Income inequality and happiness in 119 nations
In search for an optimum that does not appear to exist

Maarten Berg and Ruut Veenhoven
Erasmus University Rotterdam, Faculty of Social Sciences

1   INTRODUCTION

1.1   The question how much income inequality is acceptable

All modern nations engage in active income redistribution and have a system that taxes the wealthy to a greater extent than the poor. Redistributive policies are accompanied by a continuous discussion on the question of how much income inequality is justified (e.g. Pen and Tinbergen, 1977; Sen, 1997). This discussion has an important ideological component: egalitarians claim that all people are equal and that wealth is generated by society as a whole. They conclude that the benefits of our wealth should therefore be equally shared. Libertarians stress the fundamental right to property and claim that wealth is the result of free enterprise. Their ideal is a form of 'limited government' that does not interfere with the spontaneous evolution of income differences. As these principles are incompatible, egalitarians and libertarians can at best compromise.

Consequentionalist approach
Since an agreement on principles is unlikely, one can seek a consequential criterion to clarify things. One can look, for example, at the effects of income inequality on economic growth. It is often argued that that economic freedom and the resulting inequality stimulate economic growth and that most people want economic growth (e.g. Layard and Walters, 1978). This is the moral basis for the current (neo-) liberal policies that dominate in most of the Western world.

Not everyone agrees that we should aim at continuous economic growth. As material wealth keeps cumulating, the necessity for additional growth becomes less obvious and this reflects in 'diminished happiness returns' (Easterlin, 1974) and in the growing support for 'post-materialistic values' (Inglehart, 1990). Moreover, a lack of resources and potential damage to the environment might restrict the desirability of further economic growth.

In the consequentialistic debate on income inequality there are other criteria than just the effects on economic growth. Most people agree that even the poorest should be able to fulfill at least their basic needs and that income differences should not be so extreme that the societal order is endangered. However, it is not easy to establish what needs qualify as 'basic' or when social order is at risk. It is even more difficult to quantify the possible consequences of income-inequality. In this chapter we apply another criterion and consider the effect of income-inequality on 'happiness'. We thereby go back to Jeremy Bentham (1789), who placed happiness at the core of his 'utilitarian' moral philosophy.

Greatest happiness principle
Utilitarianism is the philosophy that judges good and evil on the basis of 'utility', and its founding father, Jeremy Bentham (1789), thought of utility as 'happiness'. In his view, the moral value of any action should be judged in terms of its effect on happiness, the best action being the one which yields the 'the greatest happiness for the greatest number'. The application of this principle to policy is called 'rule-utilitarianism'. Bentham defined happiness as 'the sum of pleasures and pains', which is in line with the modern definition of happiness as 'subjective appreciation of one's life as a whole' (Veenhoven, 1984).

      This approach is quite suitable for answering how much income inequality is acceptable. First, there is considerable agreement on the desirability of happiness. We know this from surveys that indicate that citizens value happiness more than many other 'end state values' (e.g. Goddijn, Smets and Van Tillo, 1979: 62; Inglehart, 1985:110). Secondly, happiness is a 'highest order concept' that incorporates many other criteria of 'quality of life'. Thirdly, happiness has successfully been measured and data exist that make it possible to make a comparison between various nations and various income policies (Veenhoven, 1998).

Equal happiness principle
In the (standard) utilitarianism of Jeremy Bentham, the focus is on the averag*e level* of happiness in society. A common objection is that the happiness of the greatest number can be attained at the cost of unhappiness of a minority and that utilitarian ethics are compatible with the violation of individual rights and interests. In this context it is wise to also take *differences* in happiness into account. We call this variant *egalitarian utilitarianism*. It is egalitarian in the sense that equal outcomes are valued positively. However, it does not stress income equality, as standard egalitarianism does, but equality in terms of happiness. Following an egalitarian utilitarian approach, policy makers should favor small differences in happiness over greater happiness. Both the standard utilitarian and the egalitarian utilitarian approach are followed in the current study.

1.2   Earlier research

A pioneer study was reported by Morawetz (1977), who compared two Israeli 'Kibbutz'. These cooperative settlements were similar in terms of size, religious orientation (Jewish), age distribution and so on. The most noticeable difference between the two Kibbutz was that in one Kibbutz each family had the same income, whereas the other Kibbutz allowed income differences. Average happiness appeared to be higher in the former Kibbutz than in the latter. On that basis Morawetz concluded that income inequality reduces happiness, while also admitting that the design of this study was far from perfect.

Interpersonal comparison of income and happiness
The findings of Morawetz fit the intuition of many later scientists who believe that happiness depends on social comparison (e.g. Ball & Chernova, 2004). In this view, people can derive unhappiness from comparing their level of wealth with the wealth of others, and in that line Clark (2003) claims that in Great Britain, comparing oneself with high income groups is linked to low life-satisfaction. Income inequality, then, is unpleasant for those who earn less than others (e.g. Luttmer, 2004), although even low

income individuals might be able to compare themselves with worse off comparison groups. Senik (2002) reports that Russians are actually *more* satisfied, when people in their surrounding, the 'reference group', earn more. Apparently, other people's fortune does not have to be a source of frustration, but can also be a source of inspiration and hope (Clark, 2003). This will especially be the case, according to Senik, when society is unstable and social mobility great. In such circumstances, people will not be bothered by a short-term hierarchy, they will focus on long-term aspirations. Eggers, Gaddy en Graham (2006) found that Russian respondents, both working and unemployed, are happier in regions with high unemployment rates. According to these authors, inequality in Russia is a side-effect of (positive) capitalist reforms[i].

Local income inequality and happiness
A related question is whether income-inequality also influences average happiness in a region. Different studies have come up with different answers. Some authors claim that people are happier in US states where income differences are smallest (Kawachi and Kennedy, 1997; Kaplan et al., 1996; Blanchflower and Oswald, 2003). However, Alesina, DiTella and MacCulloch (2004) found no such difference across US states. Likewise, Senik (2002) found no effect of income inequality across regions in Russia. Reversely, Clark (2003) and Tomes (1986) report *positive* effects of income inequality on subjective well-being, Clark's study being based on the general population in different English regions and Tomes' study on males in different districts in Canada.

Income inequality and happiness in nations
The first cross-national study on income inequality and its effects involved 13 nations in the 1970's and a negative relationship between income inequality and happiness was found (Veenhoven 1984). Alesina et. al. (2004) found a similar pattern in 12 European nations over the years 1975-1992, but no such difference across US states. One explanation is that Europeans are more 'inequality averse' than Americans. A second explanation could be that the social mobility is greater in the US, and income differences hence less definitive and less threatening[ii] [iii].
        Veenhoven (2002) updated his previous analysis and compared 45 nations in the 1990s. In this larger set of nations he found no relationship between income inequality and average happiness. He did find a curvilinear relationship between the wealth of nations and average happiness and concluded that we can apparently live with relative income differences, but not with poverty in an absolute sense. Likewise, Fahey and Smith (2004) found no correlation in 33 European nations in 1999, while Bjornskov, Dreher and Fischer (2007) did not find any correlation for 60 nations in the years 1999-2004. In the latter analysis acceptance of income-inequality and level of democracy were controlled.

