions; political parties; local political actions; human rights; charitable/humanitarian organization; conservation, the environment, ecology, animal rights; professional associations; youth work; sports or recreation; women’s group; peace movement; organization concerned with health; consumer groups; and other.

GDP, income inequality, membership, and social trust are subsequently aggregated to create country level and country-wave level variables.

Initial level of country endowments and country-specific trends over time At country level we measure the macro factors (GDP, Gini coefficient, the percent of respondents with high social trust, and the percent of respondents belonging to groups or associations) observed in the initial observation year for particular country. For example, observation for Argentina started in year 1984, and the values of respective variables for this year are used to capture the



Note: The observation span for transition countries has been limited to the period after 1994, because before this period most of these countries were going through economic crisis which resulted in the specific v-shaped trajectory of GDP.

Figure 1: The sample under study: countries included in the analysis (developed countries in the upper panel, transition countries in the middle panel, and developing countries in the lower panel), and the sample size available for each year.

cross-country variation of macro-factors. We label the initial values of macro factors as μGDP , μGini , μTrust and $\mu\text{Membership}$.

We use the initial values rather than average value over the observation period, because the average values capture partly the effect of changes that occurred over time. For example, if economic growth in a country is stronger, also the average value of GDP in this country will be higher. Thus, using the initial rather than the average value allows us to separate the effects of the cross-country differences from the effects of changes that took place over time.

At country-wave level we measure the changes of macro-factors (GDP, Gini coefficient, the percent of respondents with high social trust, and the percent of respondents belonging to groups or associations) that occurred in given country over time. These changes are captured as predictions from country-specific regressions of the macro-factors on time. The values of trends are respectively labeled as Δ s. This procedure is described in Equation 1, where MF stands for “macro factor”.

$$\begin{aligned} \text{MF} &= \alpha_{\text{MF}} + \beta_{\text{MF}}\text{Year} + \epsilon_{\text{MF}} \quad (\text{for each country separately}) \\ \Delta\text{MF}_{jc} &= \alpha_{\text{MF}} + \text{Year}_{jc} \cdot \beta_{\text{MF}} \end{aligned} \quad (1)$$

The coefficients estimated separately for trends (Δ) and for the initial levels (μ) of macro factors may be interpreted analogously to within-individual and between-individual effects in regression models for panel data. For example, in a model regressing individual subjective well-being on macro-predictors, the coefficients estimated for ΔGDP inform what changes of subjective well-being accompany one unit change of economic growth, whereas the coefficients for μGDP – what difference of subjective well-being is associated with a 1 unit of GDP difference between two countries.

3.3 Statistical method

We use multilevel regression which models the individual-level life satisfaction as a function of both individual and country characteristics. We use multilevel, rather than ordinary OLS regression, because hierarchical data (such as the multi-country WVS-EVS with individuals nested within country-waves nested within countries) do not satisfy the basic assumption of independence of observations. This may lead to biasing downward the standard errors of the estimates, which in turn can result in wrongly rejecting or supporting theoretically important conclusions (Bryk and Raudenbush, 1992, Luke, 2004). Multilevel models properly account for the hierarchical structure of the data; they also attribute the variation unexplained by the model to the specific levels of data.

We estimate a three-level model with individuals i nested within country-waves j , nested within countries c . The number of waves observed per country varies between 3 and 8 (in case of Spain). Such a small average cluster size at level 3 is not an obstacle for estimating the effect at this level, as the total sample size ($N > 100$) at this level, which is of prime importance, is sufficient (Snijders, 2005b).

The three-level design allows distinguishing between the country-specific levels of macro factors (levels of GDP, Gini, social trust, and membership) and the country-wave-specific values which refer to the changes taking place over time (economic growth, growth of inequality, trust, and membership). Formally, the model is described by Equations 2-4.

$$\begin{aligned}
\text{SWB}_{ijc} = & \alpha_{0jc} + \beta_1 \text{Income}_{ijc} + \beta_2 \text{Memebership}_{ijc} + \beta_3 \text{Trust}_{ijc} + \mathbf{B}_K \mathbf{X}_{ijc} + \\
& + \beta_4 \mu \text{GDP}_c + \beta_5 \Delta \text{GDP}_{jc} + \\
& + \beta_6 \mu \text{Gini}_c + \beta_7 \Delta \text{Gini}_{jc} + \beta_8 \Delta \text{GDP}_{jc} \mu \text{Gini}_c + \beta_9 \Delta \text{GDP} \Delta \text{Gini}_{jc} + \\
& + \beta_{10} \mu \text{SC}_c + \beta_{11} \Delta \text{SC}_{jc} + \beta_{12} \Delta \text{GDP}_{jc} \mu \text{SC}_c + \beta_{13} \Delta \text{GDP} \Delta \text{SC}_{jc} + \\
& + \mathbf{B}_N \text{wave}_{jc} + \epsilon_{ijc}
\end{aligned} \tag{2}$$

