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Czapinski, Janusz

University of Warsaw , University of Finance and Management in
Warsaw

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The Economics of Happiness and Psychology of Wealth¹

Janusz Czapiński

University of Warsaw

University of Finance and Management in Warsaw, czapinski@vizja.pl

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ABSTRACT

The “Easterlin paradox” suggests that there is no link between the economic development of a society and the overall happiness of its members, yet wealthy societies and people are happier than those with low income. Using recent data from *Social Diagnosis* (www.diagnoza.com) and several surveys on a broader array of countries, I verify a few hypotheses on the relationship between income and psychological well-being at micro and macro levels. The main factor which differentiates the pattern of relationship is the level of income. In poor societies and individuals, income affects well-being but in wealthy societies and individuals, the direction of the relationship is reversed: well-being determines income. Money buys happiness when income is too low to satisfy basic needs, and happiness brings money when income satisfies basic needs.

Keywords: psychological well-being, happiness, income, economic development

JEL Classification: I31

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1. INTRODUCTION

The scientific study of wealth was always left to the economists. On the other hand, happiness has not until recently had a good spell of empirical study. Until the second half of the 20th century, almost only philosophers wrote about happiness, and it only attracted the attention of psychological and sociological research in the 1960's as an important element of a more general construct – psychological well-being and the quality of life. It all started with the question: what does psychological well-being depend on? Money of course was seen as one potential source of happiness. Meanwhile, a few years later, economists used subjective indicators of well-being to measure the utility of money. This fusion of economics and psychology initiated an avalanche of interdisciplinary research projects, which were to bring up some unusually interesting data on the subject of the interrelationship between the two main drivers of human endeavour: wealth and happiness. (Bock, 2010; Bruni, Comim, Pugno, 2008; Bruni, Porta, 2005; Bruni, Porta, 2007; Diener, Helliwell, Kahneman, 2010; Diener, Lucas, Schimmack, Helliwell, 2009; Dutt, Radcliff, 2009; Easterbrook, 2003; Frey, Stutzer, 2002; Frey, 2008; Frey, Stutzer, 2007; Graham, 2009; Graham, Pettinato, 2002; Kasser, Kanner, 2003; Krueger, 2009; Lane, 2000; Layard, 2005; Offer, 1996; van Praag, Ferrer-i- Carbonell, 2004).

As the research results flowed in, so the number of questions rose. At first the matter seemed obvious; since wealth determines the high quality of life, and almost everyone would like to live as well as possible, money ought to give us happiness and psychological well-being should increase with the growth of wealth. However, in 1974, the first big question mark appeared. Richard Easterlin published one of the then most-quoted articles in social science entitled “Does economic growth improve the human lot? Some empirical evidence”. Ever since the relation between well-being and wealth has been known as the Easterlin paradox, which is; while people (and societies) that are richer are happier, an increase in the income of people and societies does not at all increase their feeling of happiness. The paradox gave birth to a landslide of further questions in the following years (e.g Clark, Frijters, Shields, 2008; Deaton, 2008; DiTella, MacCulloch, 2008; Di Tella, MacCulloch, Oswald, 2003; Stevenson and Wolfers 2008). They are, in general, as follows:

1. Is the relation between wealth and the psychological well-being of people and societies linear and universal?
2. Does growth in people's and societies' wealth not increase their psychological well-being (sense of happiness and satisfaction with life)?
3. Why does money have an effect on psychological well-being in cross-comparisons (at individual and national level), but not in temporal comparisons?
4. Is the relationship between money and psychological well-being one-way (money brings happiness) or two-way (happiness also brings money)? Is happiness a form of capital on which it is possible to "earn"?

In the almost 40 years since Easterlin's article, there have been hundreds of publications attempting to, in the main empirically, answer the above questions. Unfortunately these attempts gave birth to a great mass of new questions and sharp controversies². This article lays no claims to settle differences and dispel doubts as far as the four questions are concerned. It is merely another empirical contribution to the discussion of the links between economic affluence and psychological well-being.

2. IS THE RELATION BETWEEN WEALTH AND PSYCHOLOGICAL WELL-BEING UNIVERSAL OR LINEAR?

2.1. The macro level

Let us start answering this question at the national level. International comparative studies have repeatedly (and conclusively) shown a significant statistical relation between *per capita* GDP and the aggregated indicator of psychological well-being (sense of happiness, satisfaction with life etc). Easterlin (1974) demonstrated the relation in a group of only 14 rather wealthy countries. Later however the pool of countries from which general research yielded indicators of well-being grew significantly (e.g. World Value Survey - WVS, Gallup World Poll - GWP³), and the shape of the relation changed after poorer countries were taken into consideration. On the basis of WVS and GWP data, it turned out that the relation between well-being and per capita GDP was in the form of a power function. Even a very small difference in GDP meant a large variation in the level of well-being in poor countries while in wealthy countries the slope of regression line of welfare and income is close to zero, as Inglehart (1990) and Deaton (2008) have demonstrated. The findings are also confirmed by

² The most obvious example is the polemic between Stevenson and Wolfers (2008) on the one hand and Easterlin (Easterlin, Angelescu, 2009) on the other.

³ The last survey covered 140 countries.

the newest Gallup research from 2010-2011 for 124 countries (Fig. 1). The conclusion is that money brings happiness but only to the poor because it allows them to satisfy basic life needs. Once these basic needs have been met, further growth in affluence ceases to act on psychological well-being (Hagerty i Veenhoven, 2000).

- *insert Fig. 1 about here* -

Fig. 1, and the form on which is based the thesis that getting richer does not have much influence on the psychological well-being of the wealthy does not, however, take into account the law of diminishing marginal utility, according to which, the utility of each successive consumed unit of a good is smaller than that of each previous unit. An increase in per capita GDP from 300 to 400 dollars means an undoubtedly larger change in noticeable quality of life than an increase of the same size from 30,000 to 30,100 dollars. In order to take this law into account, we changed the absolute GDP figure into a natural logarithm. In so doing, we discovered that the relation between the wealth of a country and the well-being of its citizens takes on a linear form (Fig. 2). While for the GDP regression slope in rich and poor countries was 0.00, the GDP logarithm gave a regression line slope of 0.86 for the poor countries, and 1.27 for the rich countries. This means that, taking into account the proportional difference in income, the relation between wealth and well-being is even a little stronger in the rich country group than in that of the poor countries.

- *insert Fig. 2 about here* -

GDP is correlated with many other indicators - social (freedom of press, level of medical and social services, human rights, level of education etc), cultural (individualism-collectivism, religion, length of time as a democracy) and institutional (systems — political, economic, health care, insurance, education etc — and also the tempo and effectiveness of their reform). Some of the above mentioned factors are more strongly correlated to well-being than income itself. For example the correlation between the percentage of citizens who are satisfied with their life and the total *Freedom House* results concerning civil freedoms and political rights in a group of 62 countries is 0.78 and is higher than that between well-being and GDP in the same group of countries (0.70) (Inglehart i Klingemann, 2000). The correlation between economic freedom and the happiness of nations is +0.69 and only slightly falls (to +0.43)

when the GDP effect is taken into account (Veenhoven, 2000). Almost all the countries with protestant traditions are in the richest and happiest group. Also the individualism-collectivism scale is highly correlated with psychological well-being. Collectivist countries, especially in the wealthier group, are less happy than the individualist countries (Ahuvia, 2004; Veenhoven, 1998).

However, among the correlates of the wealth of nations there are also negative indicators of the quality of life. In comparison with poorer countries, there is a higher level of suicide, more environmental pollution (CO² emissions), divorces, affective disorders and pathologies (e.g drug addiction) in the well-off countries (Myers, 2000). Some even speak of the “dark side of the American dream” (Kasser i Ryan, 1993).

Among the factors that can cast a shadow on the positive effect of wealth on well-being may often be included inflation, unemployment and income inequalities. We shall verify what role these factors play at the international level.

2.2. Inflation, unemployment and economic inequality in relation to psychological well-being

Inflation, unemployment, and economic inequality are problems of many modern societies. As macroeconomic phenomena, inflation and economic inequality cannot be, as opposed to unemployment, considered at the individual level. This does not mean that they cannot have an influence on the psychological well-being of individual persons.

A high and rising level of inflation significantly lowers the sense of satisfaction with life (Di Tella, MacCulloch, Oswald, 1996; Di Tella, MacCulloch, 2008). Richard Wilkinson and Kate Pickett (2009), in their much discussed book on the subject of the negative effects of economic inequality do not analyse the relation between psychological well-being and inequality. They only show that the number of people with psychological disturbances has a positive correlation with an indicator of inequality across only 12 developed countries. Research dedicated to the relation between the stratification of income and well-being often results in divergent results. A few show a statistically weak, social group dependant influence of inequality on sense of happiness or satisfaction with life (Alesina, Di Tella, MacCulloch, 2004; Graham, Felton, 2006). In others, inequalities do not have any significant effect in the scope of well-being above the stratification of personal incomes. However Veenhoven (2005) noted, to his own surprise, that for a group of 30 countries of different levels of development, the partial correlation between stratification and life satisfaction with GDP control is positive

(+0.42). People living in countries of unequal income are happier than those living in countries of equal income. A lack of work not resulting from retirement has an unequivocally negative effect on psychological well-being, equally at the individual and national level. The majority of research shows that the unemployed are in a worse psychological and physical condition to those in work and the aggregated indicators of psychological well-being are significantly lower in countries and times of high unemployment (Blanchflower, 2001; Clark, 2010; Di Tella, MacCulloch, 1996; Di Tella, MacCulloch, 2008; Frey, 2008; Helliwell, Huang, 2011; Warr, Jackson, Banks, 1988; Winkelmann, Winkelmann, 1997). While on the individual level the interrelation can be, and probably is (Hamilton et al, 1993), two-way, the infirm, depressive, pessimistic and miserable are at greater risk of losing employment or remaining unemployed, but there is no doubt that a lack of employment has an influence on well-being that is independent of other factors.

We shall look at the relation between psychological well-being and unemployment, inflation and income stratification for 73 countries sorted according to their development on which we were able to gain indicators for all these variables in a similar period (2005/07). The results of multiple regressions as shown in table 1 prove that stratification measured by Gini coefficient has significance for well-being only with the GDP control. So Gini's effect is positive as in Veenhoven (partial correlation is +0,33). The effect of the level of unemployment is the only statistically significant effect in all models of analysis (also with the GDP control). Inflation level differentiates satisfaction with life until the GDP is introduced in the regression equation.

Since the wealth of a country is such an important modifying factor on the effect of stratification and inflation, we have divided the whole sample into two groups of countries – rich and poor. This division fundamentally changes the pattern of relations (table 1). In the poor countries in every regression model, the Gini indicator is a significant predictor; its partial correlation with satisfaction with life is almost exactly the same as Veenhoven's (+0,47). Inflation in poor countries does not affect well-being, while it does in wealthy countries though only with the GDP control. The only relatively universal factor that has a negative effect on satisfaction with life is unemployment, though in rich countries the importance of this factor depends on GDP as it is in those countries that it is significantly correlated negatively with GDP.

- *insert Table 1 about here* -

2.3. The individual level

There is a link between income and psychological well-being within countries. However it is rather weak. A meta-analysis of 85 different samples shows an average correlation of 0.17 between these two variables (DeNeve, Cooper, 1998). This is a result of the high variation of well-being in particular income groups. When we remove these variations by averaging out the indicators of well-being within a number of income groups, the strength of the link rises markedly. The data from the latest wave of *Social Diagnosis*⁴ is an illustrative example of this effect.

In a sample of 24723 respondents, the correlation between household income and subjective general well-being (an assessment of one's whole life, sense of happiness and assessment of the past year) was 0.24. However, after dividing the whole sample into 30 equal sub-groups differentiated by size of income, the correlation rises to 0.83 and it turns out that the relation has the form of a power function as in the case of the international comparative study (Fig. 3). If we turn the income variable into a natural logarithm of income, the relation takes on a linear form and the correlation rises to 0.96. This link, which is clearly stronger than average for other countries, between well-being and wealth (and in general with objective indicators of the quality of life) I called the anchorage of the Polish soul already some time ago (Czapiński, 1994). But is the Polish soul only anchored? I shall attempt to answer this question in the final chapter of this article.

- insert Fig. 3 about here -

The relatively weak relation between personal income and well-being in whole samples, especially in better off countries, supports the conclusion that money is not a significant condition of a happy life (Myers, 1993; Diener and Biswas-Diener, 2002; Layard, 2005; Nettle, 2005), in particular if the money is used for inappropriate consumption (Frank, 2004⁵). It is significant that in *Social Diagnosis* personal income was only in 4th place among 18 predictors of psychological well-being.