2   METHOD

2.1   Approach

In this chapter, we take another look at the relationship between income inequality and happiness in nations. The current study is different from the studies mentioned above in six respects:

1. We considered a greater number of nations than ever before, using a dataset that involves 119 nations for the years 2000 to 2006.
2. We considered average *level* of happiness in nations, and *disparity* in happiness between citizens.
3. We considered *overall happiness*, and two 'components' of happiness: an affective component called *mood* and a cognitive component called *contentment*.
4. We inspected whether there is a statistical relationship, and considered the shape of that relationship. We made scatter plots and looked for a turning point after which greater inequality in incomes results in a lower level of happiness and greater difference in happiness.
5. Contrary to some of the above discussed studies, we restricted our analyses to the nation level.
6. We deliberately used simple techniques, that is, scatter plots, correlations and partial correlations.

Why the large number of nations?
This study was based on 119 nations, which is more than any earlier study. The number of cases is important for several reasons. First, national happiness is not only determined by the level of income inequality, but by many other factors as well. Maximizing the number of nations allowed us to reduce the influence of cultural and local circumstances that have nothing to with income inequality. A second reason is that an increased number of cases is expected to help us to get a better perspective on the shape of the relationships. We focused on the shape of the relationships, because these are not necessarily linear. The strength and even the direction of the relationship might be different for different levels of income inequality. Such non-linear patterns could not be identified in earlier correlational research. Since the question is what degree of income inequality is acceptable, we looked for a level where inequality started to hurt happiness, and also for a possible optimal level of inequality. A third reason to study as many nations as possible is that this enables us to split-up the data into subsets. We conducted additional analyses for the Western world, Eastern Europe, Latin America, Asia and Africa.

Why consider disparity of happiness in nations?
As noted above, great happiness of a great number might be attained at the cost of great unhappiness of a small number. This could be the case here, since income inequality may be to the advantage of rich, well educated groups, but to the disadvantage of poor, vulnerable groups. A large body of literature suggests that things work this way (e.g. Wilkinson 2005). If so, inequality in income does not necessarily undermine *average* happiness, but it must go together with *inequality* in happiness. We tested whether this was the case.

Why consider components of happiness?

Happiness is conceived as subjective enjoyment of one's life as-a-whole. Thus defined happiness is synonym with *life-satisfaction*. In evaluating their lives, people draw on two sources of information, which can be seen as sub-totals in the appraisal process. The first source is how well they feel most of the time. This is known as the 'affective component' of happiness and called *mood* in this chapter. The second source of information is to what extent life meets the standards they have in mind. This is known as the 'cognitive component' of happiness and called *contentment.* Veenhoven (2009a) claims that the affective component of happiness draws on universal human *needs*, while the cognitive component rather draws on culturally variable *wants*. He presents evidence that the affective component dominates in the overall evaluation of life and concludes on this basis that happiness is universal rather than culturally relative (Veenhoven 2010).

Possibly, these happiness variants relate differently to income inequality. Effects of income inequality due to social comparison will mainly manifest in the cognitive component, while effects due to need gratification will reflect in the affective component. In the case of opposite and comparable effects on both of these components, there is no correlation with overall happiness. In this study we therefore took a differentiated view on happiness.

Why consider the shape of the relationship

Most of the above mentioned studies deal with the question of whether there is a correlation between income inequality and happiness and use statistics that assume linearity, without checking this assumption. We were in addition interested in possible non-linear patterns and in particular, in attempting to find a turning point beyond which income inequality begins to threaten happiness.

Why restrict to the macro level of nations?

Several of the above mentioned studies use individual (happiness) data and include the income inequality of the country of residence as if this is an individual variable (e.g. Blanchflower and Oswald, 2003; Alesina et al, 2004). An often mentioned advantage is that this method drastically increases the number of observations (N) in comparison to any macro-level study. Yet this is no real gain, since the (independent) variable of interest is still a characteristic of the nation. Since this approach is restricted to nations for which micro data are available, it does not increase, but rather decreases the number of relevant observations. Alesina et. al. (2004), for example, draw on data for no more than 12 nations!

Another frequently mentioned advantage of the 'micro level method' is that it allows researchers to control for individual characteristics such as age, sex, personality and personal circumstances. This is also a mixed blessing. Such controls can also distort the view of the net effects of income-inequality. For instance, to control for unemployment may disguise a positive effect of income inequality on work incentives and labor supply. The question at hand here is how income inequality works out for happiness of the greatest number, and for this reason it is better not to filter out individual differences.

2.2   Variables

2.2.1   *Independent variable: income inequality*

Income-inequality in nations was measured using the Gini-coefficient (see appendix A). The data were taken from the World Bank World Development Indicators (2007) for the period 1993-2004[iv]. An alternative measure of income inequality, not used in this article, is the ratio income of the richest 20% and income of the poorest 20%. An advantage of that latter measure is that it does not require information on the complete income distribution. However, this measure is somewhat less sensitive than the Gini-coefficient to possible measurement problems that might arise in poor nations where data might be unreliable.

2.2.2   *Dependent variable: happiness*

As note above, we considered not only *overall happiness*, but also the cognitive component of happiness *contentment* and the affective component *mood*.

Happiness was measured using responses to the question: "Taking all together, how satisfied or dissatisfied are you with your life-as-a-whole these days?" The responses were rated on a numerical scale ranging from 1 (dissatisfied) to 10 (satisfied)[v]. The *level* of happiness was quantified using the average of responses in a nation[vi] and *disparity* in happiness was measured using the standard-deviation[vii], following Kalmijn and Veenhoven (2005).

Contentment was measured using responses to the question: "Here is a picture of a ladder. Suppose the top of the ladder represents the best possible life (10) for you and the bottom of the ladder the worst possible life (0). Where on this ladder do you feel you personally stand at the present time?" As for happiness, the level of contentment was then assessed using the average[viii] and dispersion in contentment using the standard deviation[ix].

Mood was measured using responses to 14 questions about affects of a respondent during the preceeding day of the survey. A typical question was: "Did you experience the following feelings a lot during the day? How about enjoyment?"Answer categories were "yes"or "no". The level of mood was then quantified using an affect balance score that reflected the degree to which positive responses outweighed negative affects[x]. Note: the data do not allow a standard deviation to be determined.

2.2.3   *Control variable: wealth*

It is possible that income inequality has different effects for nations that differ in their level of national wealth. Hypothetically, income inequality could be more functional in poor countries than in rich nations; but this positive effect for poor nations may be disguised by the lower happiness in poor countries. For this reason, we controlled for wealth. Wealth was operationalized in our research as gross domestic product per capita, adjusted for purchasing power: i.e. the different currencies were transformed into one common currency, and the differences in price levels, of standardized sets of goods, were equalized. The data were taken from the World Bank[xi] .