$$\alpha_{0jc} = \gamma_{00c} + \tau_{jc} \tag{3}$$

$$\gamma_{00c} = \gamma_{000} + \nu_c \tag{4}$$

In this model, individual subjective well-being (SWB) is regressed on a set of individual, country-wave, and country level predictors, among them: household income, membership, and social trust. In Equation 2, coefficient β_4 informs about the effect of GDP observed in given country in the initial observation year, β_5 informs about the effect of economic growth. Coefficients β_8 , β_9 , β_{12} , and β_{13} inform about how the effect of economic growth varies with the initial level of income inequality (β_8), growth of income inequality (β_9), initial level of social capital (i.e. either membership or trust, β_{12}), and growth of social capital (β_{13}). The main effects of these (potentially) moderating variables are captured by coefficients β_6 , β_7 , β_{10} , and β_{11} . \mathbf{X}_{ijc} is a vector of individual level control variables, and $\mathbf{B}_N \text{wave}_{jc}$ is a vector of wave-dummies.

In the model (see Equations 3 and 4), the only coefficients allowed to vary randomly are the random intercepts τ_{jc} and ν_c . In other words, the average subjective well-being is allowed to vary randomly across country-waves and across countries (random intercept model). We estimate our results with Stata statistical software, with robust standard errors.

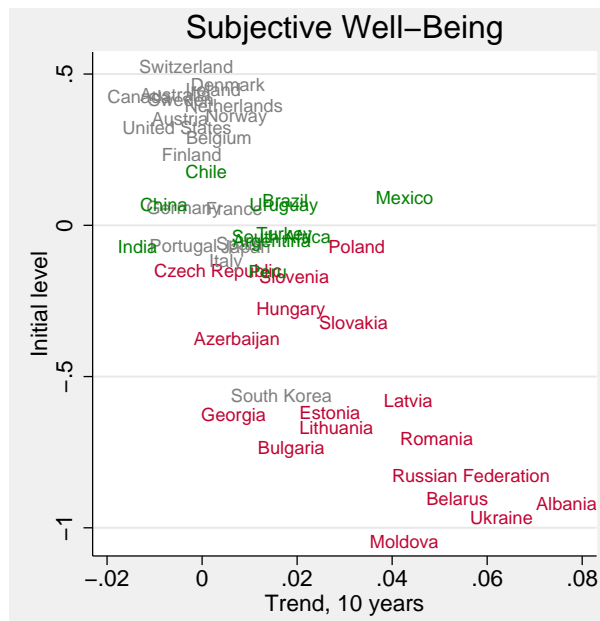
Random effect multilevel models (as the one used in this analysis) assume that the random effects are not correlated with the explanatory variables; if this assumption is not met, the results are non consistent. Therefore we validate the analysis by estimating models with fixed intercepts (dummy variables) for countries and country-waves (Snijders, 2005a). Note that this robustness check is only possible for the variables that vary within countries, because country dummies absorb the effects of predictors which are constant for countries. Note also that even with clustered standard errors, OLS models tend to over-reject the null hypothesis (i.e. biasing the standard errors downwards) compared to multilevel models (Cheah, 2009). ADD THESE RESULTS

4 Results

4.1 Descriptive results: long-term trends and average levels of macro variables

We start with description of cross-country variation of levels and trends of subjective well-being, and the levels and trends of macro factors: GDP, income inequality, membership, and social trust. Figure 2 shows the initial levels of average subjective well-being for particular countries (i.e. the average observed in the initial year available for given country) and the estimated yearly trends.

The differences between countries and groups of countries are considerable. Overall, the developed countries stand out with high initial levels of subjective well-being and they experience small changes over time. Transition countries stand out with very low initial levels and positive trends; developing countries stay in between with regard to both initial levels and trends. The graph also shows that overall subjective well-being was growing more in the countries where initial levels were lower.



Note: Transition countries are marked with red, developed countries with grey, and developing countries – with green.