⁴ Report and data base see www.diagnoza.com.

⁵ Frank distinguishes conspicuous consumption that serves social status rivalry, and the inconspicuous kind that improves the quality of life.

<u>Rank⁶</u>	<u>Correlates of psychological well-being (direction of the correlation in brackets)</u>
1	Age(-)
2	Marriage (+)
3	Alcohol abuse (-)
4	Income (+)
5	Number of friends (+)
6	Unemployment (-)
7	Gender (women have the lower level of well-being)
8	Level of education (+)
9	Religious practice (+)
10	Smoking (-)
11	Being on social security (-)

Therefore, in Poland it is not socio-economic status that most determines the satisfaction with life and other aspects of well-being, but demographic factors like age and social relations (friends, marital status). People are more important than money of which, after all, the respondents are aware. When asked to choose the three most important conditions of a successful, happy life they mention, in the following order (percent of mentions in brackets):

Health (64)
 A happy marriage (53)
 Children (48)
 Work (31)
 Money (28)
 Providence/God (13)
 Honesty (10)
 Friends (10)
 Optimism, good spirits (10)
 Respect from others (7)
 Education (6)
 Strong character (5)
 Freedom (4)

It would seem that only friends are underrated as a condition of happiness. In the minds of Poles, money takes up a similar place to that in the objective correlates of well-being.

There is also no shortage of papers showing that it is not the absolute but the relative size of income - in social comparisons and comparisons in time - that has an influence on satisfaction with life (e.g. Clark, Oswald 1996; 2005; Ferrer-i-Carbonell, 2005; Luttmer, 2005). The process of adaptation plays also an important role. Gaining a higher standard of

⁶ Rank for average predictive value of a given factor after elimination of all other factors effect for 7 indicators of well-being: evaluation of one's whole life, sense of happiness, satisfaction with current life, suicidal tendencies, will to live, assessment of the last year and symptoms of depression.

living can only offer extra satisfaction for a certain amount of time (Di Tella, MacCulloch, 2010). Wealthy people treat their wealth as something completely natural and do not get any particular joy out of it. Apart from that, financial success raises aspirations so those who are getting richer may feel a constant hunger for more. It was with these factors that Easterlin (1995, 1997, 1999, 2005) sought to explain the Easterlin paradox. Without a doubt, people differ also in their attitude to money and how they spend it. These characteristics can also change the picture of the relation between income and psychological well-being. However, the data from *Social Diagnosis* do not support the thesis that relative level of income is more important to subjective well-being than absolute income level.

1.3.1 Comparison, aspiration and adaptation

If it was the relative and not the absolute level of income that decided about psychological well-being, people of both high and low incomes would be happiest in poor neighbourhoods. If the inhabitants of a sub-region are taken as a significant reference group in social comparisons, we can check whether in poor communities people are happiest because poor people see themselves in this surrounding as less poor and the rich see themselves as richer than in rich areas. We divided 66 sub-regions⁷ in Poland in three groups according to average level of residents' income. Likewise we divided residents into three groups on the basis of their personal income, taking the same income levels for all sub-regions (10% poorest, 80% of average wealth and 10% richest according to the sample breakdown of incomes for the whole of Poland) In other words; both poor and rich had the same absolute income level in all 3 groups of sub-regions. It turned out that the effect of a sub-region's wealth on well-being was completely insignificant. The only thing that counted was the absolute level of income. The rich are a lot happier than the poor in all sub-regions. However the effect of the interaction of the wealth of the sub-region and the wealth of the residents was important. Poor residents turned out to be the happiest in the richest areas (Fig. 4). This does not support the thesis that relative wealth in comparison to the size of income in the reference group is more important subjectively than the size of income. Our test does not however rule on this matter, because the important reference group is normally people from the immediate neighbourhood and not the inhabitants of the whole sub-region. The results of our research could also have been influenced by higher costs of living in wealthier areas and better social care in those

⁷ According to the official classification as NUTS 3 European Union territorial units

same areas. The higher cost of living may lower the quality of life of the middle wealthy while the better social care could raise the quality of life for the poor. This would explain why in the wealthy sub-regions the psychological well-being of the middle wealthy falls with the rise of the well-being of the poor.

- insert Fig. 4 about here -

People can compare their financial situation not only to each other, but also to their own situation in the past. The contextual meaning of income thesis claims it is the rise or fall of income that is important. We analysed data from *Social Diagnosis* for whether change in income is a significant indicator of psychological well-being. Regression analysis with control for age and level of education showed the effect to be statistically insignificant (beta=0.016, t=1.750, p=0.08, N=11336) while the effect of income level was significant (beta=0.127, t=13.18, p < 0.01). After being sorted into four categories, the effect of change of income between 2009 and 2011 actually turned out to be statistically significant but weaker (F=24.00, p<0.01, eta² = 0.006) than that of income level (F=113.38, p <0.01, eta² = 0.029). Change in income explains 1% of psychological well-being variation while income level explains 3% of variation.

We took the percentage difference between income actually achieved and expected income over the next two years as an indicator of financial aspiration in *Social Diagnosis*. Aspirations thus measured do not correlate with well-being, but they do so negatively with change in income. When we add income level and income change aspirations to the regressive equation (Fig. 4), their effect turns out to be negative (beta=-0.025, t=-2.68, p<0.01). High income aspirations lower well-being. Do aspirations rise with affluence? On the contrary; from *Social Diagnosis* results it is apparent that the higher the income level, the lower the earning aspirations.

The correlation between wealth and psychological well-being does not determine the direction of the relation. A lot of proof of the effect of money on well-being has been gathered. Longitudinal data on the satisfaction with life among the residents of East Germany shows a significant improvement in their well-being following the growth of income after unification with West Germany (Frijters, Haisken-DeNew, Shields, 2004). An even more direct proof of the influence of money on well-being is the effect of winning the lottery. British players who won even relatively small sums showed higher indicators of psychological well-being than

their less fortunate counterparts even two years after the event (Gardner, Oswald, 2007). There is also no shortage of proof of the opposite relation: a high level of psychological well-being increases the chances of higher income. We shall return in depth to this problem shortly.

We therefore considered how two contextual factors -- comparisons in time (changes in income) and aspiration -- affected the dynamic of well-being, and whether they had a greater effect than the absolute level of income. Table 2 presents the results of multiple regression analysis. It shows that a rise in income has similar positive effect to that of its initial level, and the level of aspirations has a markedly negative effect on the change of general subjective well-being. Aspiration does however have a positive influence on the growth of income ($r=0.21$). It may therefore directly weaken well-being but indirectly it favours the strengthening of well-being through stimulus of efforts to increase wealth. This is because high aspirations improve well-being only when they go in hand with a rise in income. When however aspirations are blatantly unfulfilled, they cause its fall. This is proven by the significant statistical effect of the interaction of income growth and the size of aspiration (Fig. 5). If the rise in income is high, then high aspirations rather favour the improvement of well-being, but with a low growth they reduce it markedly, even more so than modest aspirations. This results from the level of unfulfilled aspiration as demonstrated by Fig. 6.

- *insert Table 2 about here* -

- *insert Fig. 5 and 6 about here* -

The very strong negative effect of the initial level of well-being (see table 2) proves the significant role of the adaptation process: a low level of well-being resulting from a worsening of life circumstances (e.g. from a fall in income) deepens as time passes, and a high level of well-being resulting from an improvement in living standards (e.g. from a rise in income) also falls as time passes irrespective of changing circumstances. This is borne out by the unusually rich empirical documentation of this effect in the work of economists (Di Tella, MacCulloch, 2010) but also (maybe above all) of psychologists (Clark et al., 2003; Czapiński, 2011a; Lucas et al., 2002)⁸. Just how fast the process of adaptation on the macro level in natural conditions of economic recession can be is shown by the results of Gallup poll (Deaton, 2011). Gallup has been gathering data on the psychological well-being (happiness with life and emotional state) on a sample of 1000 Americans every day since 2008. With the

⁸ Of course, the adaptation is not full in every case especially when it comes to especially traumatic negative events (Lucas, 2007). However, change in income is not one of these events.

collapse of Lehman Brothers in the autumn of 2008, a lasting fall in well-being indicators continued from the spring 2009. However, even before the end of 2010, those indicators returned almost to their levels of January 2008, despite the continued high levels of unemployment and other signs of economic crisis from which the United States has still not fully recovered even now (February 2012).

Serious analysis shows that the researchers who are in the right are those that appreciate the importance of contextual variables but do not negate the fundamental significance of the absolute level of wealth. The rich remain happier than the poor irrespective of social context, their own aspirations and changes in income.

1.2.3 Materialism and consumerism

Materialists, as most research consistently confirms, are less happy than non-materialists. (Ahuvia, 2002; Ahuvia, Wong, 1995; Easterbook, 2003; Kasser, Kanner, 2003; Lane, 2000). The paradox of materialism is that, in accordance with the principle of motivation, someone who really wants to achieve something has better chances of achieving it compared to someone who wants to achieve it less. The greater the motivation, the greater (up to a point) the probability of success: to want is to be able. Meanwhile, money as an aim of effort does not favour success, while money as a result of effort does. Of course the simple explanation of this paradox would be the negative relation between materialism and income. Maybe in the case of money, the old adage “the more you want it, the more you will achieve” is violated and the greater materialists are in fact those with less money. In other words, it would not be the desire for money that leads to money, but the lack of it makes money especially desirable. It would mean that the aspiration to earn depends rather on the needs principle than the motivation principle, like eating, drinking or sleeping: the well-fed value food less than the hungry, the thirsty than those who have just drunk a litre of water and the well-rested value sleep less than the tired. *Social Diagnosis* data show a significant inverse correlation between materialism (indicating money as one of the three conditions of a successful, happy life and a complex indicator of desire for material goods) and personal gain. However this relation, though statistically significant, is too weak⁹ to talk about a principle of need. Instead it should be accepted that the attitude to money as a value and real income are two different factors with opposite effects as far as psychological well-being is concerned.

⁹ The correlation coefficient between materialism and personal income in *Social Diagnosis 2011* was -0.071 (N=19243, p < 0.001) for money as a value and -0.035 (N=19357, p < 0.001) for desire of material goods.

In fact the relationship of income and happiness can have a completely different character to that of happiness and materialism. In the first case, it is rather happiness, as suggested in the research described in chapter 2.4, that conditions income, while in the second the direction is presumably the opposite – attaching great weight to money as a target of aspiration weakens satisfaction with life. This would be in line with the theory of self-determination (Ryan, Deci, 2000): money aspiration strengthens extrinsic motivation at the cost of intrinsic motivation and so lowers psychological well-being. It cannot be ruled out that the person who sets themselves economic profit as an objective is exposed to a more rigorous test of achievement, and at the same time more frequent and pronounced proof of failure resulting from social comparison. It is easier to fool oneself that one is wise or honest than it is that one is rich.

If the significant relationship between materialism and psychological well-being were a result of the needs principle and not that of motivation, the relation between income and happiness at the individual and national level could in part result from the negative correlation between affluence and materialism. In accordance with this reasoning, poor countries would be less happy than the rich not only in terms of worse satisfaction of existential needs but also as a result of greater materialism. But do materialistic attitudes really grow weaker with rising income? At the individual level there is, as I have mentioned, a small but significant linear negative relation between materialism (indicated by money as one of the most important life values) and income. The data in table 3 show that, depending on the year of research, there are 1/3 or 40% fewer materialists in the group of highest income than in that of the lowest income. Rich Poles seek the purpose of life beyond money more often than poorer Poles. This regularity is confirmed also in time scale at the national level. As Poles have become wealthier, the percentage of materialists has fallen from 39% in 2000 to 28% in 2011 (Fig.7).

- *insert Table 3 about here* -

- *insert Fig. 7 about here* -

However, in other countries materialist attitudes do not weaken but grow stronger with the growth of affluence. A many-year survey of American students shows a systematic change in motivation to continue in education: hope for more money was the motive of 40% of teenagers in the 1960's, and in 2000 it was already 74%. The exact opposite trend was associated with other-than-material expectations that fell from 80% responses to 40% (Myers, 2000). Numerous publications and social studies have demonstrated that money has not in any way lost its importance in rich countries and that earning it absorbs people's attention all the more the more money they have. In rich countries, materialist attitudes result not from the

needs principle but from that of motivation: money takes on a symbolic value and serves more as a gauge of social prestige than as a means of survival. Even though the materialism of the rich also does not favour happiness, other factors correlated to GDP seem to neutralise its negative psychological effect. This kind of positive balancing factor is individualism¹⁰ according to many researchers (Ahuvia, 2002; Fischer, Boer, 2011; Veenhoven, 1998). Rich market democracies favour intrinsic motivation, give people a greater choice and a greater freedom of choosing, offer moral permission to non-conformism of lifestyle, practices, habits and personal relations, provide distance to authority and limit the role of ascribed characteristics (skin colour, social background, gender etc) in the determination of a person's destiny. While Alan Wolfe wrote biting in his review of a number of alarmist books on the condition of the USA and Americans, "consumption has consumed America" (Alan Wolfe 23.10.2000, *The New Republic On Line*), this may be why rich Americans show an unchanging high level of psychological well-being.