2.2.4 Data

All the above variables can be found in the data file 'States of Nations' (Veenhoven, 2009b) which forms part of the World Database of Happiness. This database is available on request. The relevant cases and scores are presented in Appendix B.

2.3 Analyses

Our analyses involved three steps: One we computed zero-order correlations in the entire set of 119 nations, to see if there was any relationship. We also made scatter plots to inspect these relationships in more detail, and in particular to identify possible non-linear patterns. We looked for a level of inequality that is optimal for happiness and also for a possible turning point beyond which happiness declines

Two we checked whether purchasing power functions as a suppressor variable, using partial correlations.

Three, as a last step we did a separate analysis for different parts of the world to identify possible cultural variations. In this context we inspected whether the pattern in the Western world differs from other parts of the world.

We only report (partial) correlations and leave out the corresponding p-values. The p-value represents the chance of a 'type I error': i.e. a difference in the sample that does not reflect a difference in the population as a whole. When this chance is sufficiently small, smaller than 5% for example, it can be concluded that the observed difference should not be attributed to the sample, but to real differences in the population. In other words: there is only a small chance that using another sample will make the difference go away. The concept of 'sample' is not relevant here, however, since we use *all* the nations in which happiness and income inequality have been measured. As the concept of 'type I error' does not apply in such a context, claims about statistical significance are meaningless.

3 RESULTS

The correlation results are presented in Table 1. Below, we will discus these results beginning with column two.

3.1 Income inequality and <u>level</u> <u>of happiness</u> in nations

How does income inequality relate to *average* happiness in nations? At first sight the results are ambiguous, but on a closer look a slight positive relationship appears.

Overall happiness

The zero-order correlation in this set of 119 nations is -0.08 [xii]. This suggests that there is no substantial statistical relationship between income inequality and average happiness on a global level, and inspection of the scatter plot also shows that there is no non-linear relation. Consequently there is no view of an optimal level of income inequality.

As noted above, differences in national wealth can distort the picture and for that reason we partialled wealth out. This resulted in a positive relation, the partial correlation being + 0.28. Inspection of a plot of residuals confirms this, see Figure 1. So income

inequality seems to work positively on the level of happiness.

Contentment
The relation with contentment is different at first sight. In more unequal nations, people are less apt to rate their life as successful (r = -0.26). However, when wealth was controlled, the direction of the relationship changed to positive (r_p = +0.14). As in the case of happiness this denotes a modest positive effect. Inspection of the scatter plot (not shown[xiii]) did not reveal any non-linear pattern.

Mood
The relationship between income-inequality and average mood is most in line with the libertarian view; both the zero-order correlation (r = +0.12) and the partial correlation (r_p = + 0.28) indicate a positive relationship. Again inspection of the scatter plots did not reveal a non-linear pattern (plots not shown).

In sum
The zero-order correlations showed that income inequality goes together with slightly lower contentment, but with better mood and these opposed effects resulted in a non-relationship with overall happiness. This would mean that the positive and negative effects of income inequality tend to balance out and consequently this consequential approach does not answer the question of what degree of income inequality is acceptable. This conclusion can be criticized, however, since control for wealth reveals a positive relation with all three happiness variants. So in the end positive effects seem to prevail, at least so far as the average level of happiness in a nation is concerned.

3.2   Income inequality and <u>inequality of happiness</u> in nations
As noted earlier, a great average happiness score of a nation does not necessarily imply that every citizen in that nation is happy. For that reason, we also study the inequality of happiness in nations. When the inequality of happiness is low in a nation, there is less reason to assume that the happiness of the majority in that nation is at the expense of an unhappy minority. We measured inequality of happiness using the standard deviation of responses to single item questions about overall life satisfaction and contentment. Standard deviation on mood were not available.The results are in Table 1.

Overall happiness
In nations that have great income inequality, the inequality in happiness is also somewhat greater (r = + 0.21). Although we concluded before that *average* happiness is not undermined by income inequality, income inequality is associated with *inequality* of happiness within nations. Again control for wealth changes the picture and eliminates the positive relationship (r_p = -0.01). Inspection of the scatter plot did not reveal any non-linear pattern. See Figure 2.

Contentment
The results for contentment were almost identical to the results for overall happiness. Income inequality is positively correlated with inequality in contentment (r = + 0.21). This relationship disappears when wealth is controlled for (r_p = -0.01).

In sum

At first sight inequality of incomes seems to go with inequality of happiness and this would suggest that income inequality is not compatible with egalitarian utilitarianism. Yet when the wealth of the nation is taken into account, this relation disappears, which means that income inequality works out neutrally from this ethical perspective.

3.3　　Patterns in parts of the world

Quite different patterns appear when we split the nations into subgroups worldwide. For instance in the Western world, here defined as US, Canada, Australia, New-Zealand and Western-European countries, we found a strong negative relationship between income inequality and happiness, even after controlling for wealth. In Eastern Europe the picture is quite different: after controlling for wealth, there is a slight positive relationship between income inequality and wealth. The same applied for Asia and Latin America. In Africa there is no meaningful relationship.

　　　　The results are also not robust when we look at the disparity in happiness. In Asia, greater income inequality is associated with greater inequality in happiness, however, the reverse is true for Latin America, Africa and Western Europe. While for Eastern Europe, there is no relationship.

　　　　This erratic pattern is probably due to the small size of the sub-sets, in which random variation disguises the view on the effects of income-inequality.

4　　DISCUSSION

The leading question was how much income inequality is acceptable in a utilitarian perspective. The answer is that we could not identify a particular turning point, but that the data suggest a modest positive effect of income inequality within the range that exists in the present day world.

　　　　Greater income differences in a nation go together with somewhat greater happiness of the average citizen and do not create greater inequality of happiness. This means that income inequality is acceptable from a utilitarian perspective, at least the degree of inequality that exists in the present day world. This conclusion can not necessarily be generalized to every single nation or to every single person within such a nation. Moreover, even for those individuals who benefit from income inequality, this benefit is probably the net-effect of both pros and cons. Still, for the average person the benefits of income inequality seem to somewhat outweigh the downsides.

　　　　This result will strike many readers as counterintuitive. Can this be true? Below we will consider how these findings fit earlier research, then we will discuss some possible explanations, lastly we address some political implications.

4.1　　Fit with earlier research

This is not the first study to find a positive relationship between income inequality and happiness in nations. As noted above, similar finding have been reported by Senik (2002), Eggers, Gaddy and Graham (2006), Clark (2003) and Tomes (1986). Moreover, many researchers have found no relationship, either positive or negative, between income

inequality and happiness (e.g. Veenhoven, 2002; Bjornskov, Dreher and Fischer, 2007; Fahey and Smith, 2004). The results of this study are also compatible with earlier research on social security and happiness in nations, which have found no greater happiness in nations that spend a lot on social security compared to equally wealthy nations that practice 'residual welfare' (Veenhoven 2000, Ouweneel 2002). Yet our results do not fit with all the previous research.

