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PARADOXES OF HAPPINESS: WHY PEOPLE FEEL MORE COMFORTABLE WITH HIGH INEQUALITIES AND HIGH MURDER RATES?

Vladimir Popov¹

ABSTRACT

There is evidence that income and wealth inequalities are positively associated with happiness, as measured by the happiness index, and negatively associated with the suicide rate (that is considered an objective indicator of unhappiness). Moreover, there is some evidence that happiness is also positively linked the murder rate, especially when it goes hand in hand with inequalities. The possible explanation – competitive nature of human beings (a modification of a “big fish in the small pond” story) and perceptions of social justice: not only people enjoy the better than average position more than an even higher, but below the average position, but they also cherish the dream of becoming better than average. Greater equality that undermines the dream of becoming higher than average turns out to be disappointing for many. If murders occur without high income inequalities (i.e. murders are “unjustified”) and/or inequalities exist without high murders (inequalities are not perceived as unfair and do not cause social tension), then happiness is not affected.

¹ Research Director at the Dialogue of Civilizations Research Institute. I am grateful to Ekaterina Jarkov for the research assistance.

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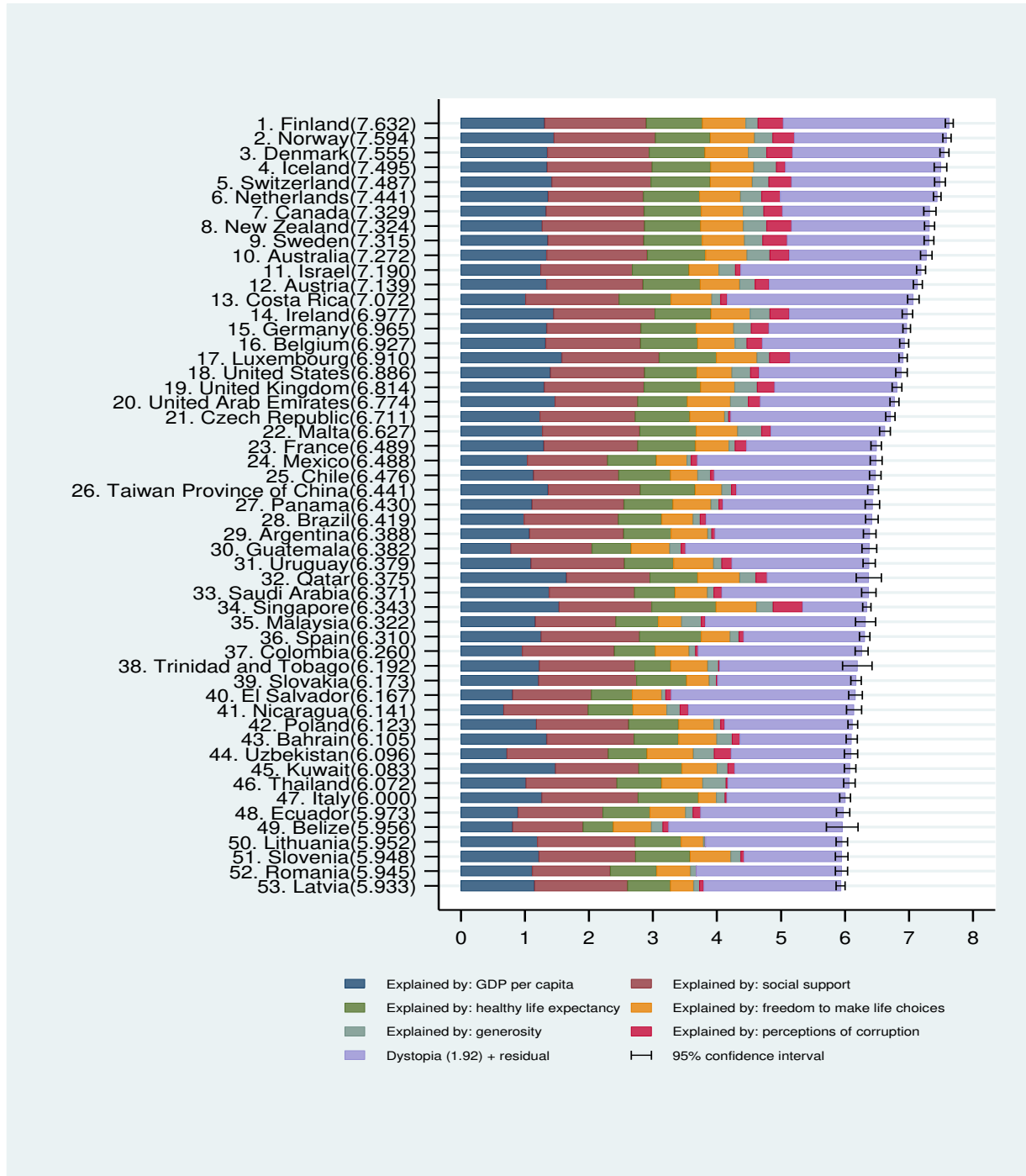
Vladimir Popov

Happiness economics is the growing branch of economic research; it has already revealed quite a number of important determinants of happiness. The World Happiness Report ranks countries based on the subjective evaluations of happiness by the people on a 0 to 10 scale. On top of the list in recent years are Scandinavian countries (Finland, Norway, Denmark, Iceland, Sweden), Switzerland, the Netherlands, Canada, Australia, New Zealand, Israel. At the bottom of the list are Burundi, Central African Republic, South Sudan, Tanzania, Yemen, Rwanda, Syria, Liberia, Haiti, Malawi, Botswana, Afghanistan.

