The dark side of Chinese growth: Explaining decreasing well-being in times of economic boom.

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The dark side of Chinese growth: Explaining decreasing well-being in times of economic boom.[*]

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Abstract

The formidable economic growth of China in the past few decades led to outstanding improvements in virtually all objective indicators of standards of life. However, these objective records are in striking contrast with subjective ones. Between 1990 and 2007, Chinese average subjective well-being substantially declined. Using data from the World Values Survey, this paper identifies the predictors of the trend of life satisfaction in China between 1990 and 2007. Our findings suggest that subjective data capture something that objective data miss and that can explain the decrease in well-being: the increase in the importance of social comparisons and the decline of social capital. Moreover, economic growth resulted in higher well-being inequality: those in the lowest three income deciles and the middle-class experienced a significant reduction in well-being, whereas the latter increased among richer people. Differences in the erosion of social capital and in the impact of social comparisons seem to be the key to well-being differences among classes.

Keywords: China; Easterlin paradox; GDP; economic growth; subjective well-being; life satisfaction; social capital; Oaxaca-Blinder decomposition; WVS.

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1 Introduction

The relationship between economic growth and well-being recently raised a lively debate. Easterlin (1974) pointed out that the US economic growth from the Second World War on-ward did not bring about significant improvements in Americans' subjective well-being (SWB). This evidence – also known as the Easterlin paradox – underwent an intensive scrutiny. The availability of large data-sets covering several countries and long time-series, allowed to test the existence of the paradox. Some scholars have confirmed it, clarifying that in the short run economic growth and well-being are associated, whereas in the long-run this positive relationship vanishes (Easterlin and Angelescu, 2009; Easterlin et al., 2010). Some others have contested the existence of the paradox itself and claim that overall economic growth brings about better lives (Stevenson and Wolfers, 2008; Inglehart et al., 2008; Sacks et al., 2010; Veenhoven and Vergunst, 2013).

However, independently from whether economic growth matters for well-being, other issues – such as social capital – seem to matter more. The literature from micro-data documents that social capital (SC) is an important ingredient of people's well-being (Helliwell, 2002, 2008; Uhlaner, 1989). In particular the quality of the relationships among people, has a predominant impact on well-being (Helliwell and Putnam, 2004; Helliwell, 2006; Bruni and Stanca, 2008; Becchetti et al., 2008).

SC and SWB are related over time as well. Recently, Bartolini et al. (2013a) showed that the decline in a wide range of measures of SC predicts the decline in US happiness over the past 30 years. This suggests that the erosion of social capital (Putnam, 2000) may be an important component of the explanation of the American version of the Easterlin paradox. This result is further confirmed for Germany (Bartolini et al., 2013b). Finally, Bartolini and Sarracino (2011) show that in a large sample of countries economic growth is not correlated with the trends of well-being in the long run, whereas such trends are strongly and significantly correlated with the trends of social capital.

These results on one hand confirm the existence of the Easterlin paradox, on the other they suggest to explore the possibility that durable improvements in people's quality of life require policies for social capital. How general are these findings? To what extent they regard only developed countries? These questions arise from the fact that such results are mainly based on evidence from developed countries, whereas figures from developing countries

are very scarce.

China plays a very important role to answer the former questions not only because it counts a large share of the world population, but also because if there is a country where economic growth should have played a significant role for people's well-being, than it is China. The data we use in this paper begin in 1990, right after the Tiananmen Square Massacre, in a still extremely poor country oppressed by a relentless dictatorship. Almost 20 years later the Chinese society exhibits increasing segments of western-style opulence, generally improved standards of life and greater political freedom compared to the 80s.

In other words, China features all the ingredients for a big leap forward of people's well-being. Since 1990s Chinese GDP per capita has been growing at a rate of about 10% each year, significantly improving the living conditions of millions of people. For example, the World Bank is proud to announce that the sustained Chinese growth dramatically decreased the number of people living with less than 1.25 US$ per day. Some estimates suggest that, since the early 80s, about 600 million people were lifted out of absolute poverty. Between 1990 and 2010 the percentage of rural population with access to improved water sources raised from 56% to 85%. Similarly, since 1990 the yearly growth of household final consumption expenditure increased on average by 6.5%.[1] Summarizing, there are many reasons to expect that almost 20 years of Chinese economic growth should have been accompanied by increasing well-being.