As noted above, there are also reports of a negative relationship between income-inequality and happiness. Most of these studies concern income inequality in *regions* and that is not the same as income inequality in nations. Possibly, the negative effects of income inequality are greater in regions or in cities, e.g. due to greater visibility triggering social comparison. It is also possible that the potential benefits of inequality manifest mainly at the national level, e.g. due to a more optimal allocation of labor. So the results of these studies do not necessarily contradict ours. Negative effects at the local level can exist side by side with positive effects at the national level.

Still, in a much cited paper Alesina et. al. (2004) claim that happiness is lower in nations where income inequality is high. How can that be? A first thing to note is that the observed difference in happiness is modest. Among American states Alenina et. al. found no significant effect, in spite of their large sample. In Europe they did find a significant effect in an even larger sample, but the size of the effect is not great[xiv]. The second answer is that Alesina et. al. performed an individual level analysis on pooled surveys, in which they controlled for a large set of individual characteristics. However, some of these characteristics, such as employment status, could actually be influenced by the degree of income-inequality in the country. As egalitarian societies are necessarily characterized by 'pay-productivity gaps' and employers are not willing to pay an employee more than his productivity, it can at least be hypothesized that income equality leads to greater unemployment. Alesina et al should not have controlled for employment status, as high employment might be a positive effect of income inequality. The third answer is that Alenina et. al. used data from only 12 West-European nations over the years 1975-1992. These were the EU member states: Belgium, Denmark, France, Germany (West), Greece, Ireland, Italy, Luxemburg, The Netherlands, Portugal, Spain and the UK. These are almost the same nations as those studied in the first study by Veenhoven (1984), among which he also found a negative relationship between income-inequality and happiness. In this small set the tendency is heavily titled by Denmark and the Netherlands, where income inequality is low and the level of happiness high. As noted above, we observed the same pattern when considering the subset of 20 western nations.

Is the effect of income inequality on happiness then fully context dependent? The observed differences across part of the world can be interpreted in that vein and in that line one can maintain that income inequality undermines happiness in at least some regions of the world. Yet the small number of observations in each separate region makes it impossible to be sure. It is equally well possible that there is an universal effect of income inequality on happiness, which is not as well visible everywhere, due to variation in unrelated country characteristics. Our finding of a slight positive effect in this set of 119 nations fits that latter view and when controlling for wealth we have captured a lot of cultural variation. So for the time being, we conclude that income-inequality tends to work out positively on happiness, although contextual variation is still a possibility.

4.2   Explanations

Why do we see so little relation between income inequality and happiness in nations? And: Why is the tendency positive rather than negative? Several explanations come to mind.

Happiness insensitive?

A common objection is that happiness, or related concepts, cannot be meaningfully compared across cultures, both because the very concept is culturally variable and/or because of a cultural measurement bias. If so, happiness should also be unrelated to other macro variables, such as wealth, democracy and human rights. Yet this appears not to be the case. Cross national research has rather found very strong correlations with various societal characteristics which together explain about 75% of the large differences in happiness across nations (e.g. Ott, 2005). So the lack of correlation with income inequality cannot be attributed to the insensitivity of happiness.

Inequality in line with preference?

Another explanation could be that most nations have income distributions that match the wishes of the majority of the population. Politicians have stong incentives to be in touch with the political preferences of (large groups of) voters. Similarly, voter preferences might be strongly influenced by the (familiar) policies of the status quo. It is hard to imagine that policies or political philosophies that are not supported by society, can survive in a democracy for long periods of time. Although the level of income inequality differs significantly between nations, the *satisfaction* with the level of income inequality might be more or less the same (at least in democratic nations). If this is indeed the case, it might explain why income inequality is not negatively correlated with average happiness in nations. In this line Berg (2007) found a stronger correlation between income inequality and happiness in countries were income-inequality is more accepted by the general public. Yet this analysis was base don only 14 nations and it is unclear whether policies are made in reaction to the preferences of citizens or that the preferences of citizens adjust to whatever policies exist in a certain period of time.

Balance of effects?

It is important to stress once more that critics of income inequality may still have valid points when stressing the downsides of income inequality, however, most negative effects can co-exist with positive effects of similar and even greater size. It is not difficult to think of negative effects of income-inequality, since these are spelled out in great detail in the literature, e.g. by Sennett and Cobb (1993) in their book 'Hidden Injuries of Class'. The challenge is rather to identify the benefits of income inequality.

          In this context a plausible explanation could be that income inequality reduces happiness in the short term, while boosting the economy. In this view, a negative effect of income-inequality as such is balanced by a positive effect of economic growth. If so, controlling for wealth of the nation should reveal a negative correlation between income inequality and happiness. Yet, this is not the case. When we control for purchasing power for the world as a whole, the partial correlation is not negative, but positive (+0.28). People appear to be happier in unequal nations than in equal nations that are equally wealthy. Still, this explanation can apply to nations where the negative effects of income-inequality are felt while its benefits cannot yet be reaped. This was for example the case

with Eastern Europe in the 1990s, where people were confronted with an unexpected and unwanted rise in income-inequality in the absence of promised economic growth.

What are other possible benefits of income inequality? One benefit could be that income-inequality fosters the activity level of people, which subsequently boosts happiness. This explanation would fit the theory that happiness is a by-product of being 'fully functioning'. Another effect could be that dispersion of incomes fosters variation in life-styles and sub-cultures in society, which in its turn adds to the chance that individuals find a niche that fits their preferences. This explanation would fit the theory that happiness depends on optimal allocation of time and activities. Yet another possible explanation is that to attain income equality, a government must limit the freedom of individuals, which reduces happiness. In this view, the means nullify the benefits of the end. Lastly, income inequality is not just a source of frustration for the poor, it can also be seen as a promise, such as in the 'American Dream'.

It is beyond the scope of this chapter to explore and test these explanations in more detail. Suffice to say that the observed positive relationship between income inequality and happiness can be explained in terms of benefits and downsides operating simultaneously.

4.3   Political implications

There are many reasons to oppose or defend income inequality in a nation. This study pertains to one of these arguments and shows that one cannot reject income inequality on the grounds of its consequences for happiness. One can defend income inequality on these grounds. This does not conclude the discussion on income inequality, but it does answer at least one issue with respect to such inequality.

5   CONCLUSION

In the present day world, there is little relation between income inequality in nations and average happiness of citizens. Controlling for wealth, a slightly positive correlation emerges.There is no clear level of income inequality beyond which happiness declines. Income inequality is not correlated with the inequality in happiness after controlling for wealth. Although income inequality might have downsides, these are apparently outweighed by the positive aspects of income inequality.

REFERENCES

Alesina, A., DiTella, R., and MacCulloch, R. (2004)
Happiness and Inequality: Are Europeans and Americans Different?
Journal of Public Economics 88(9-10), 2009-2042

Ball, R. and Chernova, K. (2004)
Absolute income, relative income and happiness
Paper presented to the international society of quality of life studies (ISQOLS)
Philadelphia, USA

Bentham, J. (1789)
Introduction to the Principles and Morals of Legislation
London, UK.