There are 6 major determinants of happiness identified by the World Happiness Report (fig. 1):

- PPP GDP per capita,
- healthy life expectancy (data from the World Health Organization),
- social support index (answers to the question about relatives or friends that one can count on to help when in need),
- freedom index (answers to the question about freedom to choose what you do with your life),
- generosity index (residual of regressing national average of responses to the question “Have you donated money to a charity in the past month?” on GDP per capita),
- corruption index (answers to the questions on how corruption is widespread throughout the government and business).

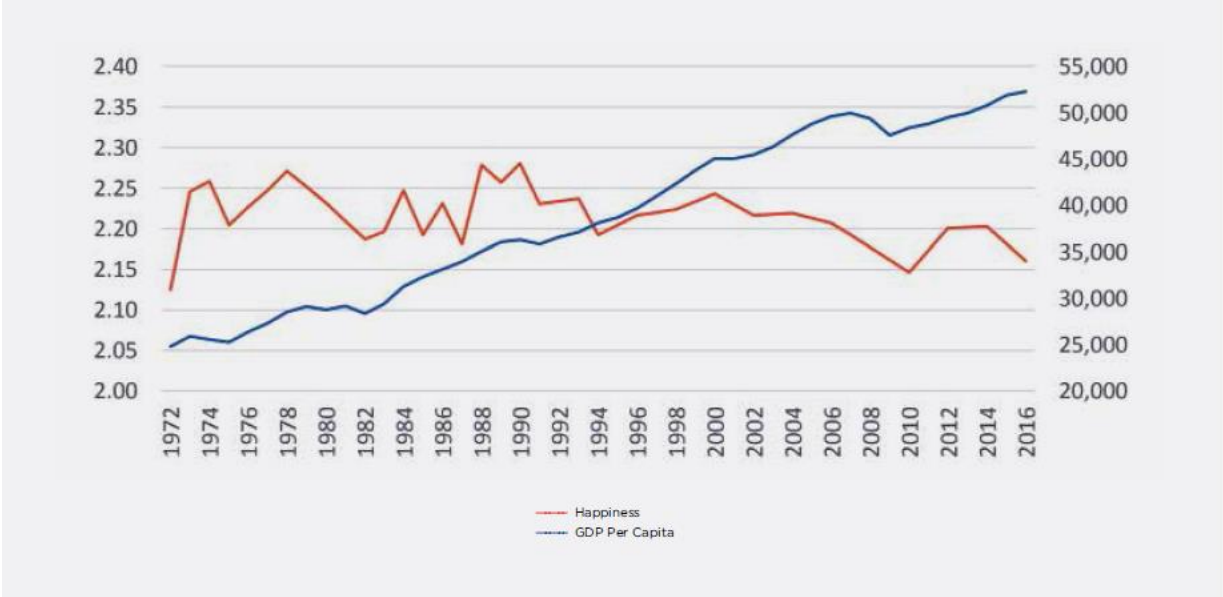
Fig. 1 Happiness score explained by different factors



Source: World Happiness Report.

There are also some important paradoxes in the dynamics of happiness indices and in the relative levels in various countries and in different populations groups. One puzzle (the Easterlin paradox) is the decreasing happiness in the US despite constantly rising personal incomes (fig. 2). Sachs (2018) argued that America’s subjective well-being is being systematically undermined by three interrelated epidemic diseases, notably obesity, substance abuse (especially opioid addiction), and depression. But in other countries without much obesity, drugs, and depression, there is also the decline in happiness going hand in hand with rising real incomes. In China over the 1990–2000-decade happiness has plummeted despite massive improvement in material living standards. Brockmann, Delhey, Welzel, and Hao (2008) explain this by growing income inequality in China, so that related to the average income the financial position of most Chinese worsened.

Fig. 2. Average happiness score and GDP per capita in 1972-2016



Source: Sachs, 2018.

In this paper I present the evidence that income and wealth inequalities are positively associated with happiness, as measured by the happiness index and negatively associated with the suicide rate that is considered as an objective indicator of unhappiness. Moreover, there is some evidence that happiness is also positively linked the murder rate, especially when it goes hand in hand with inequalities.

Determinants of happiness

Table 1 reports the regression results of happiness index on the determinants of happiness that are selected in the World Happiness Report – income, healthy life expectancy, social support, personal freedom, generosity, control over corruption.

Table 1. Regression results of happiness index on per capita income, life expectancy and other determinants in 2018, robust estimates

Dependent variable – happiness index in 2018

Equations, Number of Observations / Variables	1, N=156	2, N=142	3, N=155	4, N=142	5, N=155	6, N=155	7, N=142
Constant	1.8***	3.0***	1.9***		1.8***	1.7***	1.3***
Happiness score from 0 to 10 explained by PPP GDP per capita in 2017 in 2011 dollars	0.9***		2.5***	1.5***	1.0***	1.0***	1.0***
Happiness score from 0 to 10 explained by healthy life expectancy in 2016	0.9***	3.8***	1.7***	1.4***	1.0***	1.1***	1.2***
Happiness score from 0 to 10 explained by social support	1.1***				1.0***	1.0***	1.0***
Happiness score from 0 to 10 explained by freedom	1.4***			1.7***	1.4***	1.6***	1.2***
Happiness score from 0 to 10 explained by generosity	0.5		1.4**	1.0*	0.7	0.9	0.8 (significant at 20%)
Happiness score from 0 to 10 explained by corruption²	0.8		1.5**		0.8		0.9 (significant at 20%)
Murder rate, 2016 or last available year, per 100,000 inhabitants					.007**	.006**	
Interaction term (Gini coefficient*Murder rate)		.0002*	.0003**	.0002**			.0001 (significant at 30%)
Adjusted R ² , %	79	64	74	78	80	80	81

*, **, *** - Significant at 1, 5 and 10% level respectively.

² “Happiness score explained by corruption” is not corruption index per se, but part of the happiness score that is explained by corruption (from the regression equation in which corruption influences happiness negatively). So in table 2 and other tables a positive sign of “Happiness score explained by corruption” means that corruption affects happiness negatively.