3. DOES AN INCREASE IN WEALTH REALLY NOT IMPROVE PSYCHOLOGICAL WELL-BEING?

Easterlin (2005; Easterlin, Sawangfa, 2009) continues to defend his thesis of 1974 that an increase in the wealth of a society does not improve its members well-being. What is true for many high developed countries (e.g. USA, Japan and Great Britain), is that it is difficult to detect any noticeable change in citizens' aggregate sense of happiness or satisfaction with life over even decades or so, despite marked economic growth in terms of *per capita* GDP. However, does this mean that money has no bearing on the quality of life including subjective well-being in these countries? Or perhaps GDP is not the best gauge of the economic standard of people's lives. Already in the 60's, Robert Kennedy said GDP "measures everything, except that which makes life worthwhile". There is also the dark face of economic growth, which obscures its positive effects in people's eyes¹¹. Here are just two examples. Claude

¹⁰ Indeed, Aaron Ahuvia (2002) argues that the link between wealth and well-being is superficial; the real source of happiness is individualism, which grows together with economic development. Economic development liberates people from a corset of social responsibilities, reduces social capital (e.g. trust) but increases the possibility of the individual making choices in accordance with its inner needs and so raises the feeling of happiness, hence the title of Ahuvia's article "Honour versus hedonism" (1999).

¹¹ Questioning the value of GDP as the main indicator of social development began to gain strength in 20th century largely due to the famous Stiglitz-Fitoussi commission (<http://www.stiglitz-sen-fitoussi.fr/en/index.htm>) to the President of France, which gained wide commentary and an almost institutional character. Many alternative indicators also appeared, like Bhutan's Gross National Happiness, National Accounts of Well-being (UK, www.neweconomics.org) and the National Happiness Index (Yew-Kwang Ng, 2008) based on the New Economics Foundation's (www.happyplanetindex.org) idea, the Genuine Progress Indicator (GPI; Cobb, Halstead, Rowe, 1995), the Index of Sustainable Economic Welfare (ISEW; Daly, Cobb, 1989), the Sustainable

Fischer (2008) demonstrated that between 1972 and 2004 in the USA, well-being did not correlate with change in *per capita* GDP, but it did correlate significantly with change in household income, earnings and hourly wages. These three economic indicators correlated with American's well-being diagnose real life standards better than GDP, including, among other things, spending on the military and prisons. Another example comes from Great Britain (New Economics Foundation, 2004). When instead of GDP, spending on consumption and other spending (with the exception of defence spending), also social costs (crime, family breakdown, transport and road accidents) and costs of environmental pollution and the devastation of natural resources were included in the Measure of National Development, it turned out that from 1973 to 2000, GDP rose by 70% while the psychological well-being of Britons stayed at the same level just as did the Measure of National Development.

Blanchflower and Oswald (1999) showed that in the USA and Great Britain economic growth began to disengage itself from certain social indicators in the 1970's. Then William Easterly's (1999) research showed that the majority of social indicators in no way depend on (in a causative sense) economic growth, but of three direct results of economic development that could be seen as real only one is clearly positive (number of telephones per 100 residents), while the others raise more controversy than joy in developed countries: the amount of protein and carbohydrates consumed by inhabitants – in other words obesity and its consequences to health.

The resulting conclusion is that the world is definitely changing, as is the quality of life everywhere. A large part of the changes correspond to each other in a positive direction, but not everything that is good - which most people, including politicians, consider desirable in general and individual terms - is an effect of the improvement in material conditions hitherto unprecedented in human history ¹² (Easterlin, 2000). Many evils however may be laid at the door of economic growth and civilizational change in a wider sense; we are therefore at once the witnesses, the beneficiaries and the victims of our work (Myers, 2000). However, taking subjective well-being indicators as a measure of the effects of economic growth, one can be so bold as to say that on balance, though only a little above zero, it is nonetheless still positive

Net Benefit Index (SNBI; Lawn, Sanders, 1999), the United Nations Development Programme's Human Development Index (HDI, UNDP, 1990), and the National Account of Time Use (Krueger, 2009).

¹² Before the industrial revolution, doubling the standard of living took about a thousand years, while currently income doubles every 30 years and since the 1950s the material standard of living has increased more than three-fold so that today the inhabitants of poor countries live better and longer than the majority of people in Western Europe did at the beginning of the last century (Easterlin, 1997).

and so we do not know how events would have unfolded if we had realised the postulates of the communitarians¹³ and halted the march of economic growth as they prescribe. If the objective is to rein in poverty (currently 3 billion people – half of the world’s population - have only two dollars a day to spend on staying alive), there would seem to be no other route than material development; though this development should be balanced and as such decidedly different to that hitherto, taking into account also those indicators that are not in step or at odds with GDP (World Bank, 2003).

On the other hand, the dynamic of well-being is not always out of step with economic growth in terms of *per capita* GDP, a relationship noted in Mexico, the Philippines and also in many other less-well developed countries. An example of a very particular natural experiment is post-unification East Germany. From 1991, the inhabitants’ satisfaction with life rose systematically in step with the increase in their real income (Clark, Frijters, Shields, 2008). Another convincing example of the relation between change in wealth and psychological well-being is Poland. In the last 20 years, GDP rose in real terms at a similar rate to the Pole’s satisfaction with life, in 2011 reaching 200% that of 1992 levels.

- *insert Fig. 8 about here* -

Many researchers have questioned Easterlin’s thesis (most strongly Stevenson and Wolfers, 2008) that the enrichment of all without a change in the social structure of affluence makes nobody happier. Indeed, it only seems accurate with respect to certain countries; those which have attained a certain level of wealth. In poor and developing countries, citizens’ happiness seems to follow economic growth. We shall verify if this is in fact the case on a sample of 26 countries for which we have the well-being data from two waves 10 years apart. Fig. 9 proves the significantly negative relation between the absolute size of GDP growth and change in well-being. In the countries of the greatest GDP growth, the indicator of well-being actually fell slightly. However we should not forget about the law of diminishing marginal utility. When we take this law into account and calculate the percentage change of the GDP logarithm, the picture of the relationship is completely reversed (Fig. 10). Now it appears that among the inhabitants of countries in which income rose not the most in absolute terms but fastest, their satisfaction with life also grew the fastest. Stagnation and even a small fall in

¹³ A social movement born in the United States of America in second half of the 20th century that postulates the shifting of emphasis from economic development and the accumulation of private property to social, ecological and intellectual aspects of life and the promotion of balance between social responsibility and the rights of the individual. The founder of the Communitarian Network is Amitai Etzioni, professor at George Washington University and author of the famous book „Next: The road to the good society” (2001, Basic Books).

well-being occurred in the wealthiest countries with a low rate of GDP growth (USA, Australia, Great Britain, Switzerland and Sweden).

- *insert Fig. 9 and Fig. 10 about here* -

When we divide the whole group of countries into two sub-groups – rich and poor according to *per capita* GDP in 1995 (7000 USD at year 2000 values) – it turns out that the correlation between income growth and change of well-being is significant only in the group of poor countries, especially if we leave China and India out¹⁴ (Fig. 11) and no significant in rich countries (Fig. 12).

It is also worth considering that while wealth can grow infinitely, well-being had a ceiling, at least in the scales used in poll research. Nobody can record a higher life assessment indicator on the 11-point Cantril ladder (used by Gallup World Poll) than 10 points, in which the aggregate average is 8 on this scale (and that is the rich countries) and is significantly lower in countries where the average is 4 or 5 (the poorest countries). Therefore, to a certain extent, Easterlin's paradox may be, as far as highly developed countries are concerned, a result of differences in the growth potential of wealth and well-being measurements.

- *insert Fig. 11 and Fig. 12 about here* -

4. WHY DOES MONEY HAVE AN EFFECT ON PSYCHOLOGICAL WELL-BEING IN CROSS-SECTION COMPARISON, YET HAVE NO SUCH EFFECT IN TIME COMPARISONS?

This question has been partially answered in the previous chapters. Firstly, rising income draws with it a rise in well-being but only, or mainly, within the margin of error. The additional income of the rich does not make them happier because they are already either at their maximum happiness (set point), or once money has satisfied their basic needs, it becomes for them a measure of success and a criteria of success normally is a distance to others. If everyone gets richer and distances remain the same, or even become wider, the average well-being derived from social comparison remains unchanged (those falling down the hierarchy of affluence lose as much as those moving up). The insignificant role of economic stratification with respect to well-being proves that this could really be the case. The problem appears when, in the course of the pursuit of ever higher status that ever higher

¹⁴ The case of these two countries proves that behind economic growth may lurk negative consequences that weaken citizens' well-being not only in wealthy countries, but also in those in development where the tempo of economic growth is especially high. The causes of the Chinese paradox are written about by John Knight and Ramani Gunatilaka (2010) amongst others.

incomes serve, not only does the subjective quality of life not improve, it deteriorates objectively and even sometimes subjectively. Research on the richest Americans from the *Forbes* list revealed that one in three felt less happy than the average citizen who was tens times poorer and neither believed that money was the main source of happiness, though the majority admitted that wealth had its advantages (Diener, Horwitz, Emmons 1985). In their tellingly entitled article “How not to buy happiness” Robert Frank (2004) note it is what the relatively well-off spend their money on that determines whether money brings them happiness or not. If they spend it on conspicuous goods – ever larger houses and more expensive cars (status symbols) – they are fooling themselves that they will become happier. However, if they direct their rising income towards inconspicuous goods, like freedom from stressful job or a long commute, they have the chance to improve the real quality of life. Frank asks a question that relates even to the policy of spending of society as a whole (that is a country): what would you choose – country A, whose residents have 140 m² houses and who commute to work in their own car for over an hour, or country B, where people have 100 m² houses and get to work in 15 minutes by fast public transport? Most people in wealthy societies choose the first option and race around at ever higher cost in time, nerves and money, just to stay ahead of the pack. Frank (2010) shows what a futile task it is to maintain psychological well-being in terms of social status quo despite ever growing affluence. In the USA in the 1950’s, it was possible to rent out an average home with earnings of 10 dollars an hour. 50 years later you had to earn 18 dollars an hour to get the same house. What did average Americans do about it? They started working longer hours. From 1970 to 2000, the number of work hours needed to rent an average house rose from 46 to 70 per month. However, this did not slow conspicuous consumption, because material status remained the basic idea, though measured not by the absolute size of income, but in relation to the income of others. In three different studies (Alpizar, Carlsson, Johansson-Stenman, 2005; Johansson-Stenman, Carlsson, Daruvala, 2002; Solnick, Hemenway, 1998), people were asked what they would choose: A) earning 50,000 dollars a year and others 25,000, and B) earning 100,000 and others 200,000. Most chose option A. Since the majority has this preference, distances remain and influence the differences in the sense of happiness.

When incomes rise in a society, it is normal that some people become wealthier than others. Others also lose out. However, in times of economic growth, the amount of losers is significantly lower than winners. Why then, does a majority of beneficiaries, an improving standard of living (the absolute utility of money effect), and a visibly increasing gap to the

impoverished minority (the relative utility of money effect) not increase the general level of happiness in a society? Analysis of the relation between the dynamic of income and happiness on the individual level show that a fall in income gives a three or four times stronger effect than a rise in income (Taylor, 1982). When the standard of living falls, the sense of well-being also falls markedly for a time, while an improvement in material conditions does not pull it up either at all or to a far lesser degree than a fall in income. Data from *Social Diagnosis* confirm this. A fall in general psychological well-being (the sum of standardised values of a sense of happiness and an evaluation of one's whole life and the last year) with a fall in real personal income from 2009 to 2011 is around 3 times greater than the rise in well-being with a rise in income of the same value as the fall in income. In fact, a rise in income of less than 500 PLN gave no significant improvement in well-being whatsoever, while a fall in income of even less than 100 PLN caused a significant fall. The result is in agreement with the effect of negativity -- „evil is stronger than good”, confirmed in numerous studies (Baumeister et al., 2001; Peeters, Czapiński, 1990).