Berg, M.C. (2007).
Inkomensongelijkheid en geluk in landen.
Mens en Maatschappij, 82(1), 28-50.

Bjornskov, C., Dreher, A., and Fischer, A. (2007)
The Relation between Inequality and Happiness, Do Subjective Perceptions Matter?
Paper, Aarhus School of Business, Denmark

Blanchflower, D. G. and Oswald, A.J. (2003)
Does inequality reduce happiness? Evidence from the States of the USA from the 1970's to the 1990's.
Dartmouth College, Mimeo.

Clark, A. (2003)
Inequality aversion and social mobility: a direct test
Delta Working Paper No. 2003-11, Paris, France.

Easterlin, R.A. (1974)
Does economic growth improve the human lot? Some empirical evidence
In: David PA. & Melvin, W.R. (eds.) Nations and households in economic growth. Palo Alto, CA: Stanford University Press. 98-125.

Eggers, A., Gaddy, C. and Graham, C. (2006)
Unemployment and Wellbeing in Russia in the 1990's: can society's suffering be individuals solace?
Journal of Socio-Economics, 35, 209-242

Fahey, A.L. and Smyth, E. (2004)
The Link between Subjective Well-Being and Objective Conditions in European Societies.
in: Arts, W. & Halman, L. (Eds.): "European Values at the Turn of the Millennium",
Brill, Boston, USA, 57 - 80

Goddijn, W., Smets, H. and Van Tillo, G. (1979)
Opnieuw: God in Nederland.
KRO en weekblad De Tijd, Nederland

Graham, C. and Felton, A. (2005)
Does inequality matter to individual welfare? An initial exploration based on happiness surveys from Latin America.
CSED Working Paper, No. 38.

Graham, C. and Pettinato, S. (2002)
Happiness and hardship. Opportunities and insecurity in new market economies.
Brookings Institution Press, 174 pp.

Inglehart, R. (1985)
Aggregate stability and individual level flux in mass belief systems: the level of analysis paradox
American Political Science Review, 79, 97- 116.

Inglehart, R. (1990)
Culture Shift in Advanced Industrial Society
Princeton University Press, USA.

Kalmijn, W. and Veenhoven, R. (2005)
Measuring inequality of happiness in nations
Journal of Happiness Studies, 6, 357-396

Kaplan, G.A., Pamuk, E.R., Lynch, J.W., Cohen, R.D. and Balfour J.L. (1996).
Inequality in income and mortality in the United States: analysis of mortality and potential pathways
British Medical Journal, 12, 999-1003.

Kawachi, I., and Kennedy, B.P. (1997).
The relationship of income inequality to mortality: Does the choice of indicator matter?
Social Science and Medicine, 45, 1121-1127.

Layard, R. and Walters, A. (1978).
Microeconomic Theory.
New York: McGraw-Hill.

Luttmer, E. (2004)
Neighbors as negatives: relative earnings and well-being
KSG Faculty Research Working Paper Series RWP04-029

 McMurrer, D. and Sawhill, I.V. (1998)
Getting ahead: economic and social mobility in the United States
Washington, D.C.: Urban Institute Press

Morawetz, D. (1977)
Income distribution and self-related happiness: some empirical evidence
Economic Journal, 87(347), 511-522.

Ott, J. (2005)
Level and inequality of happiness in nations. Does greater happiness of a greater number imply greater inequality in happiness?
Journal of Happiness Studies, 6(4), 387- 420.

Ouweneel, P (2002)
Social Security and Well-Being of the Unemployed in 42 Nations
Journal of Happiness Studies, 3, 167 - 192

Pen, J. and Tinbergen, J. (1977)
Naar een rechtvaardiger inkomensverdeling
Elsevier Science. Amsterdam, Netherlands.

Sen, A. (1997)
On economic inequality
Oxford University Press, expanded edition

Sennett, J. and Cob, R. (1993)
The Hidden Injuries of Class
W.W. Norton & Company. New York, US.

Senik, C. (2002)
When information dominates comparison: a panel data analysis using Russian subjective panel data
William Davidson Institute Working Paper Series 495. University of Michigan.

Tomes, N. (1986)
Income distribution, happiness and satisfaction: a direct test of the interdependent preferences model
Journal of Economic Psychology, 7, 425-446.

Veenhoven, R. (1984)
Conditions of happiness.
D. Reidel, Dordrecht/Boston, 461 pp.

Veenhoven, R. (1998)
Vergelijken van geluk in landen (*Comparing happiness across nations)*
Sociale Wetenschappen, 42, 58-84.

Veenhoven, R. (2000)
The four qualities of life: ordering concepts and measures of the good life
Journal of Happiness Studies, 1, 1-39.

Veenhoven, R. (2002)
Het grootste geluk voor het grootste aantal. Geluk als richtsnoer voor beleid
Sociale Wetenschappen, 4*,* 1-43.

Veenhoven, R (2009a)
How do we assess how happy we are?
in: Dutt, A. & Radcliff, B. (eds.) Happiness, Economics and Politics, Edward Elger
Publishers, USA (in press)

Veenhoven, R. (2009b)
Average happiness in 143 nations 2000-2008
World Database of Happiness, collection of happiness in Nations, Finding Report 2009-1
Erasmus University Rotterdam, Netherlands, http://worlddatabaseofhappiness.eur.nl

Veenhoven, R. (2010)
How universal is happiness?
in Ed Diener, John F. Helliwell & Daniel Kahneman (Eds.) International Differences in
Well-Being, 2010, Oxford University Press, New York, Chapter 11

Wilkinson, R.G. (2005)
The impact of inequality. How to make sick societies healthier
Routledge, London

Appendix A

To calculate the Gini-coefficient for income inequality, we need the complete income distribution in a country. The Gini-coefficient is closely related to the socalled Lorenzcurve that indicates to what extent a homogenous income distribution and the actual income distribution differ. The greater the percentage of the national income that is earned by the richest people, or the smaller the percentage that is earned by the poorest people, the greater the Gini-coefficient. The Gini-coefficient is often calculated using the more practical Brown formula:

$$G = \left| 1 - \sum_{k=1}^{n} (X_k - X_{k-1})(Y_k + Y_{k-1}) \right|$$

G: Gini coefficient
X_k: cumulated proportion of the population variable, k= 0, …, n, met $X_0 = 0$, $X_n = 1$

Y_k: cumulated proportion of the income variable, k = 0,...,n, met $Y_0 = 0$, $Y_n = 1$

The Gini-coëfficiënt is between 0 and 1, 0 representing complete income equality, i.e. everbody earns exactly the same, and 1 representing complete inequality, i.e.one person earns the national income, while others have no income at all.