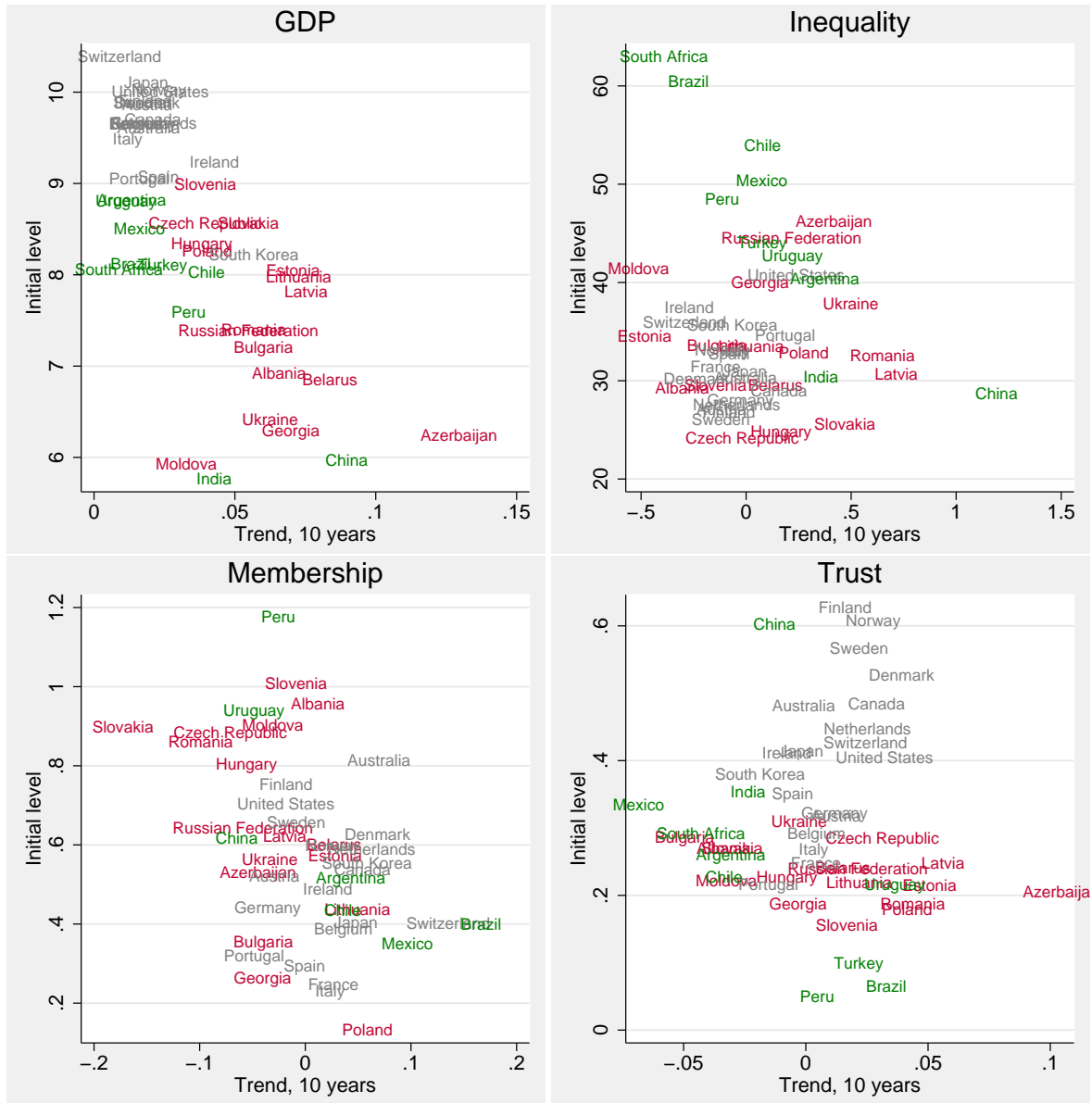
Figure 2: 10-year trends and initial level of subjective well-being.

Figure 3 shows similar information for GDP, income inequality, aggregated data on membership and social trust. The pattern of levels and changes of GDP resembles the one observed for subjective well-being. The growth in developed countries was rather slow, whereas the initial levels were high. In transition countries the low initial levels were accompanied by fast growth. The developing countries may be seen as an intermediate case. Again we notice a correlation of low initial levels and high subsequent growth.

The picture for income inequality is clearly different. The negative correlation between initial levels and trends is again visible, but the high initial levels characterize the developing countries. Moreover, the difference between the transition and developed countries is much less pronounced than in case of GDP or subjective well-being.