However, as far as continuing economic differences in economic status may explain the difference in the level of well-being between the members of a single community (region or country), they do not seem to be sufficient to explain differences in the well-being of whole societies correlated with wealth. A Pole is forced to compare their material status with that of other Poles (especially neighbours') on a daily basis, but they compare themselves to Germans or Americans relatively rarely. What therefore determines international differences in well-being? Perhaps in the poor country group the absolute value of money is decisive (to what level and how big a part of society satisfy their material needs – well-being brings happiness), while in the wealthy country group where almost all citizens have their basic needs satisfied differences in well-being are determined by culture and genes, and the level of a country's wealth is a product of the level of well-being of its inhabitants (happiness brings material well-being). To this unusually significant, in a theoretical and practical sense, problem of differing mechanisms regulating the relation between economics and happiness in countries of different levels of development, we shall return in the last chapter of this paper.

5. IS HAPPINESS A FORM OF CAPITAL ON WHICH WE CAN “EARN”?

Even though this question did not really come up in the early stages of researchers' interest in

the issue of well-being, in recent years proof has quickly been coming to light that psychological well-being is not any simple epiphenomenon or a mere barometer of the state of reality, but is also fully a significant function of one of the most important resources permitting the shaping of the quality of life. The advantages flowing from positive emotions, the joy of life and optimism are very much measurable, objective and multiple. The life of a happy person looks completely different to that of an unhappy one. Happiness is like a ticket bought in the lottery – it offers the chance of winning. The prize may be good relations with close ones, health, a professional career, money and everything else that people dream about, strive for and what seems to be the promise of “real” happiness. The happy get on better (Czapiński, 2007, 2009; Headey and Wearing, 1989; Lyubomirsky, King, Diener, 2005). Longitudinal studies have shown the influence of psychological well-being on physical health and longevity¹⁵, (Danner, Snowdon, Friesen, 2001; Levy i in., 2002; Scheier i in., 1989), on social and intimate relations (Harker, Keltner, 2001; Lucas et al., 2003; Spanier, Furstenberg, 1982)¹⁶, professional career and income (Diener at al., 2002; Graham, Fitzpatrick, 2002; Marks, Fleming, 1999; Roberts et al., 2003)¹⁷. A feeling of happiness appears to be the main source of a person’s luck.

Barbara Fredrickson (2011) was one of the first researchers to propose a coherent theory of how positive emotions influence life success. Also the onion theory of happiness (Czapiński,

¹⁵Deborah Danner, David Snowdon i Wallace Friesen (2001) showed that the level of autobiographical optimism in 180 young catholic nuns allowed the prediction of the likelihood of their death within 60 years. The more optimistic sisters lived much longer. Those, whose youthful autobiographies were considered least optimistic, were two-and-a-half more times likely to die in the period than the 25% most optimistic group. In one of the studies it turned out that an optimistic picture of the aging process increased the life expectancy of women and men by as much as 7.5 years (Levy i in., 2002).

¹⁶ The influence of well-being on interpersonal relations in women is shown by Lee Anne Harker and Dacher Keltner (2001). Taking advantage of a special programme that analysed the layout of face muscles, the expression of positive emotion was estimated on the photographs of 141 college students. It turned out that women whose faces showed more positive emotions at the age of 20-21 had a slightly better chance of getting married by the time they were 27 and a smaller chance of remaining spinsters in the next 20 years. The link between the facial indicator of psychological well-being and the fate of women was not mediated by their physical attractiveness, which did correlate, it is true, with expression of positive emotion on the students’ photographs, but did not allow the prediction of their further marital career. Women with a happier look found it easier to get a husband whatever the state of their beauty. *Social Diagnosis* data indicates that higher level of psychological well-being favours marriage within the next 11 years. And this relation is much stronger than the opposite – the effect of getting married on psychological well-being. Level of well-being in the year 2000 explains 6.2% of the differences in marital state between 2000 and 2011 among singles in 2000 and getting married explains 2.9% of rises in well-being. People of the highest level of well-being in 2000 had a 64% better chance of getting married in the next years in comparison to people who were not so happy (Czapiński, 2009).

¹⁷ In one of the studies (Staw, Sutton, Pelled, 1994), the positive emotions of 272 employees were measured to ascertain how they would fulfil their work duties in the next 18 months. The happier employees were better assessed by their bosses and earned better salaries. In a large study on Australian youth (Marks, Fleming, 1999), respondents were followed over 15 years; the happy ones, it turned out had a much better chance of gaining interesting and well-paid work. In another linear study, it was shown that happier American students earned 30% more after 20 years than their less happy colleagues (Diener, Biswas-Diener, 2010).

1992, 2007, 2009; Czapiński, Peeters, 1991) assumes that psychological well-being fulfils an unusually important motivational function. It is not only, and maybe even not merely, a result of life experience and action, as it to a great extent decides about those experiences, activities and their results.

Fig. 13 presents the results of data analysis concerning well-being and income from a number of editions of *Social Diagnosis*. From these it is evident that the dependency of changes in level of personal income on well-being is in all comparable periods considerably greater than the opposite dependency – changes in well-being on changes in income¹⁸. Happiness is more a source of wealth than wealth a wellspring of happiness.

- insert Fig. 13 about here -

6. THE ONION THEORY OF HAPPINESS AND THE ECONOMICS OF HAPPINESS AND HAPPINESS IN THE ECONOMICS

The onion theory of happiness (Czapiński, 1992, 2007, 2009; Czapiński, Peeters, 1991) is a set point theory. It assumes that general psychological well-being, as it is measured in most studies on the economics of happiness (satisfaction with life and sense of happiness), depends on a constant, genetically determined will-to-live and on domain satisfactions resulting from life conditions (work, finances etc) and contextual variables (culture, upbringing). The potential for general subjective well-being cannot be exceeded in the long-run (it is limited by the level of the will-to-live), and it may not even be achieved. The basic obstacles to achieving the potential level of well-being are poor economic conditions that hamper the satisfaction of basic existential needs and reduce domain satisfactions¹⁹. Until those basic needs are satisfied, well-being has a reactive character and changes with life conditions. After

¹⁸ If psychological well-being were significantly responsible to some degree for earnings, than factors that influence a person's emotional state ought also to indicate some link to income. One of these factors is alcohol. A number of studies have indeed shown a dependency between alcohol consumption and the size of salary (Berger, Leigh, 1988). Michael French and Gary Zarkin (1995) studied 910 employees in British companies (men and women) and showed that a modest alcohol consumption (around 2 drinks a day among younger people, and 3 drinks for those of 30-59 years) favoured higher earnings. However, beyond this "optimal" amount, the negative effects of drink quickly multiplied. Of course it is difficult to say whether this is a direct effect of alcohol or another factor correlated to drink such as level of education or health (exactly the same relationship was detected between amount of consumed alcohol and heart disease – those who drank in moderation showed the lowest incidence of heart attacks (Marmot, Brunner, 1991)).

¹⁹ However, whatever the level of unsatisfied basic needs, almost all over the world there are more happy people than unhappy, which is because the genetic lines of our species that did not gain a strong enough "happiness attractor" (will to live), did not pass the test of evolution and long ago died out. The surviving populations guaranteed the strong will to live that influenced the sense of happiness and general happiness. In the mid 1990's, out of 72 countries only in one (Albania) was the percentage of "rather unhappy" or "unhappy" greater than that of "very happy" or "rather happy". In the first decade of the 21st century there was no such country out of the 84 studied.

basic needs are satisfied and the set point of general well-being is reached, well-being begins to play the role of a resource determining further economic growth. People and societies with a higher potential level of happiness have greater opportunities for further improvement in objective life conditions than people and societies that despite the satisfaction of basic needs have a lower level of well-being set point.

In the case of societies, the reaching of the potential level of happiness by the majority or even all members is not however a sufficient condition of further economic success. Other criteria deciding the effectiveness of co-operation must be fulfilled at this level; economists and sociologists have named these criteria social capital. Normally, if a community reaches a level of affluence allowing the satisfaction of basic needs, the majority of its members also fulfil the conditions of communal development. On the international scale, the correlation between aggregate indicators of well-being and social capital reaches 0.5 (Bjørnskov, 2011). There is however a marked difference in the strength of the relation between well-being and social capital in rich and poor countries. The correlation coefficient with social capital (trust and organisational activity) level in the group of 16 highly developed countries is 0.63 ($p < 0.01$), and in the group of 19 poor countries it is 0.38 (insignificant relation). For another indicator of social capital – corporate ethics²⁰ - the difference in correlation coefficient is even greater: 0.72 (for 22 rich countries) and 0.05 (for 35 poor countries).

In cross-sectional comparisons, the correlation between wealth and well-being is similar, but the causes of this relation are probably diametrically different in the group of people and societies that have not yet reached their potential level of well being and the group of people or societies that have reached it. In the case of the poor, differences in wealth determine well-being, while in the case of the rich it is the well-being that determines the differences in wealth. Income raises the happiness of the poor while happiness raises the income of the rich.

We verified a number of hypotheses that derive from the assumptions of the onion theory of happiness, starting at the individual level. In poor countries, where many people have not reached income levels allowing the satisfaction of basic needs, the correlation between general psychological well-being and the income of individuals ought to be stronger than in rich countries. This is borne out by data showing that in the group of low *per capita* GDP

²⁰ Percent of companies that positively rate company ethics and do not finance (legally or illegally) politicians, do not shift operational costs onto the state, do not bribe and do not cheat banks of public administration (data source: The Global Competitiveness Report 2008-2009, World Economic Forum).

countries, income correlates higher with satisfaction with life (Diener, Oishi, 2000; Inglehart, 1990) and in the group of citizens with relatively low personal income, material differences correlate more strongly with psychological well-being than in the more well-off group of citizens (Frey, Stutzer, 2002). RuutVeenhoven (1997) showed that the relation between GDP level and the correlation of personal income and satisfaction with life for 13 countries was 0.55: the richer the country, the weaker the link between personal income and the psychological well-being of its inhabitants. Later research has borne this out. For the 24 countries taking part in the *European Social Survey* in 2006, most of the rho Spearman correlations between psychological well-being (satisfaction with life and sense of happiness) and household income fell together with a country's affluence ($r = -0,62$ for GDP and $-0,66$ for the GDP logarithm). There is a similar relation in the results of the World Value Survey from the same period (Fig.s14 i 15).

- insert Fig. 14 and Fig. 15 about here -

Another hypothesis concerns the generative function of well-being, which reveals itself only after the satisfaction of basic needs and therefore in the relatively well-off group. Among people whose basic needs are not fully satisfied, the growth of well-being depends on a rise in income, and in people whose needs have been met, a rise in income does not increase well-being, while the level of well-being determines the rise in income. These hypotheses are supported by the data of *Social Diagnosis*. The results of the analysis of data on Fig. 16 show that in the group of poor Poles, a rise in income has greater meaning for improvement in well-being than well-being for the increase in income. Among the middle-affluent and affluent the pattern of relation is reversed: a change in income has no effect on well-being while the initial level of well-being determines the later rise in personal income.

- insert Fig. 16 about here -

At the macro level, the pattern of relations is similar to the above. In poor countries the growth of well-being depends on GDP growth, and in rich countries GDP growth depends on the psychological well-being of citizens. In chapter 2 we showed that economic growth increases citizens' satisfaction with life only in poor countries²¹. Furthermore, citizens' well-being determines later economic growth only in rich countries (Fig.s 17 and 18). The level of happiness in the 1990's explains a significant part of differences in the rate of economic growth in the period of the next 16 years in countries where income per capita exceeded 7000

²¹ With the exception of China and India where fast GDP growth in recent years has not increased the psychological well-being of citizens.

USD in 1995 (purchasing power as for the year 2000). In countries where income did not exceed 7000 dollars, there is no such relation; or rather there is, but it is rather negative (the greater the sense of inhabitants' happiness, the worse the prognosis for a country's economic growth).

- *insert Fig. 17 and Fig. 18 about here* -

7. CONCLUSION

The data presented in this article show that money brings happiness to the citizens of poor countries, while the happiness of citizens brings money to rich countries. The statistical relation between wealth and well-being is similar in both groups of countries (as shown in chapter 1), but the mechanism of the relation is presumably completely different. Happiness is unproductive until it reaches its potential level or set point. After reaching this point, general subjective well-being starts to favour fate and increases the chance of success in all significant aspects of the quality of life. This is exactly like in the generational life-cycle; first it is necessary to invest in one's own children's development so that they can invest in their own children (and perhaps partially pay off their parents' debts).