However, these objective records are in striking contrast with those from subjective perceptions. China is an outstanding example of the Easterlin paradox: figure 1 shows that between 1990 and 2007 average life satisfaction substantially dropped (Easterlin et al., 2012).

Is it possible that objective data miss some worsening aspect of the Chinese quality of life that is instead captured by subjective ones? Our findings suggest that objective data miss to capture the increase in the importance of social comparisons and the decline of social capital. These two powerful drivers of the decline of well-being appear to be strictly connected to the increasing orientation of Chinese people toward materialistic values. Our results suggest that Chinese values are probably following a path symbolized by the motto "to get rich is glorious", launched by Deng Xiaoping at the beginning of the Chinese transition to capitalism. Perhaps not even Deng

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[1] World Bank national accounts data and `http://www.chinatoday.com/`.

Figure 1: Life satisfaction and income across time*.
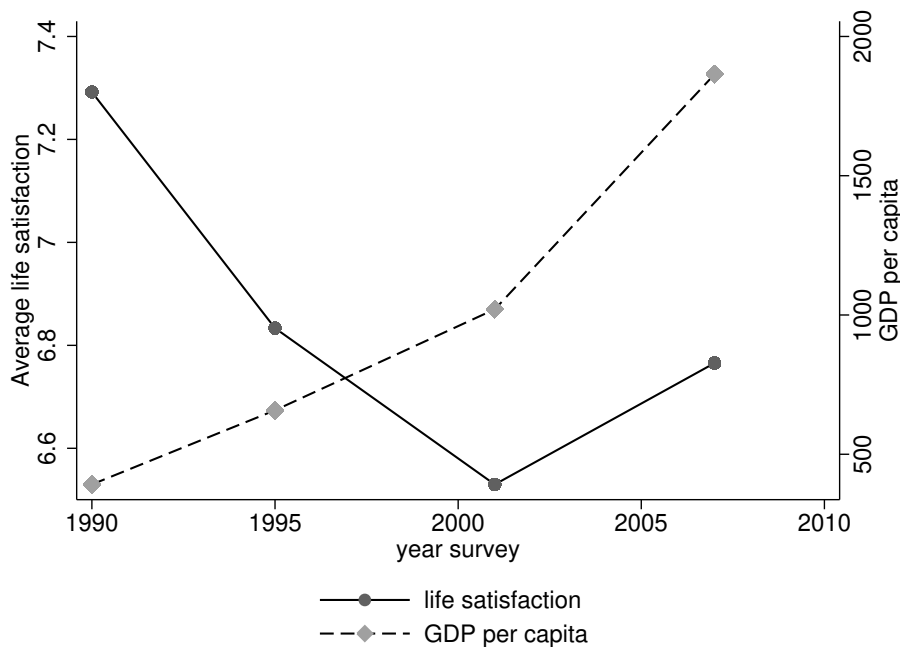
imagined that the kind of values he was promoting would have been so successful in frustrating the well-being of Chinese people, despite a glorious economic take-off.

The paper is organized as follows: section 2 reviews the literature on the relationship between economic growth and well-being in China. Section 3 illustrates the data available for present study and the relevant variables. Section 4 discusses the relevant methodological aspects. Section 5 presents the findings about the drop in people's subjective well-being in China, both across classes and between periods. Finally, section 6 briefly concludes and set the lines for future research.

2 Background

There are other two papers investigating the trend of well-being in China: Brockmann et al. (2009) and Easterlin et al. (2012). Both papers stress the importance of social comparisons as a cause for the disappointing trend of life satisfaction. The main idea is that economic growth brought about a dramatic improvement in economic conditions raising people's expectations about their perspective situation. However, Chinese growth went hand in hand with rapidly increasing income inequality. The result is that many Chinese people saw their absolute conditions improving, but not in relative terms. Their economic position worsened when compared to that of large segments of the population, thus resulting in decreasing well-being. Moreover, Easterlin et al. (2012) emphasize the role of the decay of safety nets as a cause of the decline of well-being and stresses the similarity of the Chinese trend of well-being with those from Eastern European countries that experienced the transition from socialism to capitalism. What China and Eastern Europe have in common is that under socialism workers were assured of jobs and of an extensive safety net including health care, child care, pensions, and the like. Privatization was typically accompanied by the dissolution of the safety nets that negatively impacted people's well-being.