Not all of the determinants are significant in cross-country regressions (generosity and control over corruption are not significant after the first 4 determinants are included – equation 1), but the results can be slightly improved by including the murder rate and inequality variables. If included separately, only murder rate is significant, but when both are included into the right hand side, they lose significance. However, the interaction term (murder rate*inequality) is significant in many specifications, which means that in countries with both high inequality and high murder rate happiness index is higher.

Normally there is a positive correlation between income inequality and murder rate – the higher inequality, the higher the murder rate. But in the rare instances when high inequality does not go together with high murder rate, happiness is not affected.

The robustness check – similar regressions for 2000 reported in table 2. The results are very similar and in a sense even stronger: income inequalities and murder rate affect happiness positively, when included into the right hand side separately and together.

Positive relationship between inequalities and happiness index can be noticed at fig. 3 that uses the data around the year 2000. However, more recent data (2010-18) give a different picture – fig. 4 suggests that happiness is higher in countries with lower income inequalities. But in multiple regressions, after controlling for per capita income and life expectancy, income inequalities, as table 1 shows, have positive impact on happiness, when they go hand in hand with the murder rate. And positive relationship between the murder rate and happiness index in 2000 can be noticed with the naked eye at fig. 4.

Table 2. Regression results of happiness index on per capita income, life expectancy and other determinants around 2000, robust estimates

Dependent variable – happiness index (from 0 to 10)

Equations, Number of Observations / Variables	1, N=71	2, N=70	3, N=71	4, N=69	5, N=71
Constant	6.9***	5.7***	9.0***	7.5***	8.8***
PPP GDP per capita in 1999, \$.00004 ***	.00003 ***	.00007 ***	.00007 ***	.00007* **
Life expectancy in 2002, years				-0.04***	-0.03 ***
Increase in life expectancy in 1970-2002, years	0.04 ***	0.04**	0.08***	0.08***	0.06 ***
Suicide rate per 100,000 inhabitants in 2002					-0.02 ***
Murder rate, 2002 per 100,000 inhabitants	0.02 ***		0.02***	0.02***	0.005 ***
Transition dummy variable (equals 1 for China, Eastern European and former Soviet Union countries, 0 for all other countries)	-0.54 ***	-0.56 **			
Gini coefficient of wealth distribution around 2000 ³ , %		0.02**		0.02**	
Adjusted R ² , %	48	54	60	62	65

*, **, *** - Significant at 1, 5 and 10% level respectively.

³ Gini coefficient of wealth distribution is taken from (Davies, Sandstrom, Shorrocks, and Wolff, 2007).