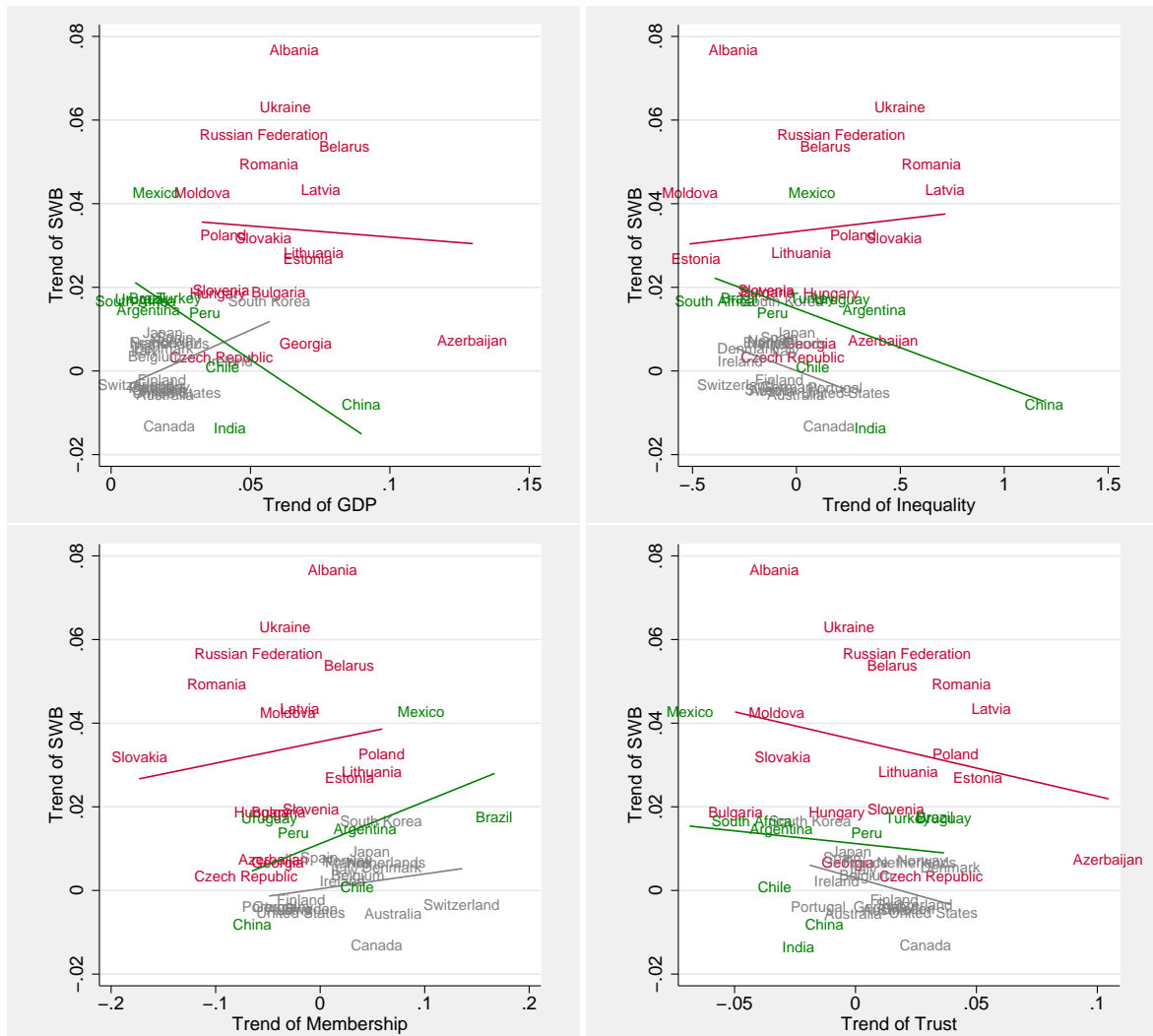
For the measures of social capital the correlation between the initial levels and trends is much weaker than for subjective well-being, GDP, or income inequality. Moreover, each group of countries stands out with a specific pattern. Developed countries are characterized by moderate initial levels of membership, but high initial levels of social trust. In transition countries the initial levels or membership were rather high and they declined, whereas the initial levels of trust were moderate, and they tend to grow. The situation in developing countries is quite diversified.

Figure 4 shows bivariate correlations between trends of subjective well-being and trends of GDP, income inequality, and social capital, giving an initial picture of the relationship between these factors over time. We notice an interesting picture for economic growth: whereas the changes of GDP seem to promote subjective well-being in developed countries, in developing countries the growth of GDP erodes subjective well-being, and the relationship in transition countries is weak but overall negative. Growing income inequality seems to lower subjective well-being in developed and transition countries. In contrast to that, in transition countries the relationship is weakly positive. Growing membership seems a consistent predictor of growing average subjective well-being. The relationship is positive in all groups of countries. However, changes of social trust correlate with changes of subjective well-being negatively.