Our results are compatible with the idea that the dissolution of the safety nets played a relevant role in frustrating Chinese well-being, but they emphasize that such dissolution may have been a consequence of the decline in social capital and not only of the transition to capitalism. Indeed, the Chinese industrial revolution has a peculiar trait, being the first experiment of transition from a socialist to a capitalist economy managed by a communist party. However, despite its originality, the Chinese take-off shares many regularities with all industrial revolutions, beginning with the British one: rapid urbanization, erosion of traditional institutions, pollution, reduced farmers' access to land, increase of income inequality. The diminished water flow and the pollution of the Yellow river basin – the core of Chinese agriculture – result from the industrial expansion and they are the contemporary version of the environmental devastations that accompanied the British Industrial Revolution. The expropriation of agricultural land for industrial purposes, that provokes every year thousands of riots suppressed with more or less tough methods by the police, has the same effect of the enclosures.[2] The re-

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[2]Since early 90s, China faced a proliferation of 'mass incidents' (cases of civil unrest

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duction of the access to land pushes the lower rural classes to feed the ranks of low-cost, urban labour force on which the industrial take-off is based.

Hence, the Chinese case is particularly relevant because it mirrors – alive and on a Chinese scale – some stylized facts typical of all industrial revolutions. These processes are associated with extensive erosion of social capital and rapid changes in people's values. For example, urbanization is a well-known cause of erosion of social capital in rural areas. Moreover, in China urban immigrants, between 100 and 200 millions depending on the estimates, lose large part of their safety nets related to communitarian relationships. These phenomena, well-known to development economists (Polanyi, 1968; Williamson, 1995), clearly emerge from our figures on the decline of Chinese social capital and the upsurge of materialism. In this context, the transition to capitalism in China appears to have exacerbated the destruction of safety nets associated to the decline of shared values and networks. This decline, typical of every industrial revolution, affects people's well-being in various ways, well beyond the erosion of safety nets.

Using data from the World Values Survey, present work empirically explores the factors that predict the disappointing trend of well-being in China. We adopt a longer time-span than previous studies to analyse what shaped the long-term trend of well-being (1990 - 2007) and its short-term variations (1990 - 2001 and 2001 - 2007). Moreover, present work tries to identify who are the winners and the losers from economic growth investigating what shaped the well-being of the lower, the middle and the upper class in China.

To these aims, this research adopts the Blinder-Oaxaca method to decompose the variation of well-being over time and among classes in two components: a part explained by a variation in the endowments of each variable and a part explained by changes in people's preferences. The same method has been previously applied by Brockmann et al. (2009) to explain the well-being gap in China between 1990 and 2000.

Results suggest that the erosion of social capital and social comparisons are the two main factors explaining why economic growth did not turn into higher people's well-being. Furthermore, economic growth resulted in higher well-being inequality among people: those in the lowest three deciles and the middle-class experienced a marked reduction in well-being, whereas people in

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officially recorded) that rose from under 9,000 in 1993 to 180,000 in 2010. A substantial share of such incidents is due to protests against the expropriation of agricultural land (Knight, 2013)

the three highest deciles of the income distribution experienced a slight improvement in their conditions. Moreover, the almost flat relationship between income and life satisfaction observed in 1990 turns into a steep relationship at the end of our period of observation. Differences in the erosion of social capital and in the evolution of materialistic values seem to be at the origin of the increasing well-being differences among classes. Arguably, the huge increase in income inequality largely contributed to the upsurge of well-being inequality by raising social comparisons.

Our results on well-being inequality are at odds with those from Clark et al. (2014) who, analyzing a large sample of countries, concludes that economic growth tends to reduce well-being inequality. Despite its relevance, the Chinese case does not suffice to conclude that economic growth is associated to an increase of well-being inequality. However, it suggests that such increase is probable when the increase in income inequality has the size recorded in China in the past two decades.

Interestingly, our figures about the decline of SWB in China resemble those from the US documented by Bartolini et al. (2013a): the declining trend of happiness in the US is almost entirely predicted by social comparisons and by the decline in social capital. All in all, the scarce social quality of economic growth seems to be the key to declining SWB in the major cover growth stories of the past few decades in the developed and developing world.

3   Data

We adopt data from the WVS (2009), a data-set providing comparable information about economic, social, cultural and political characteristics, surveying nationally representative samples in each wave. This extensive data-set provides national-level time-series on social capital, subjective well-being and socio-demographic and economic controls concerning – among others – China from the early 1990s to the year 2007.