Fig. 3. Gini coefficient of income inequalities and happiness index around 2000

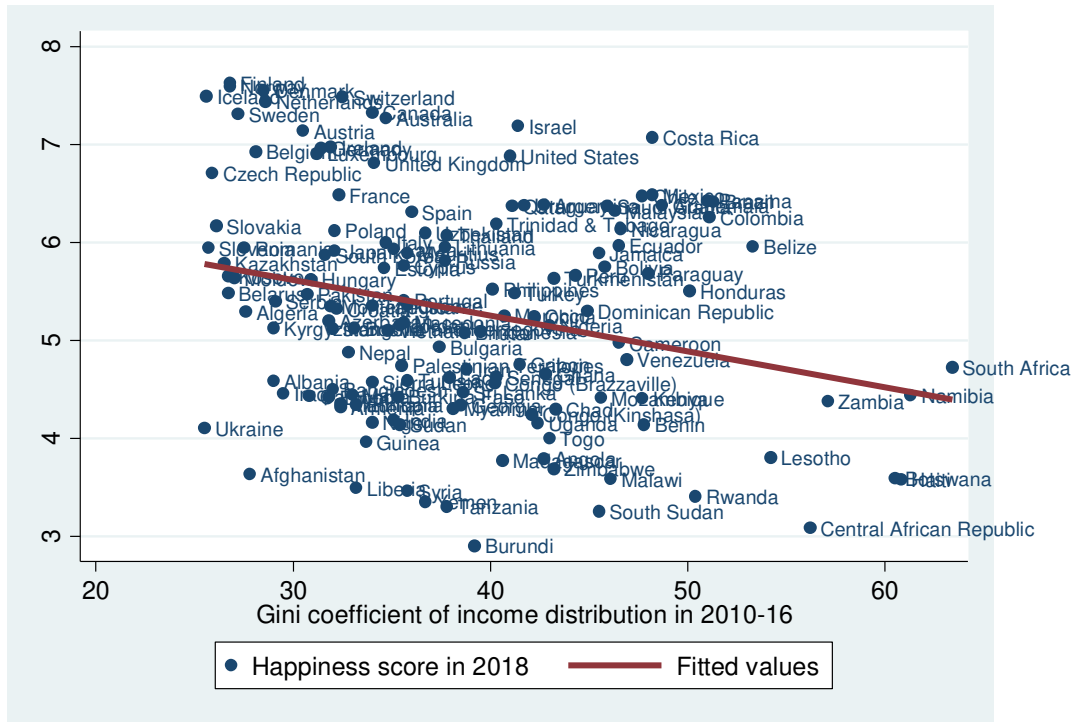
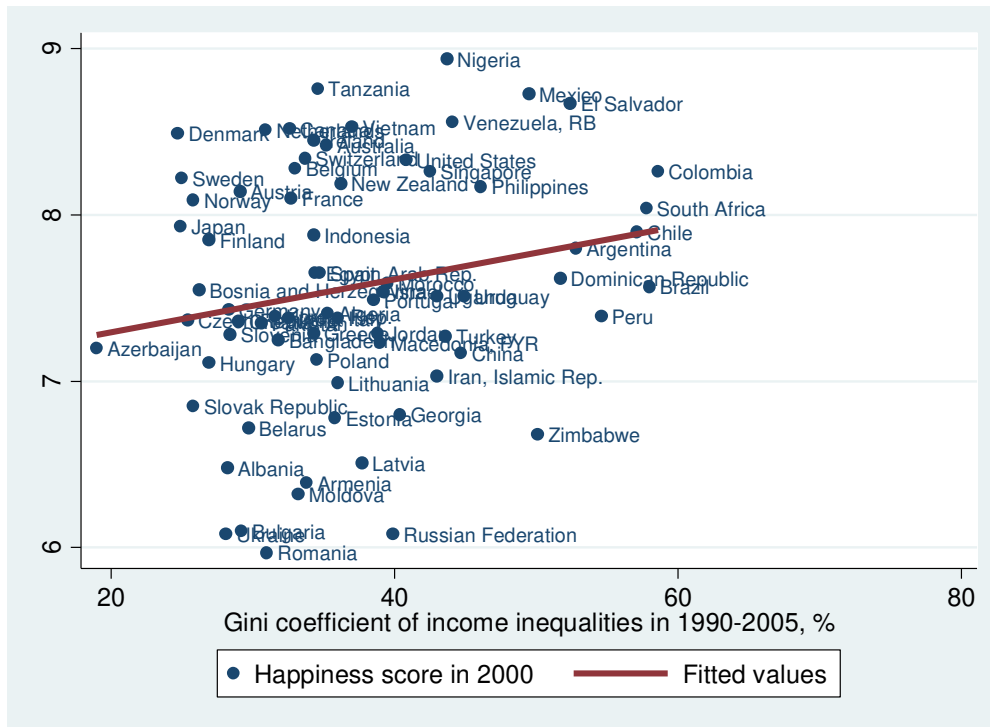
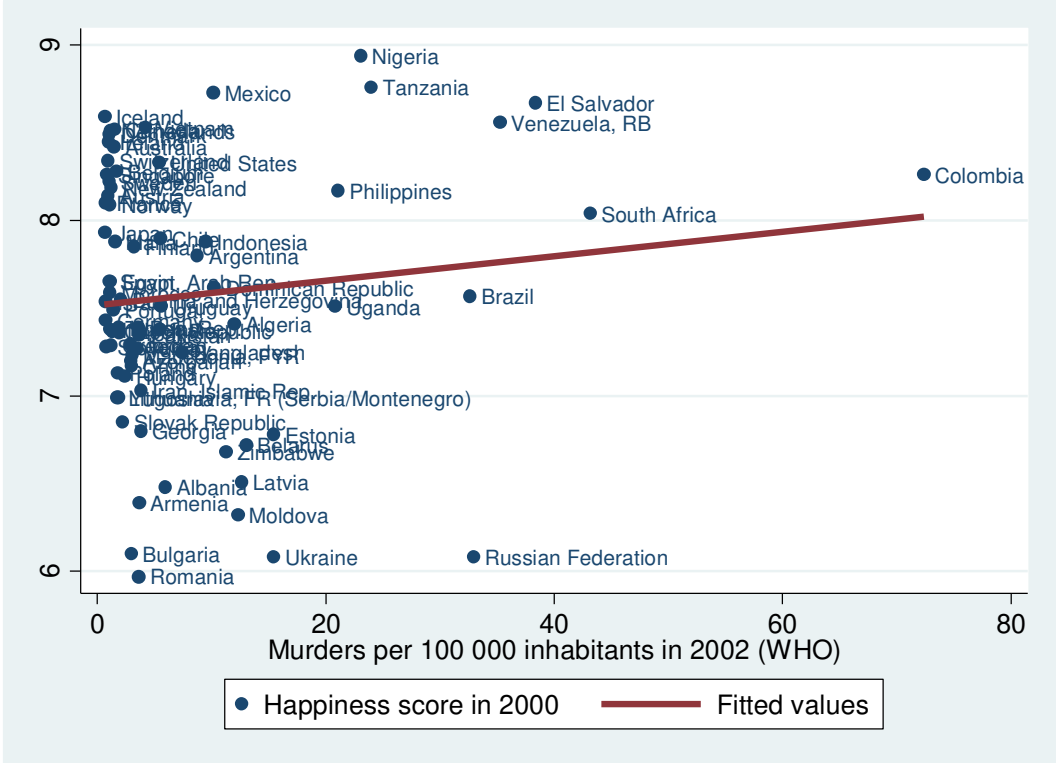


Fig. 4. Gini coefficient of income inequalities and happiness index in 2010-18



Source: WDI; World Happiness Report.

Fig. 5. Happiness score and murder rate at around 2000



Source: WDI; WHO.

Suicides – alternative measure of the (un)happiness

Suicides are often considered as an objective measure of (un)happiness. If polls suggest that happiness is high in a country/locality/community/population cohort, but suicides are high as well, it most probably means that the answers to the survey questions cannot be taken at face value.

As fig. 6 shows, in 2000 there was a clear negative relationship between happiness scores and suicide rates. In 2018 this relationship is less pronounced: happiness index is correlated with suicides negatively and significantly, but the correlation coefficient is very low (1%; equation 1 in table 3). One of the determinants of happiness index – healthy life expectancy – is correlated with suicide rate stronger than the others (fig. 7).