Ott (2005) notices that the reliability of the Gini-coefficient is not always perfect, especially in the case of non-Western countries. He warns us that the coefficients should be used carefully. When comparing income inequality in different nations, additional problems may arise[xv]. It is important, for example, that income is measured equally in all countries: i.e. income or consumption? Nett income or gross income? Personal income or household income? Taking informal trade into account or not?. When we look at household income, possible income differences between men and women will not appear, so that the picture differs from comparing individuals. The level of social services is also important, as social services fulfil part of the human needs in a society and decrease the role of income from wages. In Europe, income surveys exist that take into account other forms of income. These surveys are standardized in the 'Luxembourg Income Studies'. This approach was not chosen for this research. Instead of using a small number of nations and a standardized income inequality operationalisation, we choose a large number of nations in the expectation that this would diminish possible unreliabilities. When we studied the rank order of income inequality, the unreliability did not seem to be that great. Nations with an egalitarian reputation have lower Gini-coefficients than nations that are commonly believed to be unequal.

Appendix B

	I	II	III	IV	V	VI	VII
Albania	4,6	2,50	4,74	1,81	28	31,1	5.316
Algeria	5,2	3,18	5,91	1,97	21	35,3	7.062
Argentina	7,5	2,32	6,27	2,01	47	51,3	14.280
Armenia	4,9	2,47	4,21	1,99	21	33,8	4.945
Australia	7,7	2,02	7,42	1,46	51	35,2	31.794
Austria	7,9	2,12	7,12	1,80	53	29,1	33.700
Azerbaijan	5,4	2,25	4,80	1,59	21	36,5	5.016
Bangladesh	5,3	2,42	4,31	1,76	38	33,4	2.053
Belarus	4,2	2,46	5,66	1,77	26	29,7	7.918
Belgium	7,3	2,29	7,39	1,43	49	33,0	32.119
Benin	4,3	2,28	3,52	1,63	34	36,5	1.141
Bolivia	5,9	2,37	5,36	1,81	40	60,1	2.819
Bosnia	5,3	2,66	5,06	2,36	33	26,2	7.032
Botswana	5,2	2,52	4,63	2,07	43	60,5	12.387
Brazil	7,4	2,33	6,51	2,62	53	57,0	8.402
Bulgaria	4,4	2,77	3,77	1,91	34	29,2	9.032
Burkina Fasso	5,1	2,42	3,80	1,56	34	39,5	1.213
Burundi	5,0	2,15	4,38	1,40	34	42,4	699
Cambodia	4,4	2,30	3,63	1,68	34	41,7	2.727
Cameroon	4,6	2,40	3,92	1,86	35	44,6	2.299
Canada	7,6	2,06	7,40	1,56	59	32,6	33.375
Central African R.	5,1	.	.	.	34	61,3	1.224
Chile	6,8	2,33	6,24	2,19	42	54,9	12.027
China	6,3	2,71	4,77	1,95	48	46,9	6.757
Colombia	8,1	2,16	5,95	2,44	49	58,6	7.304
Costa Rica	7,4	2,54	7,04	2,11	59	49,8	10.180
Croatia	6,1	2,59	5,77	2,15	29	29,0	13.042
Czech Republic	6,4	2,17	6,42	2,03	36	25,4	20.538
Danmark	8,4	2,02	8,00	1,35	60	24,7	33.973
Dominican Republic	5,7	3,04	5,13	3,02	52	51,6	6.393
Ecuador	5,7	2,65	5,10	2,31	54	53,6	4.341
Egypt	5,1	3,36	5,23	2,63	35	34,4	4.337
El Salvador	7,2	2,60	5,60	2,23	58	52,4	5.255
Estonia	5,9	2,43	5,36	1,69	40	35,8	15.478
Ethiopia	4,3	2,23	3,83	1,75	11	30,0	1.055
Finland	7,8	1,91	7,61	1,44	54	26,9	32.153
France	6,5	2,19	7,01	1,66	42	32,7	30.386
Georgia	4,4	2,45	3,62	1,95	19	40,4	3.365
Germany	7,2	1,99	6,58	1,80	43	28,3	29.461
Ghana	5,7	2,92	4,86	1,87	53	40,8	2.480
Greece	6,4	2,43	6,35	2,27	41	34,3	23.381
Guatemala	7,0	2,52	6,01	2,08	56	55,1	4.568
Guinea	5,0	.	.	.	.	38,6	2.316

Haiti	4,5	2,39	3,76	1,84	26	59,2	1.663
Honduras	6,5	2,87	5,34	2,71	52	53,8	3.430
HongKong	6,0	2,14	5,67	1,82	.	43,4	34.833
Hungary	5,5	2,71	5,23	2,04	42	26,9	17.887
India	5,9	2,54	5,97	2,05	31	36,8	3.452
Indonesia	6,6	2,34	4,98	1,70	54	34,3	3.843
Iran	6,0	2,68	5,29	1,98	23	43,0	7.968
Ireland	7,5	2,01	7,24	1,83	60	34,3	38.505
Israel	6,7	2,41	7,16	1,85	34	39,2	25.864
Italy	6,8	2,14	6,97	1,73	39	36,0	28.529
Ivory Coast	5,9	.	.	.	.	44,6	.
Jamaica	6,6	2,43	6,21	1,91	53	45,5	4.291
Japan	6,4	2,10	6,49	1,79	46	24,9	31.267
Jordan	6,0	3,01	6,30	2,01	36	38,8	5.530
Kazakhstan	6,0	2,37	5,49	1,80	38	33,9	7.857
Kenya	5,2	2,31	4,36	1,70	62	42,5	1.240
Korea (South)	5,9	2,37	5,68	2,17	32	31,6	22.029
Kyrgyzstan	6,1	2,86	4,58	1,75	32	30,3	1.927
Laos	5,7	1,85	5,11	,85	52	34,6	2.039
Latvia	5,1	2,66	4,73	1,65	33	37,7	13.646
Lithuania	4,9	2,93	5,93	1,83	26	36,0	14.494
Macedonia	4,6	3,02	4,51	2,17	40	39,0	7.200
Madagascar	4,7	2,16	4,01	1,41	44	47,5	923
Malawi	4,8	2,54	4,13	2,12	52	39,0	667
Malaysia	6,5	2,25	6,08	1,59	49	49,2	10.882
Mali	5,7	2,88	4,01	1,61	60	40,1	1.033
Mauritania	5,7	2,44	5,20	1,93	52	39,0	2.234
Mexico	8,0	2,48	6,74	2,16	58	46,1	10.751
Moldova	4,9	2,54	4,93	1,89	26	33,2	2.100
Mongolia	5,2	.	.	.	30	32,8	2.107
Morocco	5,2	2,42	4,59	1,96	32	39,5	4.555
Mozambique	5,2	2,36	4,61	1,78	42	47,3	1.242
Namibia	5,5	.	.	.	16	74,3	7.586
Nepal	5,2	2,23	4,55	1,55	51	47,2	1.550
Netherlands	7,5	1,48	7,56	1,15	56	30,9	32.684
New Zealand	7,3	2,07	7,44	1,68	53	36,2	24.996
Nicaragua	5,4	2,86	4,80	2,70	52	43,1	3.674
Niger	4,5	2,26	3,80	1,61	50	50,5	781
Nigeria	6,5	2,58	4,73	1,78	50	43,7	1.128
Norway	7,7	2,26	7,46	1,60	56	25,8	41.420
Pakistan	4,3	1,62	6,12	2,38	33	30,6	2.370
Panama	6,6	2,66	6,20	2,33	62	56,1	7.605
Paraguay	5,4	2,45	4,86	1,95	61	58,4	4.642
Peru	6,4	2,58	4,93	2,21	42	52,0	6.039
Philippines	6,3	2,82	4,73	2,26	36	44,5	5.137
Poland	6,4	2,53	5,85	2,08	46	34,5	13.847
Portugal	5,7	2,18	5,43	2,18	39	38,5	20.410
Romania	5,5	2,87	5,28	2,29	33	31,0	9.060