The Chinese sample is made approximately of 1000 observations in each wave. The sample was selected by quota after stratifying the population universe according to residence, gender, age, occupation and education (WVS, 2009).

Subjective well-being (SWB) is proxied by reported life satisfaction, a variable ranging from 1 = "dissatisfied" to 10 = "satisfied" depending on the answers to the following question: "all things considered, how satisfied

are you with your life as a whole these days?". This data-set provides also another proxy of SWB, namely feelings of happiness. However, in present article we will focus only on life satisfaction. The reasons are mainly two: first, life satisfaction is reported on a ten points scale, whereas happiness is on a four point scale. Hence, the former provides a better and more differentiated information than the second one. Second, although the evidence from the two variables is usually consistent, it is commonly held that happiness provides a more emotional measure of well-being. On the contrary, life satisfaction reflects a more cognitive evaluation of well-being and is therefore regarded as more reliable (Diener, 2006).

The three main explanatory variables are household income, financial dissatisfaction and social capital. Income is measured with an ordered scale of income intervals. Financial dissatisfaction is observed after inverting the scale of answers to the question: "how satisfied are you with the financial situation of your household?". After recoding, the answers range on a 10 points scale where higher numbers stand for greater dissatisfaction.

We document an increasing trend of financial dissatisfaction that may appear astonishing in a country that experienced such an economic boom. However, such trend appears more comprehensible in the light of previous studies showing that financial dissatisfaction depends on aspirations that are shaped by relative and not absolute standards (Brockmann et al., 2009; D'Ambrosio and Frick, 2008). In other words individual dissatisfaction with own financial situation reflects social comparisons, i.e. individual achievements with respect to what other people – with whom the respondent compares herself – get.

The OECD (2001, p. 41), consistently with Putnam (2000) defines social capital (SC) as "networks together with shared norms, values and understandings that facilitate co-operation within or among groups". To observe SC we use proxies that are generally accepted and applied by the literature on the argument: generalized trust, a measure of civicness, and associational activity (Paxton, 1999; Costa and Kahn, 2003).[3]

Trust in others is observed through answers to the following question: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?". The resulting dichotomous

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[3]The WVS allows to observe also another form of social capital, namely participation in political actions. However, in the case of China the relevant variables are observed only in one year thus preventing the analysis over time. For this reason, political action is excluded from present analysis.

variable is set to 1 if the respondent answers positively, 0 otherwise (Knack and Keefer, 1997).

The index of civic cooperation is based on answers to questions if "claiming government benefits which you are not entitled to", "avoiding a fare on public transport", "cheating on taxes if you have the chance", or "accepting a bribe" are acceptable. Answers to these questions range on a 1 (never justifiable) to 10 (always justifiable) scale. For the purposes of present work, each of these variables has been recoded so that larger values stand for stronger norms of civic cooperation. To construct the variable we first run a factor analysis on the four questions and finally we generated an index of civic cooperation as the average of the four initial variables (for more details, please refer to the Appendix I on page 49). The index of civic cooperation mirrors the scale of its four original variables: it ranges on a 10 points scale where higher values stand for higher sense of civicness.

We proxy individual SC by observing the respondent's participation in various kinds of groups and associations. Indeed, the WVS includes a battery of questions concerning whether people belong or actively participate in groups or associations. The list of organizations prompted during the interview is quite long and contains – among others – religious, cultural, sport, professional, environmental, human rights and political associations (for the complete list of groups or associations see the Appendix J on page 51). We measure associational activity with a dichotomous variable set to 1 if the respondent participates or performs unpaid voluntary work for at least one of the mentioned groups or associations, 0 otherwise.

To allow comparison with previous studies, we further included controls for perceived freedom of choice and control over one's own life. This variable is observed on a scale from 1 ("none at all") to 10 ("a great deal") to indicate how much freedom of choice the respondent feels to have over his/her own life.