Note: Transition countries are marked with red, developed countries with grey, and developing countries – with green.

Figure 3: 10-year trends and average levels of macro factors: GDP (ln, per capita), income inequality (Gini coefficient), membership, and social trust.



Note: Transition countries are marked with red, developed countries with grey, and developing countries – with green.

Figure 4: 10-year trends of subjective well-being vs. trends of macro factors: GDP (ln, per capita), income inequality (Gini coefficient), membership, and social trust.

4.2 Multilevel analysis – determinants of life satisfaction

We move to examining the results of multilevel estimation. Table 1 presents the results of estimations run for each group of countries (developed, developing, and transition countries) separately; Table 2 shows the results of analysis on the pooled sample, and accounts for interaction effects which allow a different effects of macro factors in each group of countries. We present both sets of results because each has some advantages. The overall model assumes equal relationships across groups of countries and the estimation extrapolates the relationships across groups of countries. At the same time however, this estimation has the advantage of using a larger sample. The models estimated separately for groups of countries allow different relationships which are maybe more precise, but the power of estimation suffers because of a small sample size.

Individual level factors In the tables we present the effects of individual level household income, membership, and social trust. They all positively correlate with subjective well-being, although the sizes of the effects differ across models.

GDP The coefficients of μ GDP inform how strongly the initial level of GDP predicted the average subjective well-being. Note that this effect captures exclusively the cross-country variation and does not account for the effects of GDP changing over time.

Consistently with the literature, in countries with higher GDP subjective well-being is consistently higher than in countries with lower GDP. The sizes of the effects differ between groups of countries: the results of both Tables 1 and 2 indicate that GDP more strongly correlates with subjective well-being in transition countries than in developing and developed countries.

Economic growth In contrast to that, and consistently with Easterlin paradox, economic growth is not a predictor of subjective well-being. Table 2 shows a negative effect, which is statistically significant in Models 3 and 5 and insignificant in models 1, 2, and 4. Interaction effects in the analysis for the overall sample suggest a more positive effect in transition countries (Models 1 and 3 in Table 2), however the separate analysis for transition countries does not confirm this conclusion (Models 7-9 in Table 1). For developing countries the separate analysis (Table 1) indicates a statistically significant negative effect in one of the models.

Social capital Subjective well-being is overall higher in countries with higher initial membership, however this relationship occurs only in the developed countries. In developing and transition countries this relationship turns insignificant, and the separate analysis shows a negative correlation in developing countries. Similarly, subjective well-being is higher in high-trust countries. Again, in transitions countries this relationship does not hold, although the separate estimations does not confirm that.

Changes of membership are significant in developed countries but only in the separate analysis (Table 1).

Income inequality We find no main effect of income inequality on subjective well-being. This relationship is statistically significant only in transition countries, and the direction is opposite to expected: subjective well-being is higher in countries where the initial level of income inequality was higher.

Moderating effect of social capital Social capital proved to be significant predictor of the effect of economic growth on subjective well-being. First, economic growth correlates with higher subjective well-being in countries where membership was growing. However, this relationship is observed only in developed, and not in developing or transition countries.

Table 1: Multilevel regression of subjective well-being on individual and country level predictors. Developed, developing, and transition countries