Of course there remains the open question; what is the mechanism that converts happiness into success? In the case of social relations, the answer seems straightforward; happy people are more attractive and open. On the economic scale, there are a number of possible mechanisms. One of them is presumably improvement in labour efficiency and the chance to gain better paid employment. There is an additional condition to collective success; effective cooperation, which is regulated by the complex of norms, attitudes and social networks known as social capital. As we showed earlier, it is significant that in as far as in poor countries there is no marked correlation between psychological well-being and various gauges of social capital (trust, corporate ethics, organisational activity etc), in rich countries the correlation reaches 0.70. So what is decisive in the economic growth of poor countries? It is mainly citizens' level of education and competitive labour costs, which attract foreign capital and know-how (Czapiński, 2011b). Creation of one's own know-how and capital demands a synergy of the sense of happiness with high levels of social capital. Poles are already happy (Czapiński, Sułek, Szumlicz, 2011), but we lack the social capital to develop an innovative economy.

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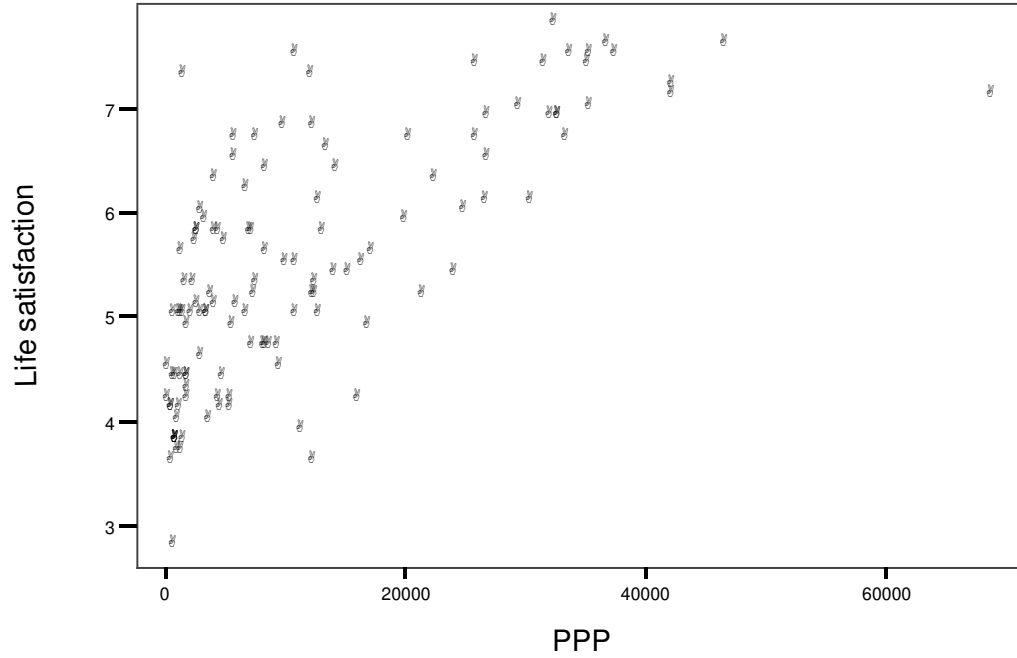
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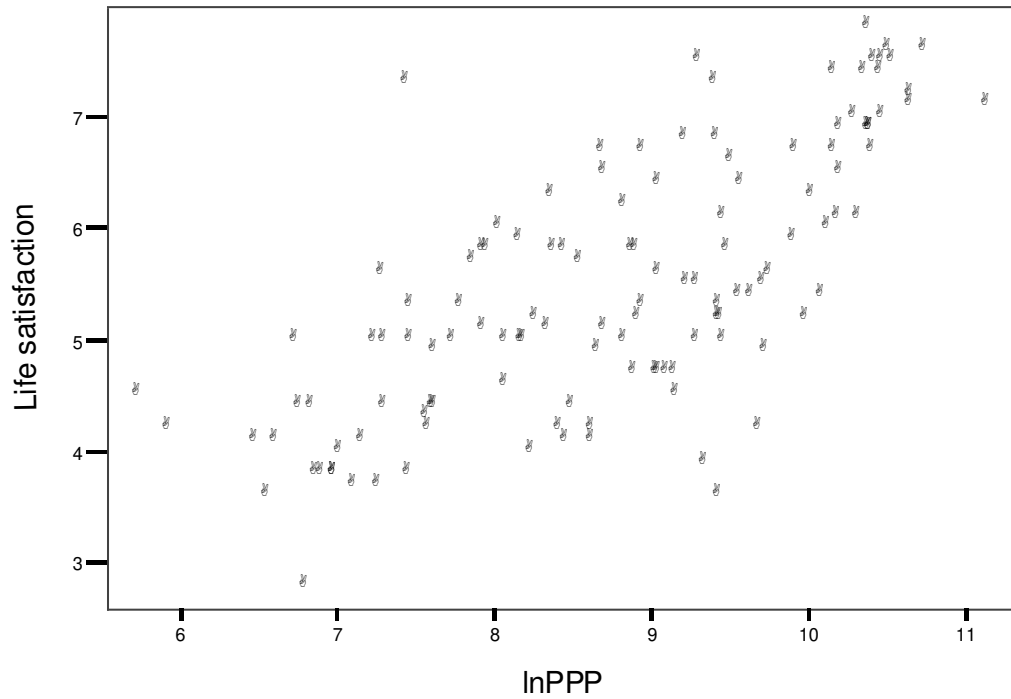
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$R^2=0.50$

Data source: life satisfaction -- Gallup World Poll, PPP -- World Bank

Fig. 1. The relationship between satisfaction with life measured by Cantril's ladder in 2010/2011 and per capita GDP according to 2010 purchasing power parity in an international cross-section



$R^2 = 0.51$

Slope of regression line: in poor countries = 0.86, in rich countries = 1.27

Data source: life satisfaction -- Gallup World Poll, PPP -- World Bank

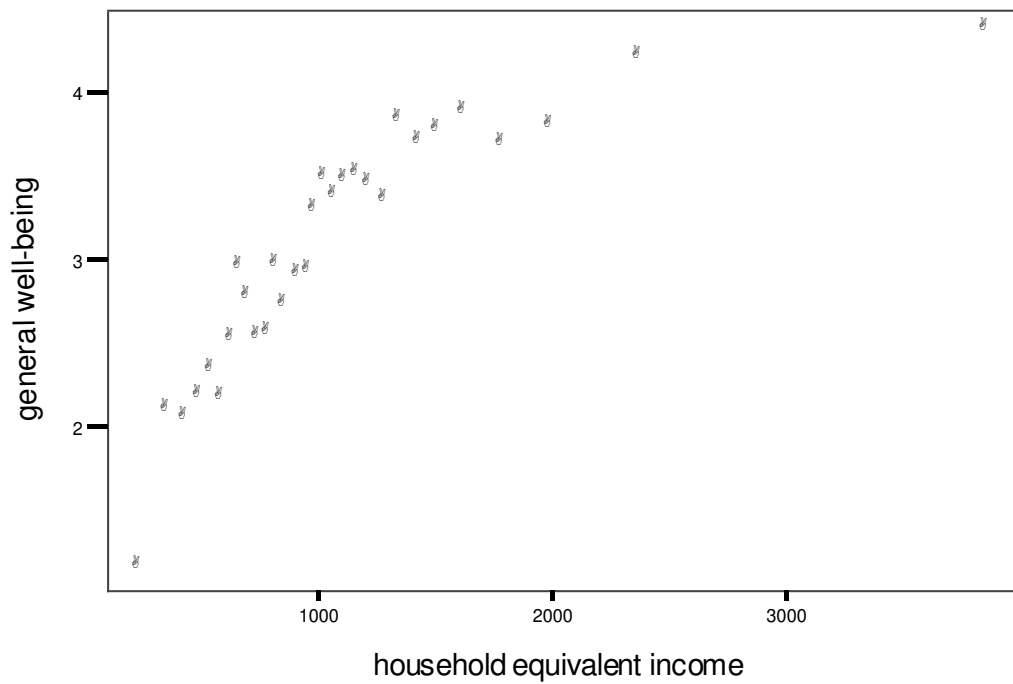
Fig. 2. The relationship between satisfaction with life measured by Cantril's ladder in 2010/2010 and the natural per capita GDP logarithm according to 2010 purchasing power parity in an international cross-section

Tabell. Standardized coefficients and R^2 in four multiple linear regression analysis models of satisfaction with life

Predictor	All countries				Poor countries				Rich countries			
	Mode 11	Mode 12	Mode 13	Mode 14	Mode 11	Mode 12	Mode 13	Mode 14	Mode 11	Mode 12	Mode 13	Mode 14
Gini	-0.081	-0.007*	0.080*	0.256**	0.435**	0.450**	0.448**	0.420**	-0.189	-0.156	-0.201	-0.266
Unemployment		-0.416**	-0.415**	-0.296**		-0.332*	-0.335*	-0.362**		-0.438*	-0.463*	-0.082
Inflation			-0.318**	0.032			-0.019	0.043			0.081	0.489*
Ln PPP				0.702**				0.287*				0.841**
R square	0.007	0.174	0.268	0.547	0.189	0.299	0.299	0.375	0.036	0.227	0.230	0.549
N	73				43				30			

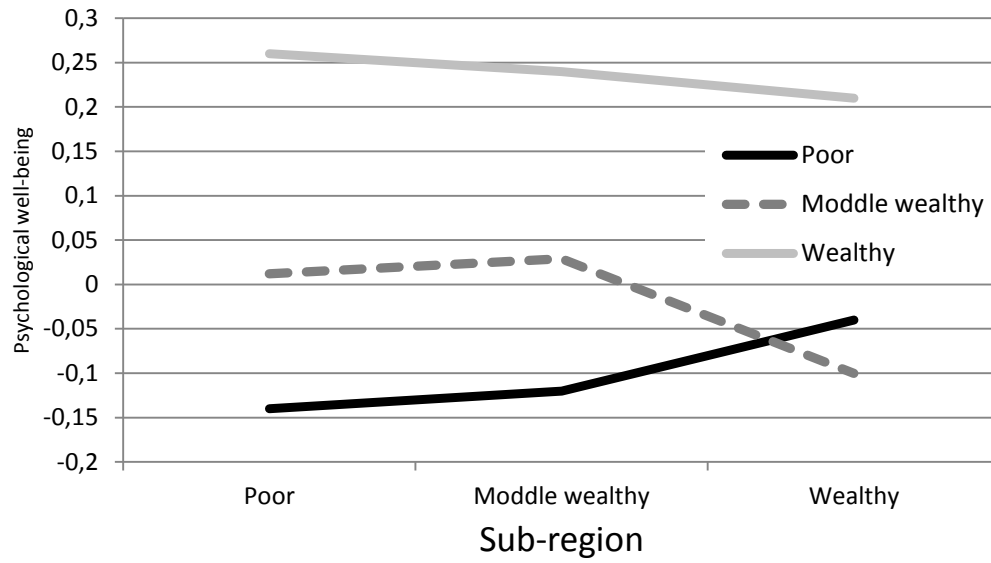
* p < 0.05, ** p < 0.01

Data source: satisfaction with life -- Gallup World Poll, predictors -- World Bank



$R^2 = 0.69$
for logarithm of income $R^2 = 0.92$

Fig. 3. Relationship between household income per equivalent unit and general well-being in a cross-section of 30 income groups in Poland



Data source: Social Diagnosis 2011

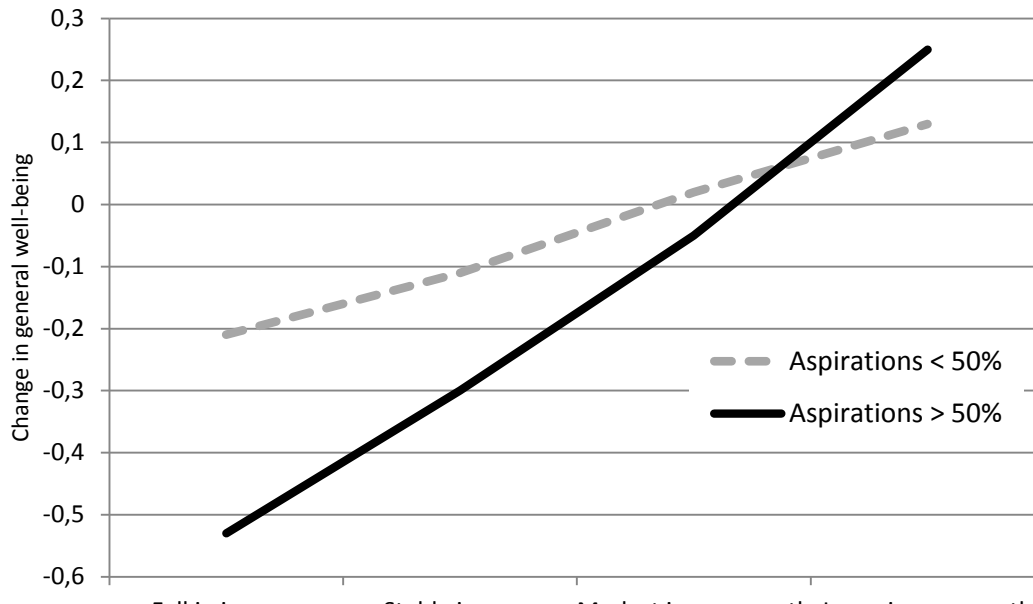
NOTES: main wealth effect of sub-region $F(2, 24377) < 1$, ns, main wealth effect of respondents $F(2, 24377)=85,93$, $p < 0.01$, effect of interaction of sub-region and wealth of respondents $F(4,24377)=3.2$, $p < 0.01$, with age, education and gender control.