Finally, we included a standard set of socio-demographic controls such as gender, age, marital and employment status, reported health and the region where the interview was conducted. In the first wave in 1990 the surveyed sample largely consisted of people from urban areas, while residents in rural areas were seldom reached. In the subsequent waves a representative sampling of the urban and rural population was ensured. To account for the potential bias this could cause, we have included a control for the region where the interview was taken. This control, together with the other socio-economic variables, should allow to account for the potential differences

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Table 1: Descriptive statistics

variable	mean	sd	min	max	obs	missing
satisfaction with life	6.876	2.343	1	10	3754	0
age	41.97	13.23	18	85	3767	0
age squared	1937	1152	324	7225	3767	0
female	0.490	0.500	0	1	3765	0
marital status	–	–	1	6	3749	0
employment status	–	–	1	8	3678	0.02
region	–	–	156001	156043	3765	0
state of health	3.805	1.001	1	5	3758	0
freedom of choice	7.205	2.321	1	10	3602	0.04
scale of incomes	4.293	2.142	1	10	3400	0.10
financial dissatisfaction	5.049	2.589	1	10	3725	0.01
trust in others	0.548	0.498	0	1	3715	0.01
index of civicness	9.127	1.385	1	10	3760	0
social participation	0.560	0.496	0	1	3763	0

among the first and the subsequent samples.

However, the possible bias towards an over-representation of urban population in the first wave does not undermine our main findings, but would eventually strengthen them (see section 5). Table 1 summarizes the main variables used in this study together with some descriptive statistics.

Percentages of missing data are on average below 10% thus they do not raise concerns of seriously biasing the estimates (Schafer, 1997; Allison, 2001; Little and Rubin, 2002).

4 Methodological aspects

Our aim is to predict the trend of SWB in China quantifying the relative importance of the changes in social capital and income along with the other predictors of life satisfaction. For this purpose we use the Blinder-Oaxaca decomposition. This technique allows to decompose the well-being gap between the initial and the final year of observations identifying how much the changes over time in the levels and in the coefficients of life satisfaction regressors explain the well-being gap.

The Blinder-Oaxaca decomposition has been developed in the early '70s by Oaxaca (1973) and Blinder (1973) to study discrimination between men and women in the labour market. Recently, it has been applied also in other fields, including the literature on subjective well-being (Helliwell and

Barrington-Leigh, 2010; Becchetti et al., 2010; Sarracino, 2012).

The decomposition method allows to study group differences in an outcome variable by dividing its differential in two parts: the *explained* one, accounting for differences in observed characteristics of the population and the *unexplained* one, measuring the differences in the coefficients between two groups. The latter is generally considered a discrimination measure (Jann, 2008). For the purpose of the present article, the decomposition allows to identify how much of the overall differential in the average subjective well-being between two years can be ascribed to differences in the set of characteristics as presented in eq. 1 (the explained part) and to differences in how these characteristics are evaluated (the unexplained part).

We are aware that the ordered nature of the dependent variable would require ordered probit or logit techniques. However, we adopted a linear model for ease of computation and comparison of the coefficients across years. Moreover, the recent literature on subjective well-being demonstrated that, when the dependent variable has a sufficient number of categories, linear models provide equivalent results of their ordered counterparts. In particular, Ferrer-i Carbonell and Frijters (2004) conclude that assumptions on ordinality or cardinality of the answers to a subjective well-being question are "relatively unimportant to results"[4].

A downside of the Blinder-Oaxaca approach is that the unexplained part captures also the potential effects of differences in any unobserved variables (Jann, 2008).

Formally, the decomposition can be represented as follows:

$$\Delta LS = \underbrace{[E(X_{fy}) - E(X_{iy})]' \cdot \beta^*}_{explained} + \underbrace{[E(X_{fy})' \cdot (\beta_{fy} - \beta^*) + E(X_{iy})' \cdot (\beta^* - \beta_{iy})]}_{unexplained}$$
(1)

where ΔLS is the difference in average subjective well-being between the final (fy) and the initial (iy) year of observations, $E(X)$ is the yearly average of a vector of explanatory variables measured at the beginning and at the end of the period of observation, β_{fy} and β_{iy} are vectors of coefficients and β^* is a vector of *non-discriminatory* coefficients to quantify how much each group of variables explains the overall difference of means. The vector of explanatory variables includes the predictors of a standard happiness equation such as: trust in others, index of civicness, participation in groups and association,

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

income, financial dissatisfaction, subjective health, freedom of choice and control over one's life, gender, age and age squared[5], marital and employment status along with a dummy for each region of residence.

5   Results

The results of the decomposition of the life satisfaction gap in China between 1990 and 2007 are presented in table 2 and detailed in tab. 4 on page 34 in the Appendix. In 1990 the average level of life satisfaction amounted to 7.54 on a 10 points scale, whereas in 2007 it reduced to 6.83. Overall the Chinese subjective well-being decreased by -7.1% between 1990 and 2007. Approximately 65% of this variation is explained by changes in the endowments between the two years. In other words, if the two years had the same levels for each of the explanatory variables, the well-being differential would have been 65% smaller. The remaining 35% of the life satisfaction gap remains unexplained, that is to say it is related to changes in preferences between the two periods.