Fig. 6. Suicide rate per 100,000 inhabitants and happiness index around 2000

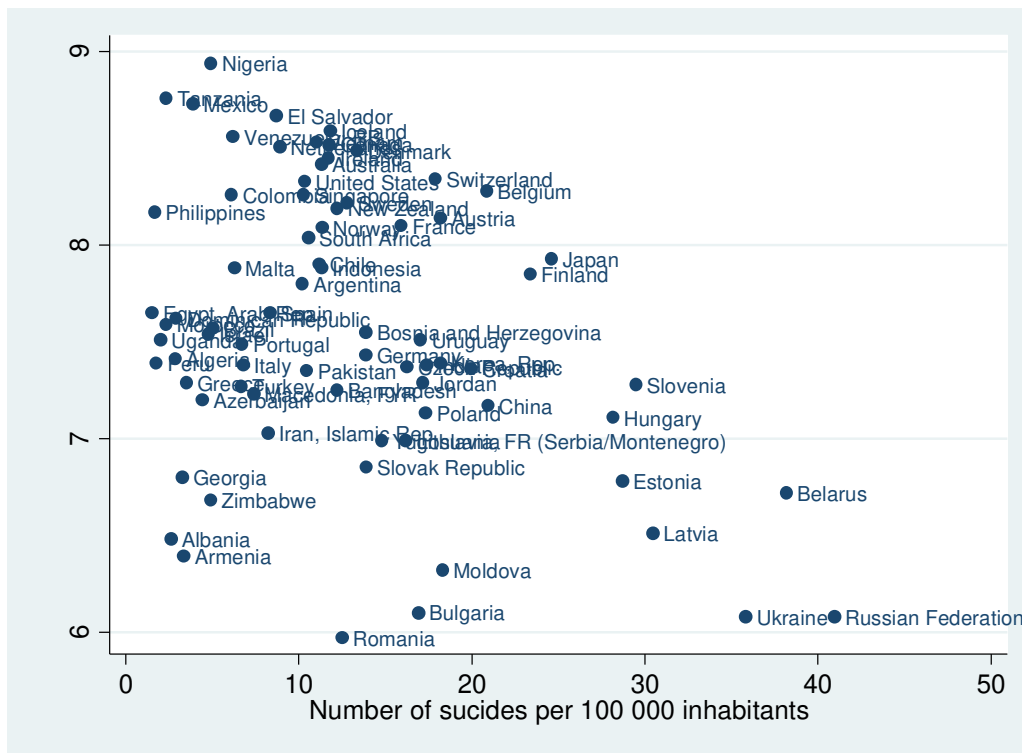
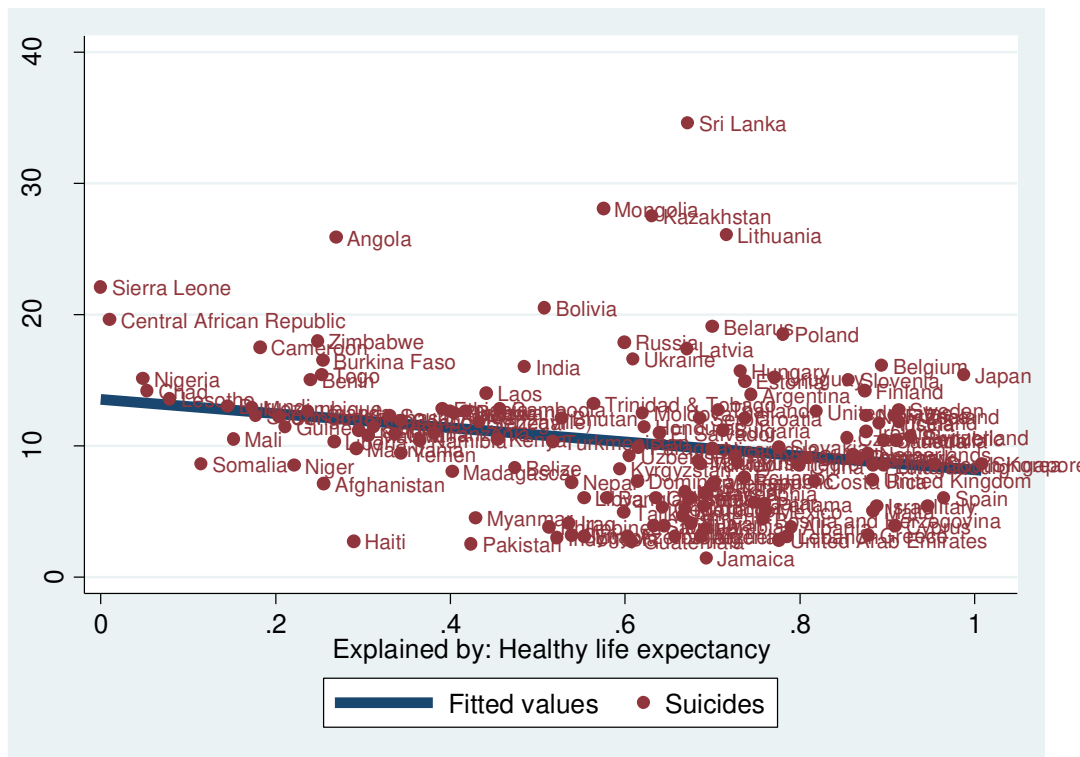


Fig. 7. Suicide rate per 100,000 inhabitants and happiness index explained by healthy life expectancy in 2016-18



Source: World Happiness Report, 2018; Suicides.

In multiple regressions (table 3) suicides, after controlling for healthy life expectancy and social support indices, are strongly and negatively related to the inequalities in income distribution and to interaction term between inequalities and murders in 2016-18. Cross-country regressions for the year 2000 (table 4) suggest that inequality in income and wealth distribution affects suicides positively, whereas high murder rate tend to lower suicides rate (blaming the others for personal problems rather than herself).