Fig. 4 Relationship between the psychological well-being of persons of various levels of wealth living in different sub-regions of various levels of wealth

Tabel2. Results of general well-being regression analysis on general well-being in 2011

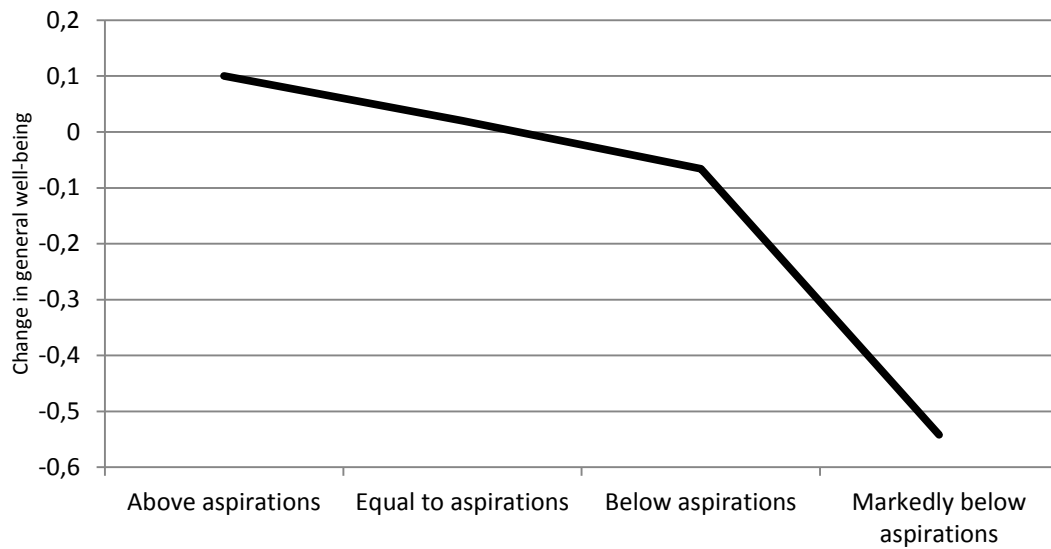
Predictors	Non-standardized coefficients		Standardized coefficients Beta	t	Significance
	B	Standard error			
(Constant)	-0,309	0,105		-2,946	0,003
Age	-0,007	0,001	-0,049	-5,232	0,000
Level of education	0,161	0,021	0,074	7,751	0,000
Well-being in 2009	-0,510	0,008	-0,527	-60,299	0,000
Income in 2009	0,000	0,000	0,075	7,374	0,000
Income aspirations in 2009	-0,075	0,026	-0,025	-2,890	0,004
Change in income 2009-2011	0,000	0,000	0,059	6,210	0,000

$R^2=0.25$



NOTES: Main effects of change in income $F(3,10797)=27.76$, $p<0.01$ and aspirations $F(1,10797)=5.76$, $p<0.05$, effect of interaction of change in income and aspirations $F(3,10797)=4.61$, $p<0.01$; control variables were: gender, age, level of education, initial level of well-being, initial level of income.

Fig. 5. Change in level of general psychological well-being between 2009 and 2011 with respect to degree of income aspirations in 2009 in groups defined by change in income



NOTES: Main effect of level of aspiration fulfilment $F(3,10743)=4.39$, $p<0.01$; control variables were: change in income, gender, age, level of education, initial level of well-being, initial level of income.

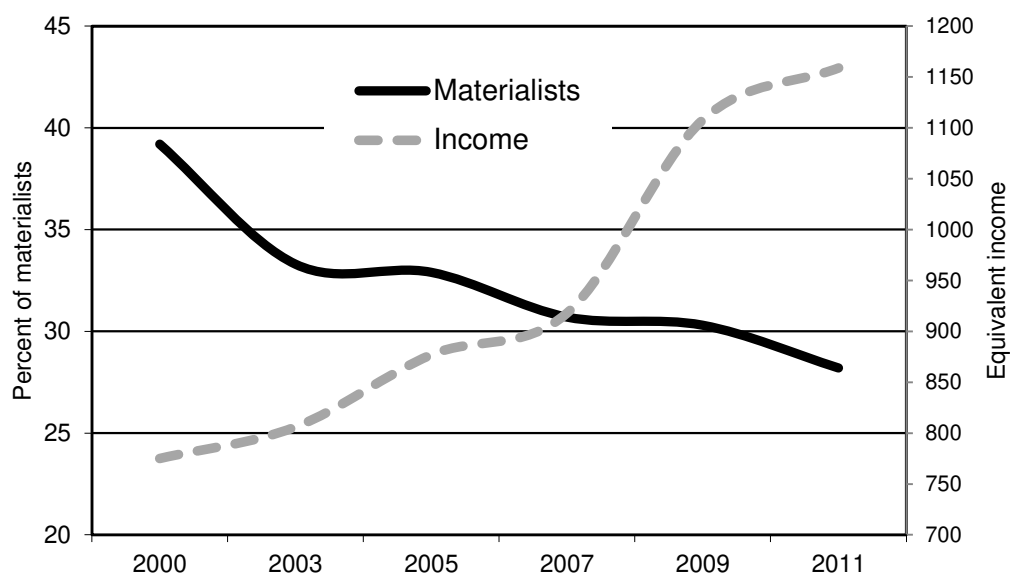
Fig. 6. Change in general psychological well-being between 2009 and 2011 with regard to level of income aspirations fulfilment between 2009 and 2011

Tabel 3. Percentage breakdown of persons indicating money as one of three main conditions of a happy life in a cross-section of six groups differing in terms of income level (1- lowest income group, 6 - highest income group) in 2000 and in 2011

Income group	2000		2011	
	Percent of indications	N	Percent of indications	N
1,00	51	1114	39	4129
2,00	51	977	31	4951
3,00	38	1019	29	4135
4,00	44	875	26	4092
5,00	34	1161	24	4099
6,00	31	828	22	3291
Ogółem	40	5973	28	24697

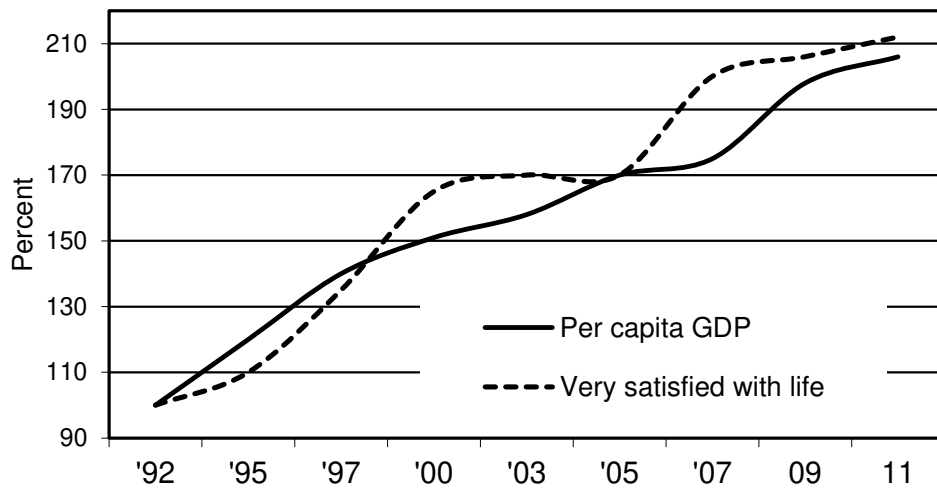
Chi square = 387, df = 5, p < 0.001

Data source: *Social Diagnosis* (www.diagnoza.com)



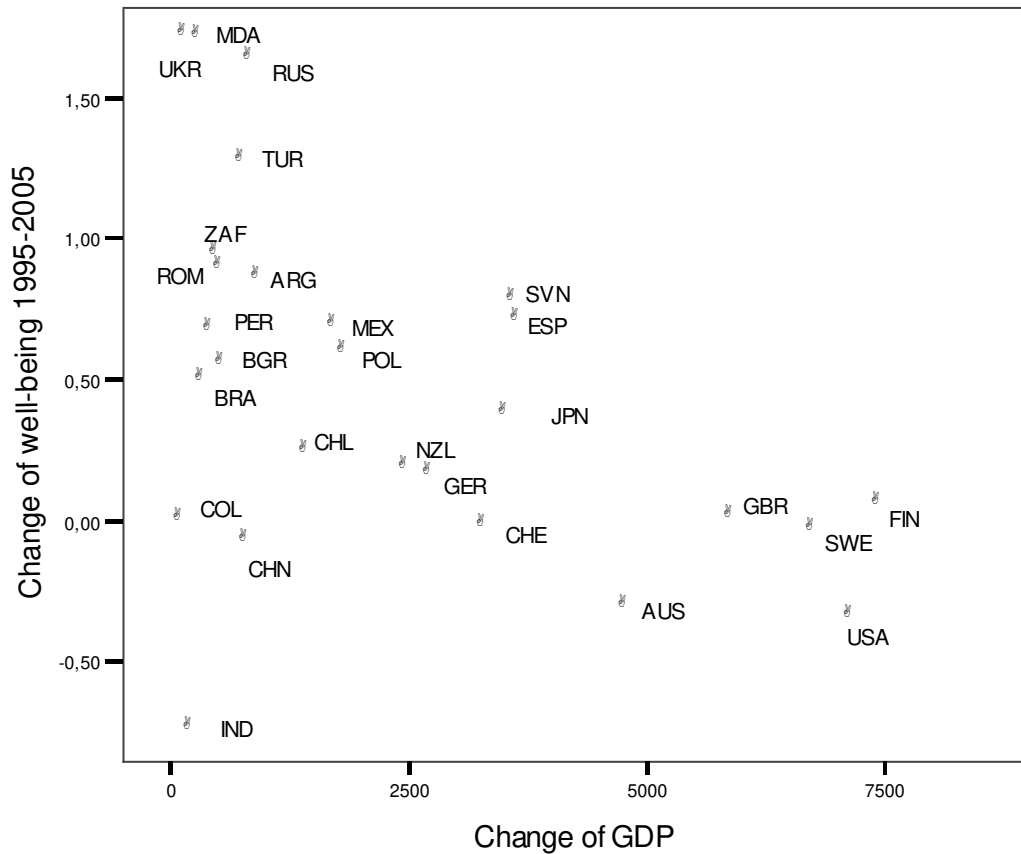
Data source: Social Diagnosis (www.diagnoza.com)

Fig. 7. Real income per equivalent unit (in terms of PLN value from 2000) and the percent of respondents indicating money as one of the three basic life values in 2000-2011



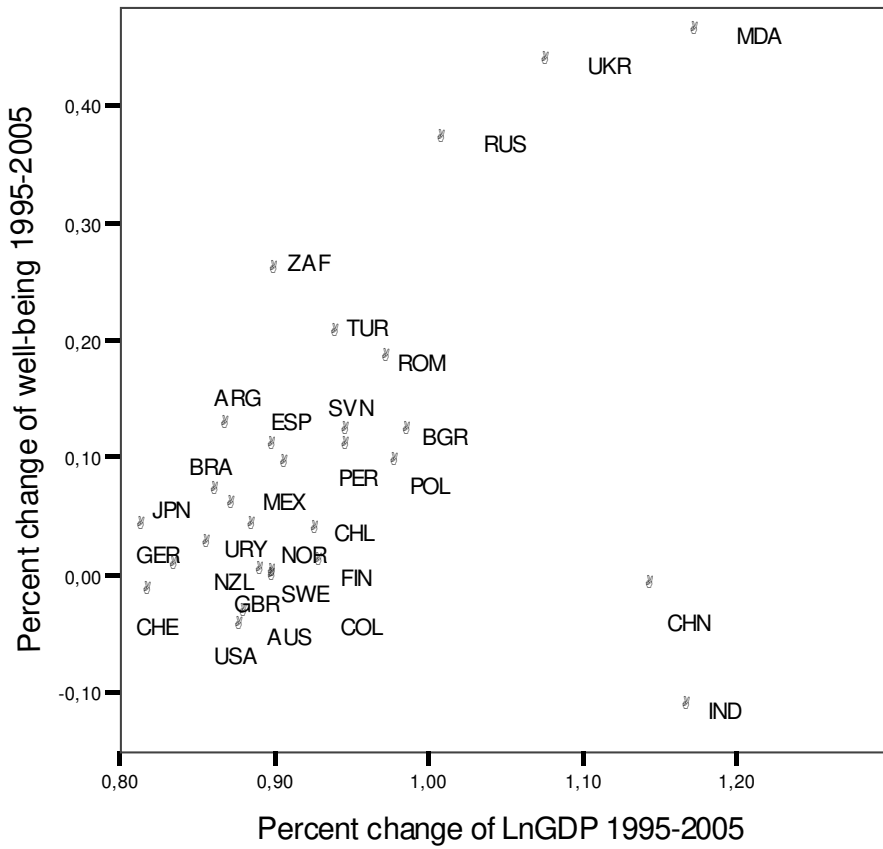
Source data: GDP -- GUS, life satisfaction -- and Social Diagnosis