	Developed countries			Developing countries			Transition countries		
	1	2	3	4	5	6	7	8	9
Individual-level variables:									
SWB									
trust	0.10 (8.81) ^{***}	0.10 (8.81) ^{***}	0.10 (8.79) ^{***}	0.03 (1.00)	0.03 (1.00)	0.03 (0.99)	0.12 (8.66) ^{***}	0.12 (8.66) ^{***}	0.12 (8.67) ^{***}
membership	0.06 (7.25) ^{***}	0.06 (7.21) ^{***}	0.06 (7.22) ^{***}	0.06 (3.13) ^{***}	0.06 (3.20) ^{***}	0.06 (3.12) ^{***}	0.04 (5.47) ^{***}	0.04 (5.49) ^{***}	0.04 (5.46) ^{***}
income (1-10)	0.02 (8.09) ^{***}	0.02 (8.08) ^{***}	0.02 (8.11) ^{***}	0.05 (3.72) ^{***}	0.05 (3.71) ^{***}	0.05 (3.72) ^{***}	0.07 (8.19) ^{***}	0.07 (8.19) ^{***}	0.07 (8.20) ^{***}
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Initial levels of macro-factors:									
SWB									
μ GDP	0.20 (5.52) ^{***}	0.18 (3.50) ^{***}	0.15 (2.83) ^{***}	0.13 (3.78) ^{***}	0.11 (6.41) ^{***}	0.13 (3.62) ^{***}	0.24 (6.29) ^{***}	0.19 (6.36) ^{***}	0.19 (7.63) ^{***}
μ Gini	-0.00 (-0.78)			-0.00 (-0.31)			0.01 (1.82) ⁺		
μ Membership		0.25 (2.33) [*]			-0.21 (-4.52) ^{***}			-0.11 (-0.66)	
μ Trust			0.37 (1.90) ⁺			0.32 (1.31)			-0.95 (-1.47)
Trends of macro-factors:									
SWB									
Economic growth (Δ GDP)	0.18 (0.49)	0.08 (0.42)	-0.41 (-1.33)	-0.37 (-0.48)	-0.26 (-0.94)	-0.86 (-2.39) [*]	0.21 (0.37)	-0.32 (-0.87)	-0.25 (-0.47)
Δ Gini	0.00 (0.48)			0.00 (0.11)			-0.00 (-0.46)		
Δ Membership		0.30 (2.25) [*]			-0.33 (-0.92)			0.53 (1.39)	
Δ Trust			-0.32 (-0.93)			-0.92 (-1.21)			-1.15 (-1.30)
Economic growth x Levels and trends of macro-factors:									
SWB									
Δ GDP x μ Gini	-0.01 (-0.65)			0.00 (0.03)			-0.01 (-0.48)		
Δ GDP x Δ Gini	-0.05			-0.00			0.05		

		(-2.59)***		(-0.12)			(2.37)*		
Δ GDP x μ Membership		-0.28		-0.30			0.49		
		(-1.06)		(-0.56)			(1.01)		
Δ GDP x Δ Membership		0.99		-0.09			-1.69		
		(2.10)*		(-0.27)			(-1.46)		
Δ GDP x μ Trust			0.74		0.78			1.86	
			(1.18)		(1.52)			(1.07)	
Δ GDP x Δ Trust			0.49		7.00			1.04	
			(0.38)		(1.61)			(1.55)	
AIC	182057	182049	182056	112598	112585	112593	117333	117336	117330
N	94332	94332	94332	47658	47658	47658	54609	54609	54609
Nr Countries	19	19	19	10	10	10	17	17	17

Note: + $p < .10$, * $p < .05$, *** $p < .01$, t-values in parentheses

Control variables include: gender, age (linear and quadratic component), being married, being unemployed, education (dummies for secondary and tertiary education), and subjective health.

Source: WVS-EVS data

Table 2: Multilevel regression of subjective well-being on individual and country level predictors.