Table 3. Regression results of suicide rate on per capita income, life expectancy and other determinants in 2016-18, robust estimates

Dependent variable suicide rate per 100,000 inhabitants

Equations, Number of Observations / Variables	1, N=150	2, N=140	3, N=140	4, N=140	2, N=140	3, N=140
Constant	13.4***	14.5***	19.1***	9.0***	15.3***	9.5***
Happiness score from 0 to 10 in 2018	-0.6*					
Happiness score from 0 to 10 explained by PPP GDP per capita in 2017 in 2011 dollars					3.9*	3.3 (significant at 15%)
Happiness score from 0 to 10 explained by healthy life expectancy in 2016		-5.9***	-6.8***	-13.5***	-17.6***	-17.0***
Happiness score from 0 to 10 explained by social support				8.5***	6.2***	7.4***
Gini coefficient of income distribution around 2016, %			-.12**		-.14***	
Interaction term (Gini coefficient* Murder rate)		-.001*		-.002**		-.002**
Adjusted R ² , %	1	7	8	18	19	19

*, **, *** - Significant at 1, 5 and 10% level respectively.

Table 4. Regression results of suicide rate on per capita income, life expectancy and other determinants around 2000, robust estimates

Dependent variable suicide rate per 100,000 inhabitants

Equations, Number of Observations / Variables	1, N=122	2, N=115	3, N=115	4, N=122	5, N=115
Constant	6.35	25.8***	24.7**	-1.6	7.4
Log PPP GDP per capita in 1999, \$	5.1***	4.6***	5.5***	4.7***	5.8***
Increase in life expectancy in 1970-2002, years	-0.3**	-0.4***	-0.4***	-0.2*	-0.19**
Transition dummy variable (equals 1 for China, Eastern European and former Soviet Union countries, 0 for all other countries)				8.3***	8.5***
Gini coefficient of income distribution around 2000, %	-0.5***	-0.2**	-0.2***	-0.1**	-0.15**
Gini coefficient of wealth distribution around 2000, %			-0.4**		-0.2*
Murder rate, 2002 per 100,000 inhabitants	0.2**		0.2**		0.2**
Adjusted R ² , %	32	33	37	40	48

*, **, *** - Significant at 1, 5 and 10% level respectively.

Fig. 8. Gini coefficient of income inequalities and the suicide rate per 100,000 inhabitants around 2000

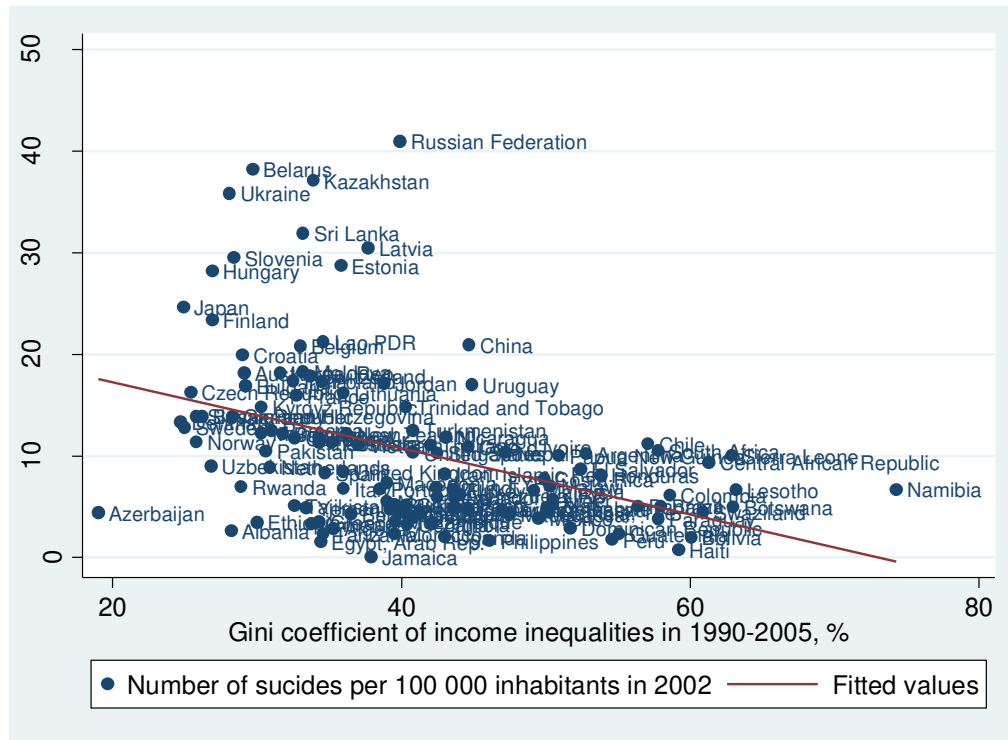
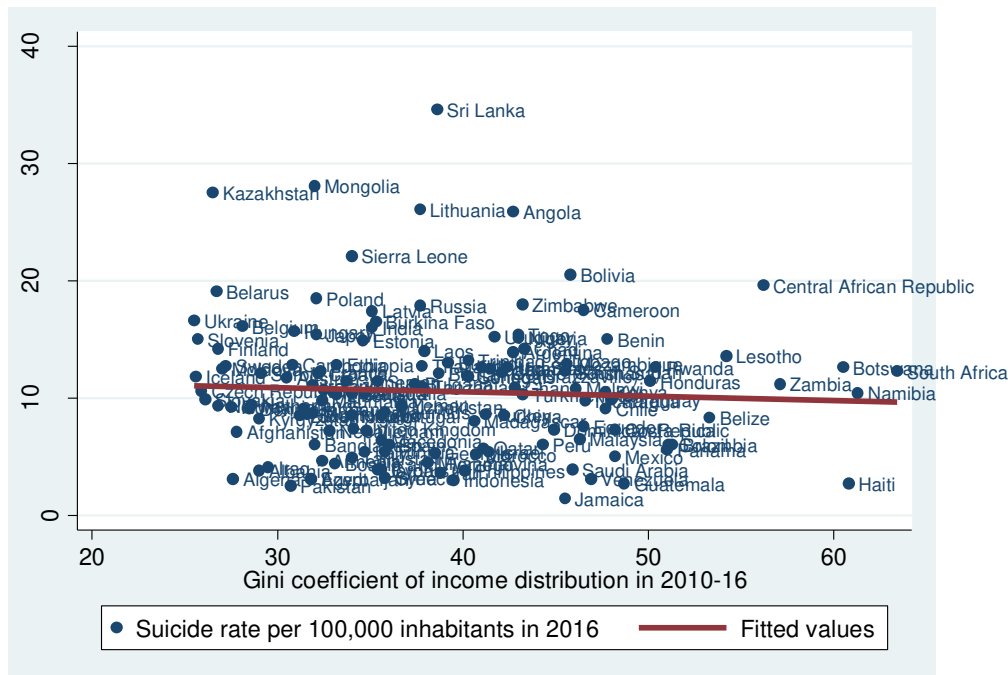