Fig. 8. Percentage change of per capita GDP and the percentage of Poles rating their whole life as either wonderful or successful in the 1992-2011 period (1992 =100)



$R^2=0.24$, $N=26$, $p < 0.01$; without India and China $R^2=0.44$
 Data source: well-being -- World Value Survey (III i V wave), GDP -- World Bank

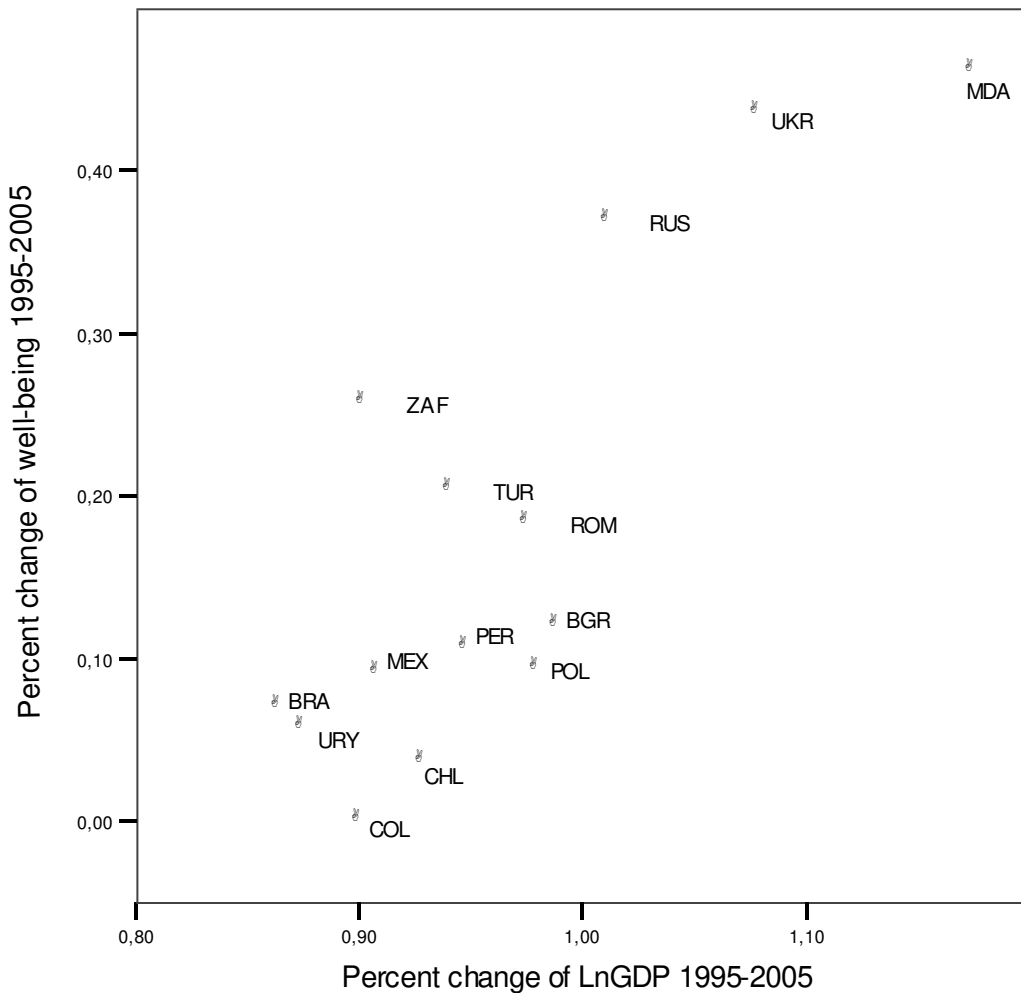
Fig. 9. Relationship between change of GDP and psychological well-being (satisfaction with life) between 1995 and 2005 in 26 countries



$R^2=0,16$, $N=29$, $p < 0,05$; without China and India $R^2= 0,70$

Data source: well-being (satisfaction with life) World Value Survey (1994/99 and 2005/07), GDP World Bank

Fig. 10. Relationship between economic growth (percent change in per capita GDP logarithm in 1995-2005) and percent change of satisfaction with life in 26 countries



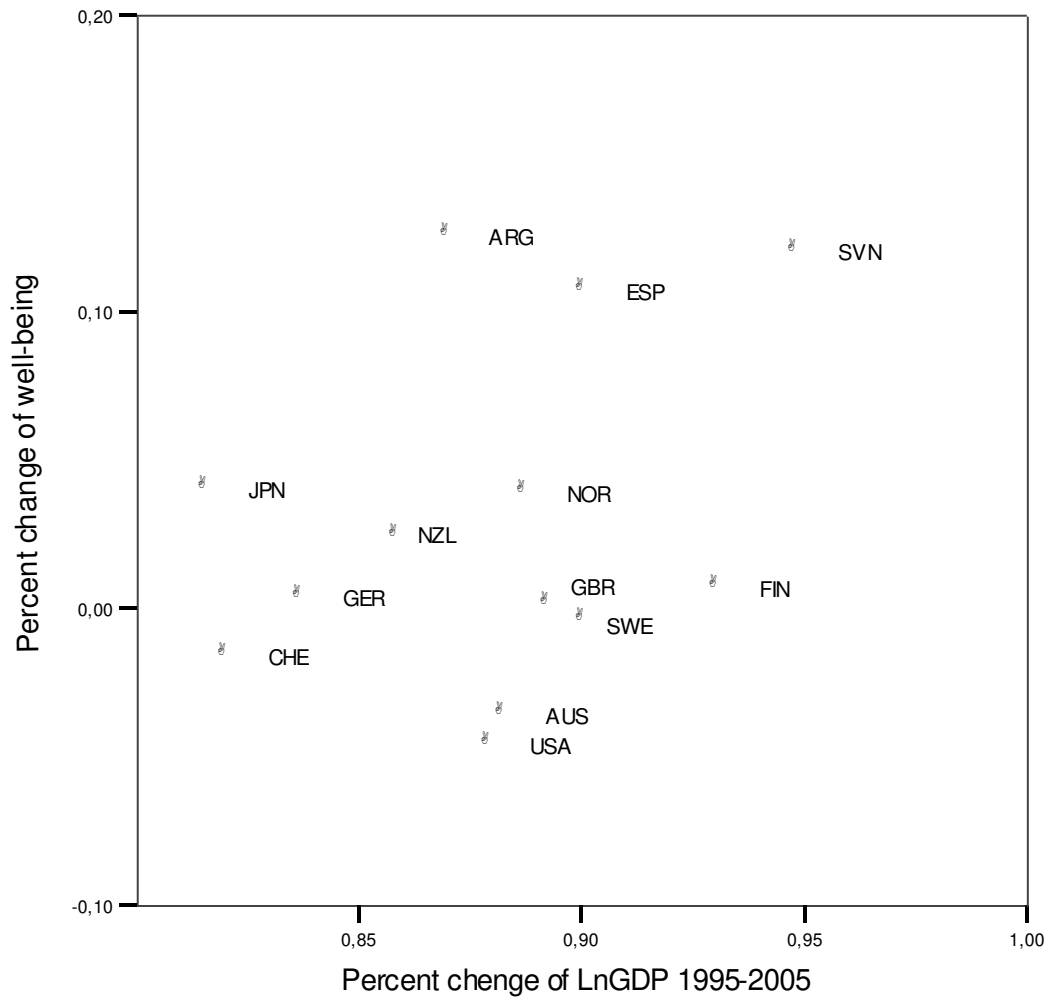
$R^2 = 0.67$, $N=14$

Data source: well-being (satisfaction with life) World Value Survey (1994/99 and 2005/07), GDP World Bank

Percent change in well-being 1995-2005

Percent change in LnGDP 1995-2005

Fig. 11. Relationship between economic growth (percent change in per capita GDP logarithm in 1995-2005) and percent growth of satisfaction with life in poor countries (without China and India)



$R^2 = 0.09$, $N=13$, ns.

Data source: well-being (satisfaction with life) -- World Value Survey (1995/97 and 2005/06), GDP -- World Bank

Fig. 12. Relationship between economic growth (percentage change in per capita GDP logarithm in 1995-2005) and percentage change in satisfaction with life in wealthy countries

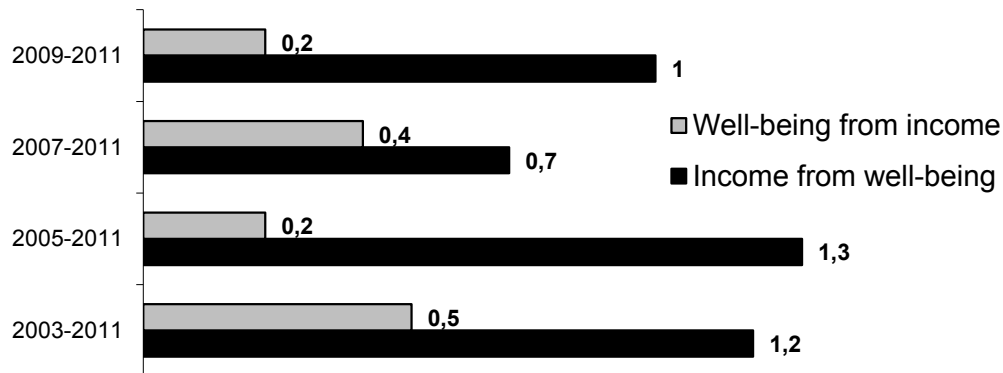
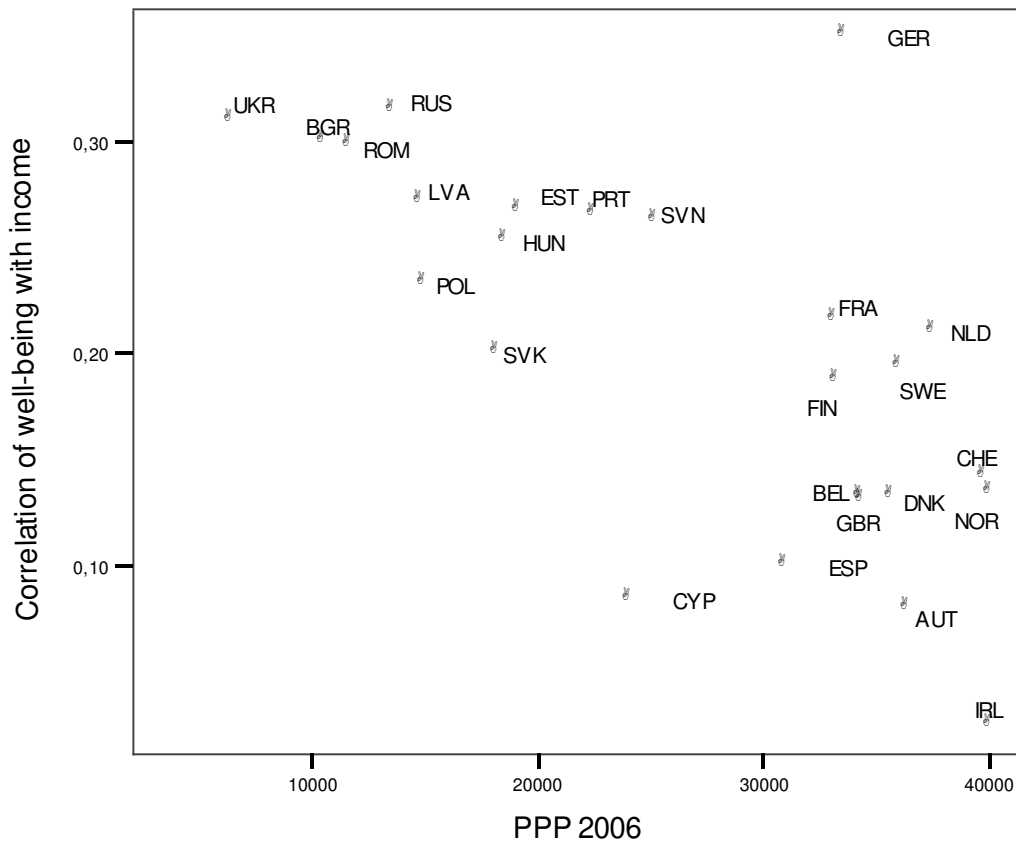