	I	II	III	IV	V	VI	VII
Russia	5,4	2,78	5,00	2,03	40	39,9	10.845
Rwanda	4,4	2,34	4,34	1,55	41	46,8	1.206
Sierra Leone	4,6	2,36	3,88	1,78	28	62,9	806
Singapore	6,8	1,91	6,56	1,27	39	42,5	29.663
Slovak Republic	5,6	2,47	5,16	1,96	32	25,8	15.871
Slovenia	6,8	2,28	5,93	1,95	43	28,4	22.273
South Africa	6,0	2,84	5,37	2,10	47	57,8	11.110
Spain	7,2	1,90	7,13	1,75	49	34,7	27.169
Sri Lanka	5,0	2,35	4,34	1,77	41	40,2	4.595
Sweden	7,7	1,92	7,38	1,63	58	25,0	32.525
Switzerland	8,1	1,76	7,45	1,70	52	33,7	35.633
Tajikistan	5,3	2,24	4,57	1,56	44	32,6	1.356
Tanzania	3,2	3,58	4,04	1,66	45	34,6	744
Thailand	6,9	2,01	5,96	1,67	56	42,0	8.677
TrinidadTobago	7,0	2,40	5,78	2,41	52	38,9	14.603
Tunesia	5,9	.	.	.	29	39,8	8.371
Turkey	5,5	2,80	.	2,34	32	43,6	8.407
Uganda	5,1	2,74	4,04	1,72	38	45,7	1.454
Ukraine	4,8	2,76	4,88	1,96	35	28,1	6.848
United Kingdom	7,1	1,98	6,97	1,63	48	36,0	33.238
United States	7,0	1,98	7,26	1,89	54	40,8	41.890
Uruguay	6,1	2,64	5,60	2,30	47	44,9	9.962
Uzbekistan	6,1	2,45	5,22	1,94	49	36,8	2.063
Venezuela	7,2	2,78	7,17	2,55	64	48,2	6.632
Vietnam	6,5	2,20	5,33	1,36	47	34,4	3.071
Yemen	5,2	2,44	4,55	1,93	22	33,4	930
Zambia	5,6	2,78	4,92	1,84	52	50,8	1.023
Zimbabwe	3,3	3,04	3,76	1,97	35	50,1	2.038

I: Level of happiness
II: Disparity in happiness
III: Level of contentment
IV: Disparity in contentment
V: Level of mood
VI: Income inequality
VII: Wealth

Table 1

Correlations between income inequality and happiness in 119[xvi] nations

	Level of happiness (mean)	Inequality in happiness (standard deviation)
Overall life-satisfaction		
Zero-order correlation	− 0.08	+ 0.21
Partial correlation controlling wealth	+ 0.28	− 0.01
Contentment		
Zero-order correlation	− 0.26	+ 0.21
Partial correlation controlling wealth	+ 0.14	− 0.01
Mood		
Zero-order correlation	+ 0.12	n.a.
Partial correlation controlling wealth	+ 0.28	n.a.