Fig. 9. Gini coefficient of income inequalities and the suicide rate per 100,000 inhabitants in 2010-16



Source: Suicides; WDI.

Hypotheses

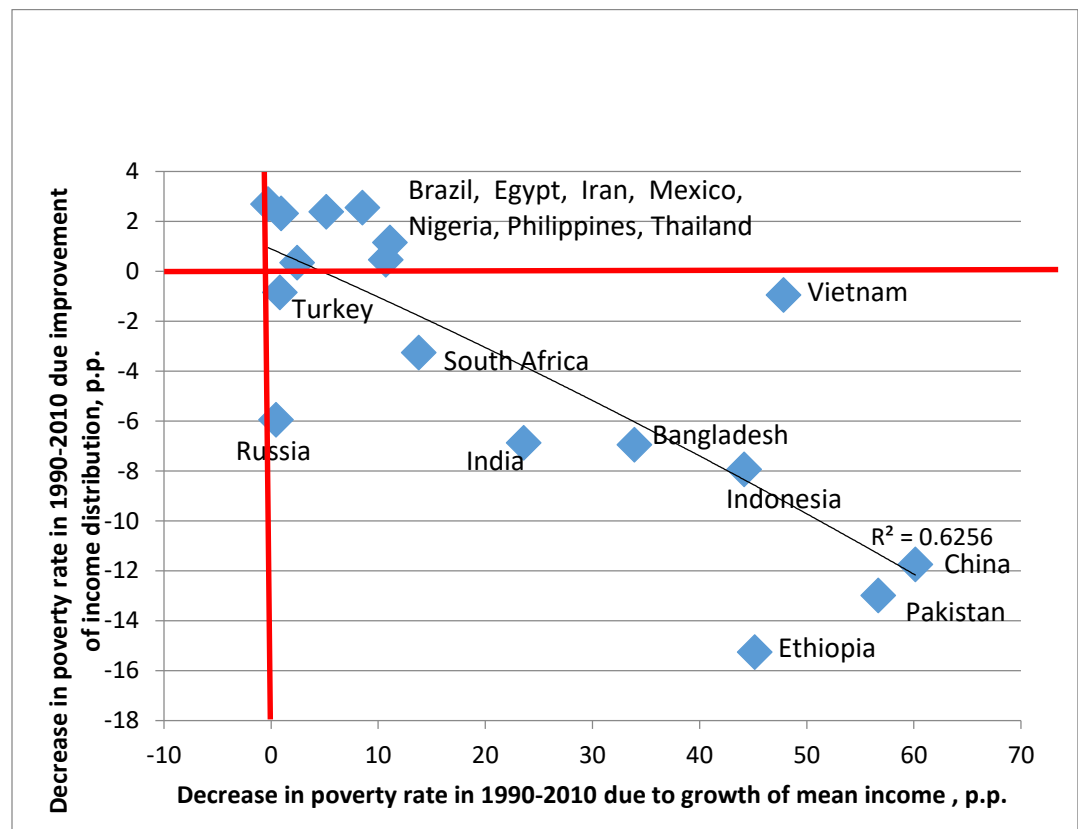
The “big fish in a small pond” effect is actually a model (Marsh and Parker, 1984) that was developed to explain why good students prefer to stay in a class, in which they are above the average level, rather than in a more challenging learning environment, where they are below average. This effect is used to explain one of the paradoxes of happiness – strong growth is usually accompanied by growing income inequalities (fig. 10), so rapid growth is often associated with low happiness scores (fig. 11).

An already mentioned paper by Brockmann, Delhey, Welzel, and Hao (2008) refers to concept of "frustrated achievers" and explains the decline of happiness scores in China by the deterioration of the **relative** incomes for the majority of the population due to an increase in income inequality.

The findings of this paper are different: income inequality increases happiness rather than decreases it, whereas decline in inequality makes people feel miserable. Two explanations probably do not contradict one another, if we separate stock and flow effects: with lower inequality people feel unhappy (the dream of “a big fish in a small pond” is out of reach), but the transition to higher inequality, when relative position of the majority deteriorates versus the average, makes people even more unhappy temporarily (during the transition). When transition to the higher inequality society is over, people (may be the new generations) start to feel happier.

The hypothesis is supported by the significant negative impact of transition dummy variable on happiness (table 2) and negative impact on suicides – (table 4) suicides. This transition dummy variable is equal to 1 for all countries with the communist past and 0 for all other countries. In all transition economies there was an unprecedentedly rapid and considerable rise in income and wealth inequalities in the 1990s (in China – after 1985) and this rise had a depressing effect on happiness and caused more suicides. But the **level** of inequalities exhibits a positive and significant impact on happiness (negative – on suicides), suggesting that after transition to these high levels is made, inequality becomes good for happiness and suppresses suicides.

Fig. 10⁴. Decrease in poverty rate in 1990-2010 due to growth of mean income and improvement of income distribution, p.p.