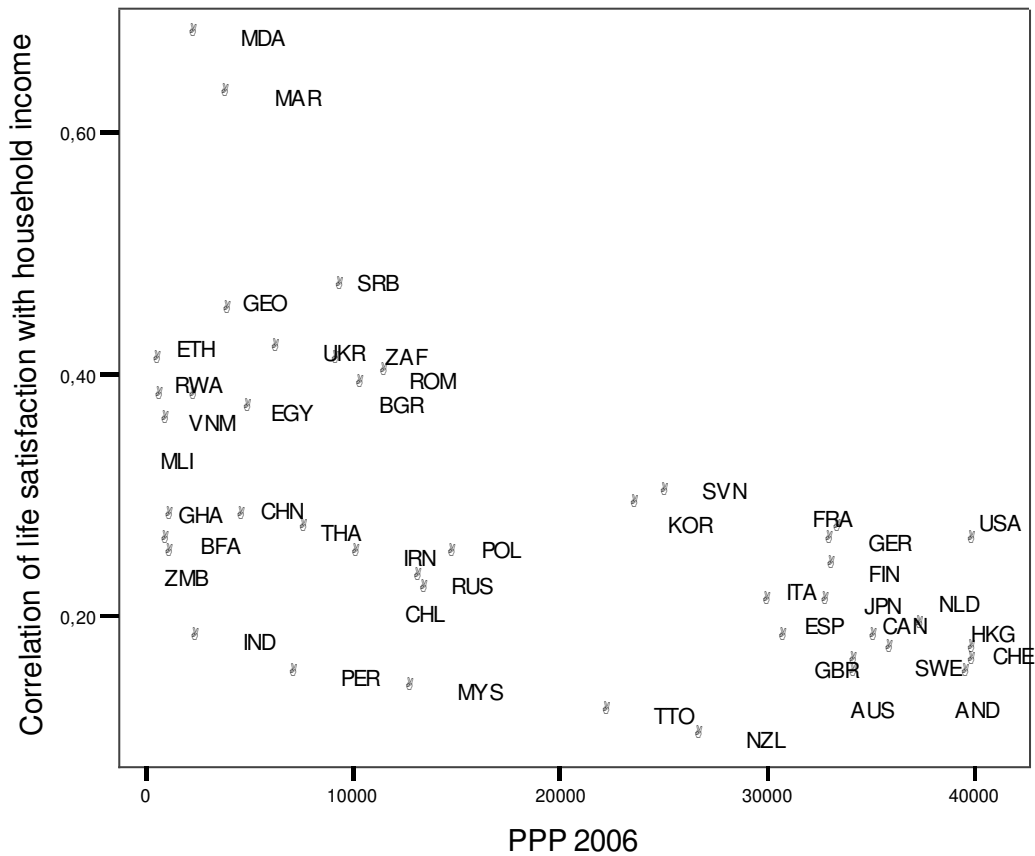
Fig. 13. Percent of variance in change of general psychological well-being explained by change in personal income with control the effect of psychological well-being level in the first measurement, and percent of variance in the change of personal income explained by psychological well-being in the first measurement with control the income in the first measurement in 2003-2011, 2005-2011, 2007-2011 i 2009-2011 (all values are statistically significant)



$R^2=0,47$ (without Germany $R^2= 0,62$)

Data source: well-being and household income -- *European Social Survey* 2006 (data for Czech Republic, Israel, Croatia, Turkey and Greece from 2008), *per capita* GDP purchasing power parity -- World Bank

Fig. 14. Correlation coefficient (rho Spearman) of psychological well-being (feeling of happiness and satisfaction with life) with household income by per capita GDP (purchasing power parity) in 25 countries



$R^2=0,35$

Data source: satisfaction with life and household income -- World Value Survey V wave from 2005-2008, *per capita* GDP purchasing power parity -- World Bank

rho of satisfaction with life with income
GDP ppp from 2006

Fig. 15. Correlation coefficients (rho Spearman) of life satisfaction with household income by per capita GDP purchasing power parity in 35 countries

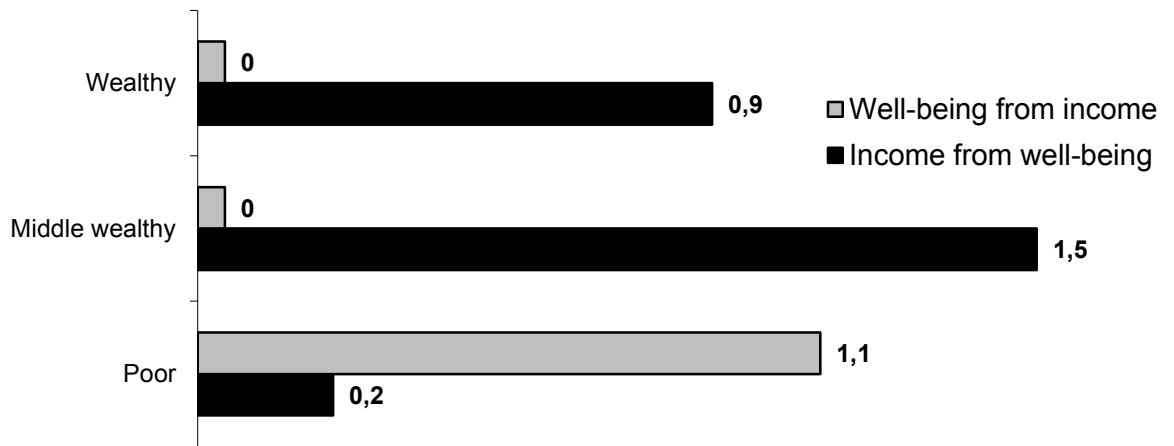
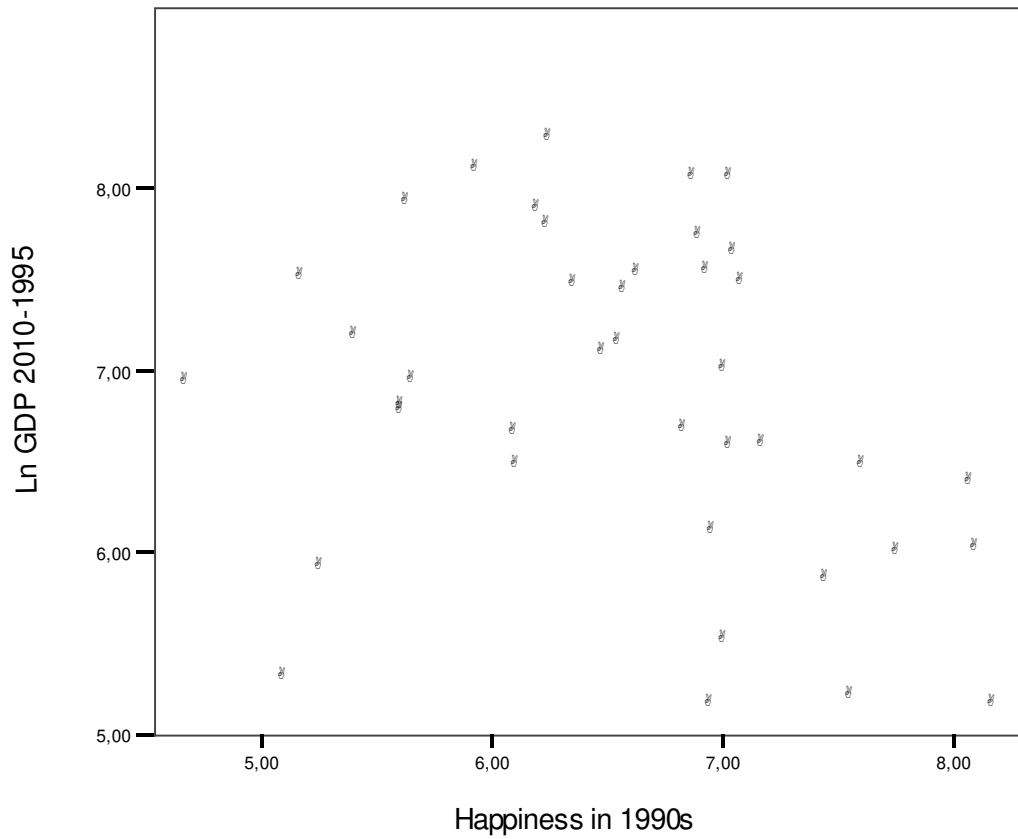


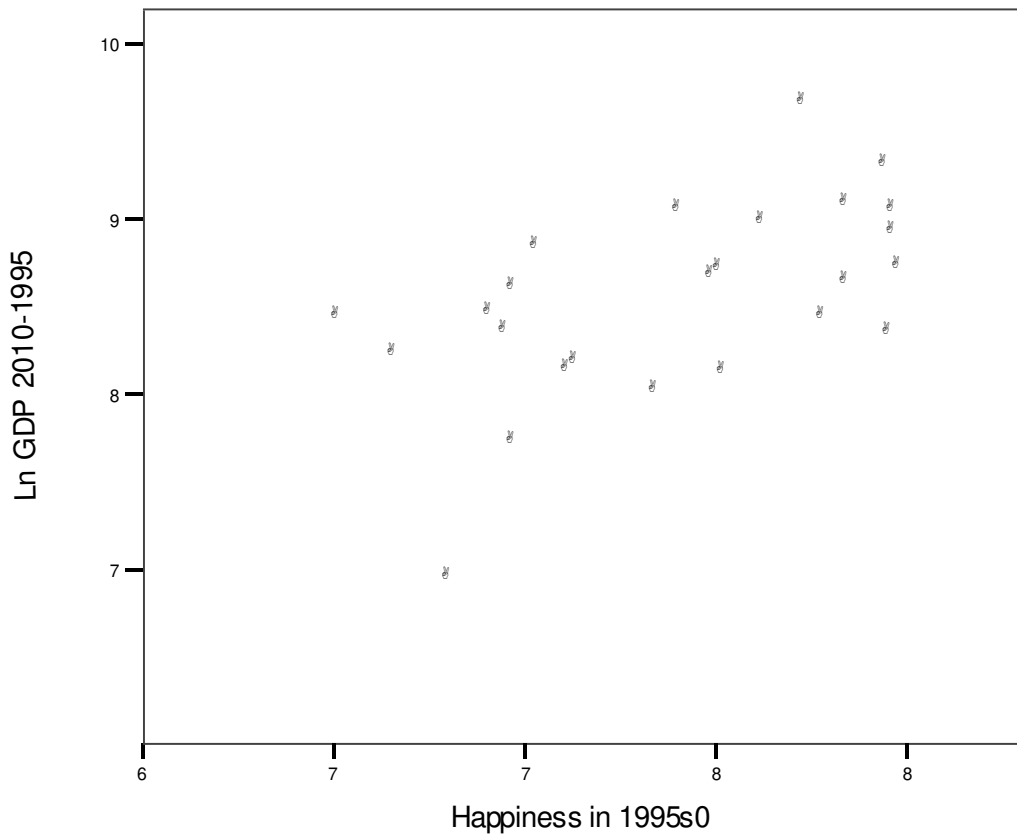
Fig. 16. Percent of variance of change in general psychological well-being explained by change in personal income with control of psychological well-being in the first measurement and percent variance change in personal income explained by psychological well-being in the first measurement with control of income from the first measurement in 2009-2011 in groups of 10% richest, 10% poorest and 80% middle wealth respondents according to income in 2009



$R^2=0.09$

Source of data: happiness (O-HL/u/sq/v/4/a) – World Data Base of Happiness [<http://www1.eur.nl/fsw/happiness/>], GDP – World Bank

Fig. 17. Relationship between of happiness in 1990s and the logarithm of GDP growth between 1995 and 2010 in poor countries



$R^2=0,32$

Fig. 18. Relationship between happiness in 1990s and the logarithm of GDP growth between 1995 and 2010 in rich countries