Figure 1
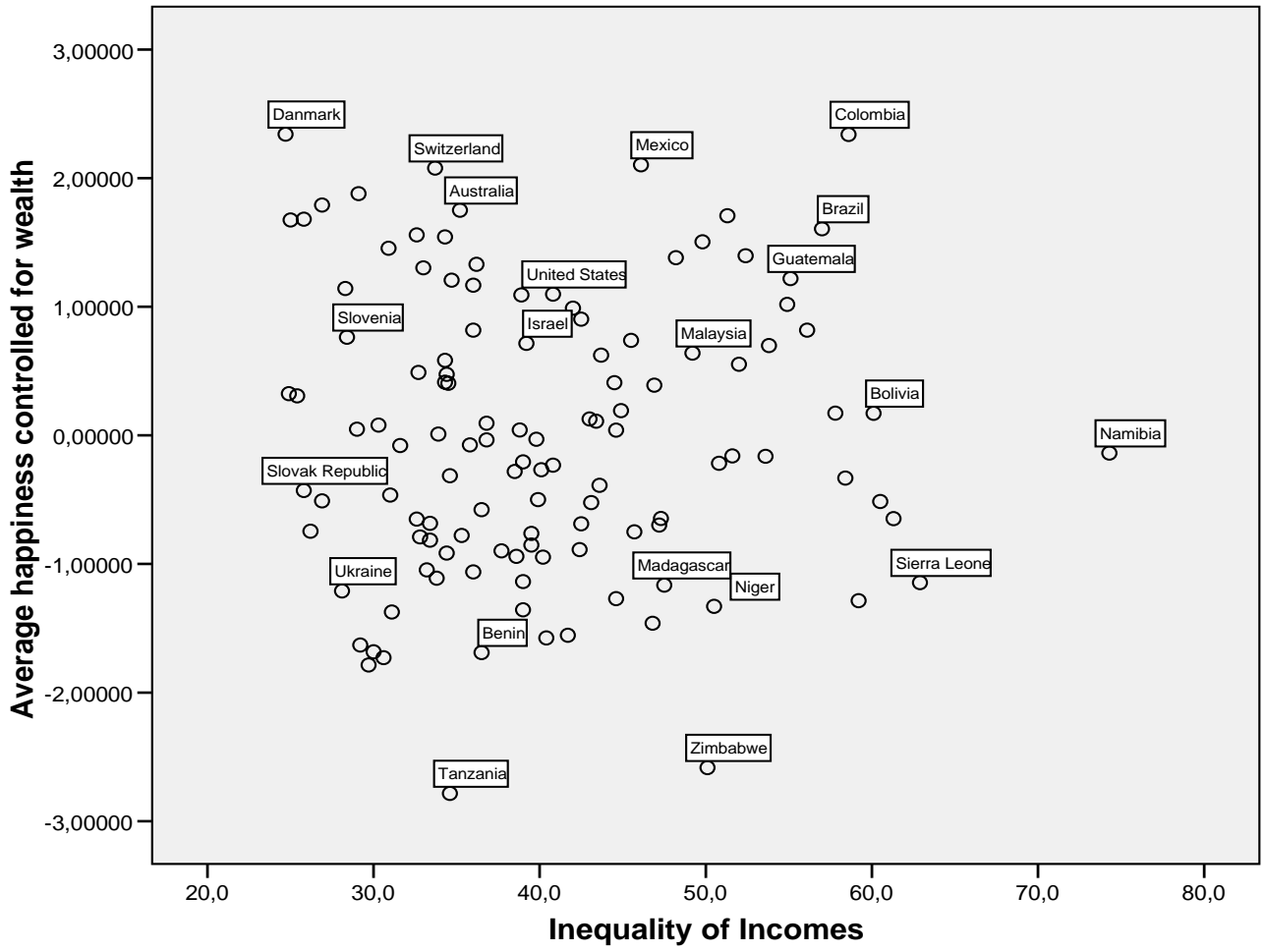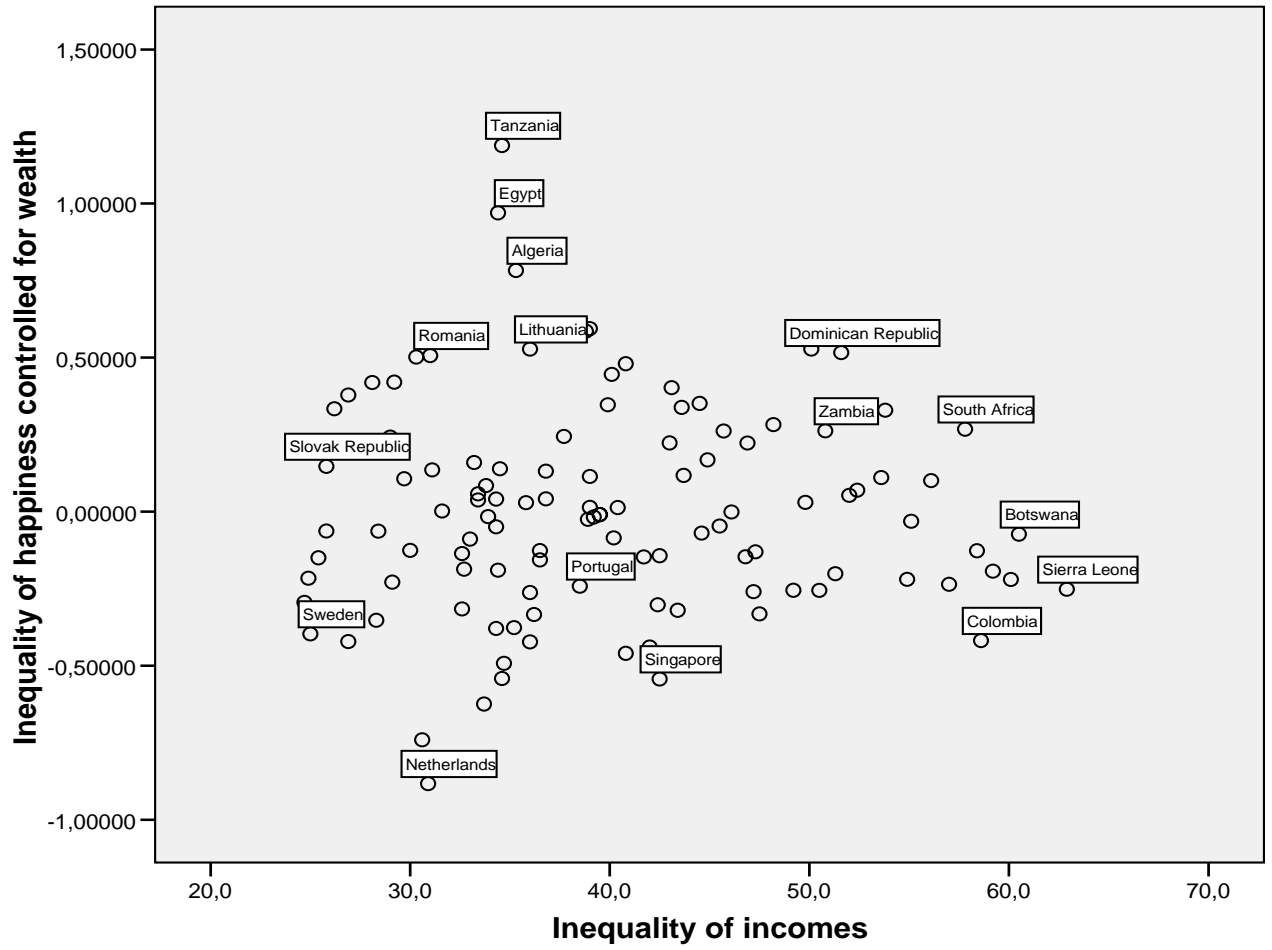**Income inequality and income-adjusted happiness in 119 nations**

Figure 2

Income inequality and income-adjusted inequality of happiness in 119 nations

NOTES

[i] Graham & Felton (2005) conclude that in Latin America inequality is perceived as a permanent edge of the haves over the have-nots. Inequality in this region is not associated with a brighter future for the poor.

[ii] There are indications that mobile people, or people who think of themselves as mobile, even like inequality (e.g. Graham en Pettinato, 2002; Clark, 2003).

[iii] This supposed greater social mobility in the US does not seem to exist in reality (McMurrer en Sawhill, 1998)

[iv] Variable in date file StatesOfNations_2009 (Veenhoven 2009b): IncomeInequality1_2005

[v] Scores transformed to range 0-10. Since this particular question has not been used in all the 119 nations considered here we have also used responses to equivalent questions. See Veenhoven (2009b)

[vi] Variable in data file StatesOfNations_2009 (Veenhoven 2009b): Happiness_LSBW_2000.08

[vii] Variable in data file StatesOfNations_2009 (Veenhoven 2009b): SD_Happiness_LSBW_2000.06

[viii] Variable in data file StatesOfNations_2009 (Veenhoven 2009b): HappinessBW11_2006

[ix] Variable in data file StatesOfNations_2009 (Veenhoven 2009b): SD_HappinessBW11_2006

[x] Variable in data file StatesOfNations_2009 (Veenhoven 2009b): HappinessYesterdayABS_2006.08

[xi] Variable in data file StatesOfNations_2009 (Veenhoven 2009b): RGDP_2005

[xii] Note that in this analysis all the nations have equal weights, and the size of the population is not taken into account. Although some nations are obviously bigger than others, the size of nations does not seem to be relevant for the relationship as such that is studied in this research.

[xiii] All plots or data that are not shown, but mentioned in this article are available on request

[xiv] Alesina et. al. write on page 2028: "A 10% increase in the Gini decreases the proportion of people reporting themselves very satisfied by 5,5% and increases the proportion reporting themselves as 'not very/not at all satisfied by 5,3 percentage points". When applied on the actual distribution of responses this means a difference of 0,08 on range 1-3. When transformed to range 0-10 using the value 9,3 for very satisfied, 6,5 for faily satisfied and 3 for the dissatisfied category, the difference is about one point.

[xv] In this sense it is easier not to study the relation between income inequality and happiness, but (also) the relation between inequality in happiness and average happiness. Ott (2005) does exactly this in his paper. He concludes that high average scores go together with low standard deviations and that the tension between egalitarianism and utilitarianism is more theoretical than existent in the real world.

[xvi] N varies between 119 and 108