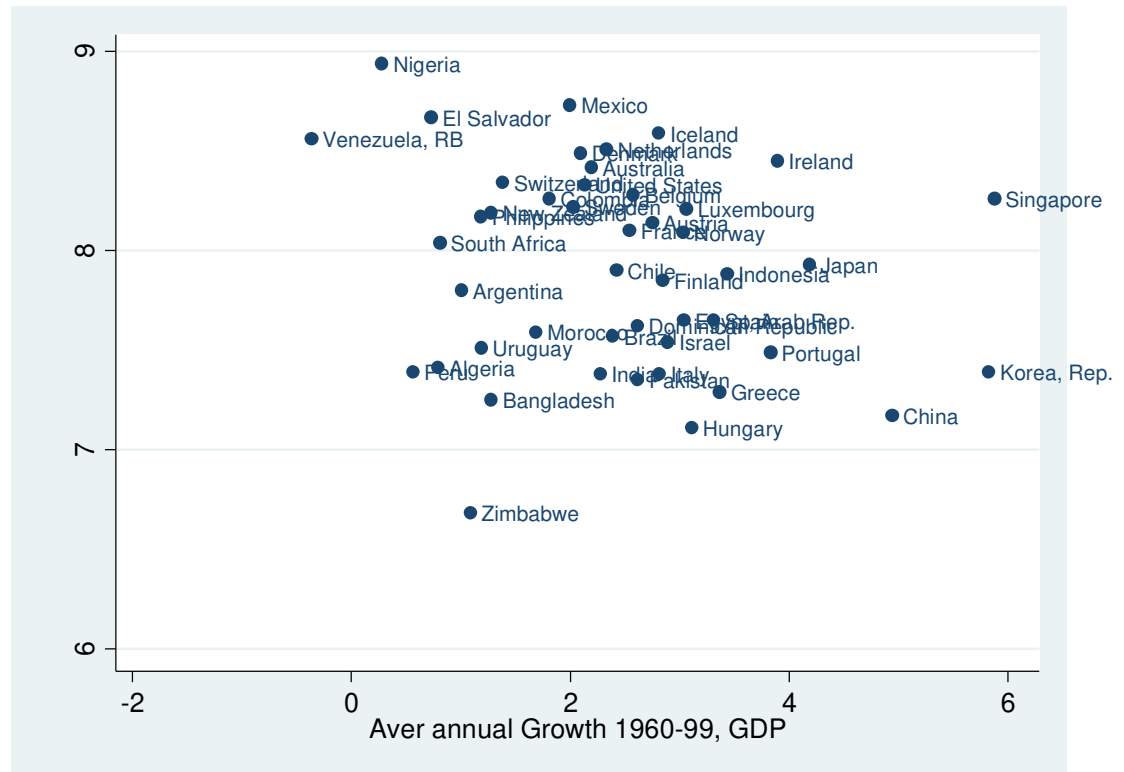


Source: POVCAL.

Source: POVCAL.

⁴ POVCAL allows to calculate poverty rates under different assumptions. In order to separate changes in poverty due to income growth and changes distribution of income, I follow 4 steps. 1. Compute the actual reduction of poverty rate (people with monthly income of \$38 in 2005 prices at PPP rates) from 1990 or nearby year to 2010. 2. Compute the actual increase in mean real income. 3. Estimate minimum income in 1990 that was sufficient for getting out of poverty by 2010 just due to increase in income, holding income distribution constant (\$38 / increase in average income in 1990-2010) – critical poverty line. 4. Compute the poverty rate in 1990 for the minimum income needed to get out of poverty by 2010 (critical poverty line) and assume that all people that had higher incomes exited poverty just due to the actual growth of average income. The difference between the actual poverty rate in 1990 and the poverty rate for critical poverty line is the share of people that escaped poverty only as a result of growth of average income, without changes in the distribution of income. The difference between actual reduction of poverty rate in 1990-2010 and the share of people that escaped poverty due to the growth of income is the share of people that escaped poverty due to better (more even) income distribution (holding constant the growth of average income). If this number is negative, it means that distribution of income deteriorated and poverty rate increased because of this deterioration. In most cases growth of average income was enough to over-compensate this deterioration, so overall poverty rate declined.

Fig. 11. Happiness score in 2000 and annual average growth rates of GDP per capita in 1960-99, %



Source: World Happiness Report; WDI.

Conclusions

Income inequality and murders increase happiness and diminish the suicides rates – this is a controversial, but robust finding of the paper that was not reported in the previous literature to the best of my knowledge. This conclusion seemingly contradicts the previous results about the negative impact of inequality on happiness. The decline in happiness in China and many other countries with growing incomes and life expectancy was explained by growing inequality that deteriorated the **relative** position of most people, even though the absolute levels of incomes and life expectancy were growing (“big fish in a small pond effect”).

My result, however, may be consistent with the previous research findings, if the distinction between levels and change in the levels of inequality (stock and flows) is taken into account. The hypothesis is that low inequality kills peoples’ “dream of the big fish in a small pond”, so they feel unhappy and suicide rate rises. The transition to a higher inequality society makes most of them

even less happy because their relative position in terms of average income deteriorates. But when the transition is over, happiness increases and suicide rates fall because the rise in inequality comes to an end and the new high levels of inequality allow people to hope that one day they will reach the very top.

Another result is that the murder rate affects happiness positively and suicide rate (objective measure of unhappiness) – negatively either by itself or in interaction with high inequalities. One reason may be the perceptions of social justice (murderers blame others, those who commit suicides, blame themselves). Another possible reason – when inequalities are high and perceived as unfair, murders and crime are viewed as acceptable (correction of government failure to ensure social justice).

The idea for future research is to use panel data (Forbes data are available from 1996) to test the hypothesis that low income inequalities cause unhappiness, their subsequent increase initially make people even less happy, but eventually, when the level of inequalities stabilizes at a high level, happiness increases. This should be possible due to a sort of the natural experiment – rapid increase in inequalities in the 1990s in the post-communist countries.

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