	1	2	All sample 3	4	5
Individual-level variables:					
SWB					
trust	0.08 (7.52)***	0.08 (7.52)***	0.08 (7.53)***	0.08 (7.52)***	0.08 (7.52)***
membership	0.05 (8.07)***	0.05 (8.05)***	0.05 (8.03)***	0.05 (8.05)***	0.05 (8.02)***
income (1-10)	0.04 (6.96)***	0.04 (6.97)***	0.04 (6.97)***	0.04 (6.97)***	0.04 (6.97)***
Control variables	Yes	Yes	Yes	Yes	Yes
Initial levels of macro-factors:					
SWB					
μ GDP	0.18 (5.63)***	0.16 (4.00)***	0.12 (2.99)***	0.16 (4.37)***	0.13 (3.21)***
μ GDP x developing c	-0.04 (-0.98)	-0.02 (-0.58)	0.02 (0.48)	-0.06 (-1.55)	0.02 (0.36)
μ GDP x trans c	0.06 (1.32)	0.03 (0.57)	0.06 (1.19)	0.07 (1.47)	0.09 (1.74) ⁺
μ Gini	-0.00 (-0.46)			-0.00 (-0.30)	-0.00 (-0.04)
μ Gini x developing c	0.00 (0.38)			0.00 (1.05)	-0.00 (-0.07)
μ Gini x trans c	0.01 (1.74) ⁺			0.01 (1.63)	0.01 (0.99)
μ Membership		0.27 (2.84)***		0.27 (2.73)***	
μ Membership x developing c		-0.42 (-3.91)***		-0.46 (-3.82)***	
μ Membership x trans c		-0.42 (-2.01)*		-0.30 (-1.53)	
μ Trust			0.42 (2.08)*		0.35 (1.76) ⁺
μ Trust x developing c			-0.23 (-0.92)		-0.23 (-0.76)
μ Trust x trans c			-1.44 (-2.01)*		-1.36 (-1.57)
Trends of macro-factors:					
SWB					
Economic growth (Δ GDP)	-0.65 (-1.20)	-0.35 (-1.38)	-0.84 (-2.39)*	-0.61 (-1.08)	-1.22 (-1.73) ⁺
Economic growth (Δ GDP) x developing c	0.24 (0.25)	0.17 (0.37)	0.52 (1.35)	0.10 (0.11)	-0.65 (-0.34)
Economic growth (Δ GDP) x trans c	1.50 (2.38)*	0.16 (0.40)	0.90 (1.75) ⁺	0.94 (1.28)	1.36 (1.46)
Δ Gini	0.00 (0.48)			0.00 (0.68)	0.01 (0.95)
Δ Gini x developing c	-0.00 (-0.20)			0.00 (0.07)	-0.02 (-1.02)
Δ Gini x trans c	-0.01 (-0.84)			-0.01 (-0.72)	-0.01 (-0.71)
Δ Membership		0.16 (0.76)		0.20 (0.98)	
Δ Membership x developing c		0.13 (0.29)		0.20 (0.38)	
Δ Membership x trans c		0.23 (0.56)		-0.08 (-0.18)	
Δ Trust			-0.62 (-1.62)		-0.54 (-1.40)
Δ Trust x developing c			-0.77 (-0.68)		-0.43 (-0.34)
Δ Trust x trans c			-0.85 (-0.89)		-0.60 (-0.62)
Economic growth x Levels and trends of macro-factors:					
SWB					
Δ GDP x μ Gini	0.01 (0.75)			0.01 (0.63)	0.01 (0.70)

Δ GDP x μ Gini x developing c	-0.00 (-0.07)			-0.00 (-0.12)	0.02 (0.49)
Δ GDP x μ Gini x trans c	-0.02 (-1.38)			-0.02 (-0.95)	-0.01 (-0.79)
Δ GDP x Δ Gini	-0.07 (-2.94)***			-0.05 (-2.28)*	-0.06 (-2.11)*
Δ GDP x Δ Gini x developing c	0.07 (3.09)***			0.03 (0.87)	0.05 (1.90) ⁺
Δ GDP x Δ Gini x trans c	0.12 (3.64)***			0.10 (2.52)*	0.11 (2.78)***
Δ GDP x μ Membership		-0.11 (-0.32)		-0.11 (-0.30)	
Δ GDP x μ Membership x developing c		0.21 (0.28)		0.39 (0.54)	
Δ GDP x μ Membership x trans c		0.96 (1.51)		0.62 (1.11)	
Δ GDP x Δ Membership		2.01 (3.47)***		1.65 (2.47)*	
Δ GDP x Δ Membership x developing c		-2.55 (-3.50)***		-3.65 (-2.30)*	
Δ GDP x Δ Membership x trans c		-3.20 (-2.72)***		-1.38 (-0.89)	
Δ GDP x μ Trust			1.20 (1.82) ⁺		1.31 (1.97)*
Δ GDP x μ Trust x developing c			-1.04 (-1.41)		0.43 (0.32)
Δ GDP x μ Trust x trans c			0.15 (0.09)		0.14 (0.06)
Δ GDP x Δ Trust			0.57 (0.41)		1.31 (1.23)
Δ GDP x Δ Trust x developing c			-1.48 (-0.43)		-4.49 (-1.49)
Δ GDP x Δ Trust x trans c			0.54 (0.35)		-1.65 (-1.13)
AIC	417020	417015	417006	417013	417005
N	196599	196599	196599	196599	196599
Nr Countries	46	46	46	46	46

Note: ⁺ $p < .10$, * $p < .05$, *** $p < .01$, t-values in parentheses

Control variables include: gender, age (linear and quadratic component), being married, being unemployed, education (dummies for secondary and tertiary education), and subjective health.

Source: WVS-EVS data

Second, economic growth correlates with higher subjective well-being in countries where the initial level of trust was higher. This effect is only visible in the overall analysis, and not in separate models, which suggests that it is driven by the differences in trust between the three groups of countries.

Moderating effect of income inequality Finally, we also find the moderating effect of income inequality on the effect of economic growth on subjective well-being. The effect of economic growth was more positive in countries which experienced decline (lower growth) of income inequality. Similarly as in case of moderating effect of membership, we observe the effect only in developed countries. In developing countries this effect is null.