Table 2: Decomposition of the life satisfaction gap between 1990 and 2007 in China.

	satisfaction with life	
Differential		
Prediction_1	6.832***	(104.84)
Prediction_2	7.546***	(104.75)
Difference	-0.714***	(-7.35)
Decomposition		
Explained	-0.462***	(-5.15)
Unexplained	-0.252***	(-3.94)
Observations	2085	

z statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

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[5]To account for the non-linearity between well-being and age, a squared term of the age variable has been included in the equation. For ease of interpretation, the new variable has been divided by 100.

Figures 2a and 2b graphically summarize the contribution of the main predictors of well-being to the life satisfaction gap.
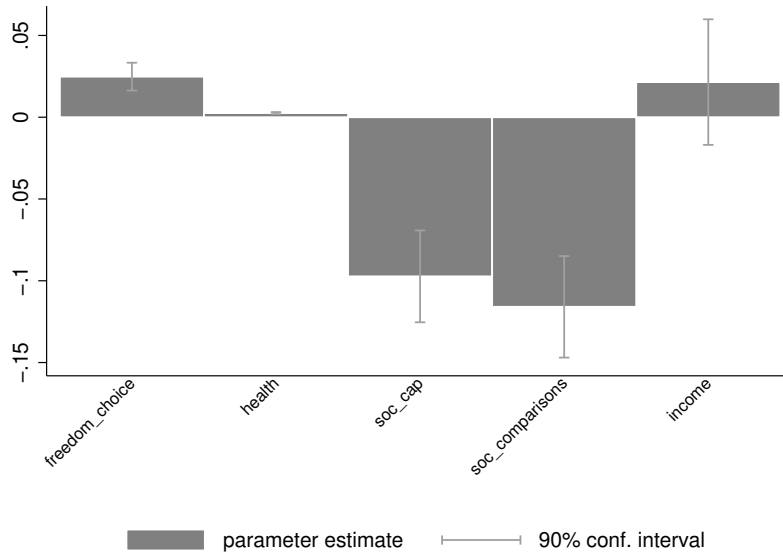
Three main factors predict the well-being gap between 1990 and 2007: the erosion of social capital, the increase of financial dissatisfaction and the changes in preferences; as for the latter, in 2007 Chinese well-being was more strongly associated to social comparisons and less strongly associated to social capital and to freedom of choice compared to 1990. The negative impact of this changes in preferences is only partially moderated by the higher importance of health and of income. For what concerns the explained part of the gap, the negative impact of the changes in social capital and financial dissatisfaction is only attenuated by a weak increase in freedom of choice and control over one's life.

Besides these variables, part of the well-being gap is also explained by changes in socio-demographic predictors such as marital status, employment status and the ageing of the population. Between 1990 and 2007 the number of married people decreased, whereas those divorced or widowed increased. At the same time, also the importance that people attach to these dimensions reduced dramatically. Similarly, the number of part-time employees, housewives, students and unemployed people increased significantly, while self-employed people reduced.

Table 3 in Appendix A informs that all three proxies of social capital sharply declined. Trust in others decreased by 7%, the index of civic behaviour reduced by 7.4%, while associational activity dropped by 3.4%. Overall, the decline of social capital explains 21% of the explained gap and 13.5% of the overall life satisfaction gap. Given this erosion, if we assume that people's preferences for social capital did not change since 1990, the overall effect on life satisfaction would be -1.8% rather than the predicted decrease of -7.1%. In other words the decline of life satisfaction due to the erosion of social capital would be -5.3% smaller than the actual one.[6] To better grasp how much the change in preferences for social capital affects life satisfaction, let's assume that the endowments of social capital did not change since 1990. This amounts to compute the life satisfaction gap if only preferences had changed. Computations are presented in tab. 7 in Appendix B. The change in preferences that happened between 1990 and 2007 predicts a -6.6% decrease in life satisfaction, only 0.5% less than the actual decrease. In other words, the loss of social capital endowments affects the life satisfaction gap

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[6]See tab. 8 in Appendix B for more details.

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Figure 2: Detailed decomposition of the explained and unexplained part of the life satisfaction gap between 1990 and 2007 in China.