Similarly as in case of the main effect of income inequality, also the moderating effect is peculiar in transition countries. Here, economic growth improved subjective well-being more in countries where inequality was also growing more. Again, this shows an ambiguous role of income inequality in this group of countries.

5 Conclusions

The availability and reliability of subjective well-being data – i.e. self-reported evaluation of one's own life – allowed to study and evaluate to which extent economic growth improves

people's quality of life. In recent years, the lively debate that followed the pioneering studies on the relationship between economic growth and well-being over time Easterlin (1974) reached a cross-road: which policies are necessary to enhance quality of life?

The answer is at the center of an intense debate where mainly three alternative views are at stake. Some scholars argue that economic growth does not bring about higher well-being. Hence, policy-makers who wish to enhance people's quality of life should abandon GDP as a measure and as a policy-tool for well-being (Layard, 2005). Some other scholars support the view that GDP is a reliable measure of how well a society is doing and that its role for the measurement and the pursuit of people's well-being should not be downsized (Sacks et al., 2010). Some other scholars argue that GDP matters for well-being, but that other dimensions – such as social capital – matter more. According to the last view, to enhance well-being, policy-makers should adopt policies to make economic growth compatible with people's relational needs (Bartolini et al., 2013a,b).

Summarizing, the fundamental issue to address concerns which strategy should policy-makers choose and, in particular, which is the role of economic growth for well-being. However, the literature supporting these alternative views is limited by some shortcomings: i. previous studies rely on aggregated, national level figures which limit the sample size at the cost of losing precision and power; ii. in such studies, the proxies of well-being are aggregated at country level, thus creating a risk of ecological fallacy; iii. previous studies do not account for country-specific stages of development which might bias the results due to pooling together different countries; iv. previous analyses adopted simple bivariate correlations, or simple regression models with few predictors thus increasing the risks of drawing conclusions on the basis of some spurious correlations due to the omission of potential confounding variables; v. part of the literature misses to distinguish between relationships among levels and relationships among trends of well-being and GDP.

Present work tries to overcome the limitations of previous studies to explore whether economic growth brings about well-being and, eventually, which are the conditions that shape this relationship. In particular, we considered the mediating role of social capital – proxied as trust in others and membership – and of economic inequality in a multilevel model.

Our figures do not support the hypothesis that economic growth is accompanied by increasing well-being in the long run. On the contrary, in some groups of countries we found evidence of a negative relationship between the two variables. However, we also found evidence that, at least in developed countries, social capital and economic inequality have a moderating effect on the relationship between economic growth and well-being. In particular, our results suggest that economic growth is associated to increasing well-being in developed countries when it is combined with increasing social participation, higher initial level of trust in others, and decline or moderate growth of economic inequality. Remarkably, the moderating effect of trust in others persists in every group of countries. In other words, independently from whether we consider developed, developing or transition countries, economic growth is accompanied by increasing well-being in countries with high initial levels of trust in others. Transition countries are an exception to the general evidence that economic growth and well-being are associated when economic inequality is declining. In these countries, higher growth of GINI index are consistent with a positive relationship between economic growth and well-being. A possible explanation of this effect is in terms of the so-called “tunnel effect”: in countries where economy is growing, a high degree of economic inequality might result in higher well-being because people perceive that the conditions of their fellow citizens are increasing and, therefore, before or later also those who stay behind will receive the expected benefits from economic growth (Hirschman, 1973).

Other control variables have all the expected signs. In particular, in countries where GDP is higher, people are happier; within countries richer people tend to be happier than others; trusting others and membership in associations are both associated to higher levels of well-

being.

In general, our findings confirm the observation that, in the long run, economic growth is not associated to an increase in well-being. This result holds in the overall sample of available countries as well as in each of the three sub-groups: developed, developing and transition countries. At face value this evidence lends support to the view that modern policies for well-being should abandon economic growth as their target. However, we also identify a set of conditions that moderate this relationship making economic growth and well-being compatible.

Hence, a more refined analysis, shows that there are conditions under which economic growth can be compatible with well-being in the long run. In particular, we provide evidence that, when economic growth is accompanied by decline of economic inequality and growing social capital, also people's well-being increases. This finding brings about two good news: i. under certain conditions, economic growth is accompanied by well-being in the long run; ii. we have two hints about which conditions can make economic growth and well-being compatible: low levels of inequality and growing social capital. Hence, the important message of present work is that policy-makers wishing to pursue people's quality of life should adopt policies that promote economic growth while protecting and promoting social capital, and limiting economic inequalities.

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