(a) Explained

(b) Unexplained

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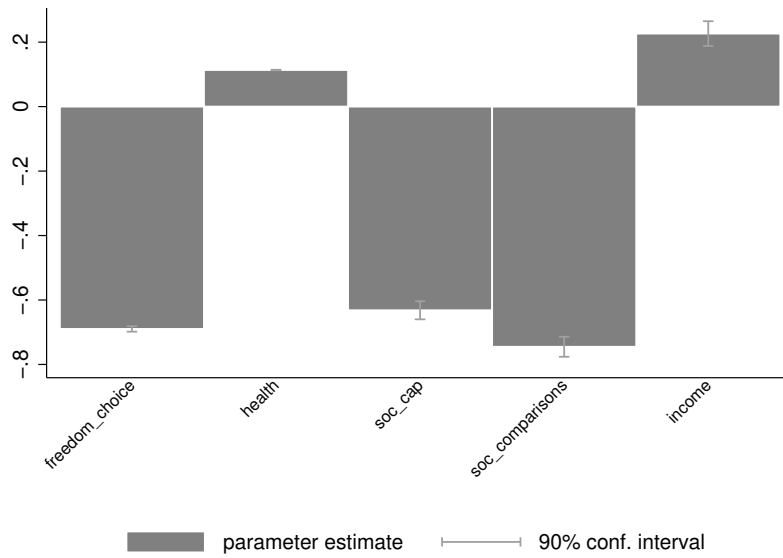
less than the changes in preferences.

A further 15.5% of the gap is explained by a slight increase (+2.5%) in financial dissatisfaction (see fig. 2a). At the same time, the importance of social comparisons for the well-being of the average Chinese doubled compared to 1990, thus further affecting people's well-being (see fig. 2b).

Summarizing, there are two main sets of forces shaping the life satisfaction gap between 1990 and 2007 in China:

- the variation of endowments of the correlates of life satisfaction: among these the increase of financial dissatisfaction and the erosion of social capital are the main sources of the decrease in well-being. Remarkably, the two groups of variables exert a fairly comparable effect on well-being;

- the change of preferences: in 2007 people attach more importance than previously to social comparisons and income, and lower importance to other dimensions such as social capital and freedom of choice and control.

The massive shifts in preferences that we document, arguably, mirror the shifts in life priorities connected to the spread of what social psychologists define as materialistic values (see Kasser, 2002, for a review). Materialism is a personal values system attributing a high priority in life goals to extrinsic motivations and low priority to intrinsic motivations. The distinction between the two refers, respectively, to the instrumentality or lack thereof of the motivations for doing something. The term extrinsic stands for motivations that are external to an activity, such as success, money, status and image. Conversely, "one is said to be intrinsically motivated to perform an activity when one receives no apparent reward except the activity itself" (Deci, 1971, p. 105). While components of social capital as associational activities, civic-minded behavior and trust are intrinsically motivated, a strong emphasis on social comparisons is a typical materialistic feature. The increasing dependence of Chinese well-being on extrinsically motivated factors and the lesser dependence on intrinsically motivated ones seem to reflect the spread of materialistic values.

The possible bias towards an over-representation of urban population in the first wave (see section 3) does not undermine our main findings, but would eventually strengthen them. Indeed, such bias would eventually lead to an under-estimation of the decline of social capital and, in particular, of trust

in others which is normally higher in rural areas. Moreover, the rural-urban divide in developing countries is generally associated to an income inequality divide which is greater in urban areas (Eastwood and Lipton, 2000). China makes no exception to this regularity that makes cities an engine of social comparisons. Therefore, the above mentioned sample bias would lead to conclude that the sharp increase in the importance of social comparisons that we document is underestimated. Finally, the sample bias would make the relationship between income and well-being steeper because in urban areas income differences matter more for well-being, for instance, because of the lower availability of free or low-cost amenities. Hence, the strengthening over time of the relationship between income and life satisfaction (see fig. 4) does not depend on the sample bias because it would point to an even flatter relationship than the almost flat one that we find in 1990.

5.1 Explaining the evolution of well-being inequalities across income classes

In a recent work Clark et al. (2012) wonder whether economic growth reduces well-being inequalities. Analysing a broad set of countries, he finds a positive answer. However, this does not seem to hold for China (Easterlin et al., 2012) and present data confirm this conclusion: in the considered period the well-being inequality among income quintiles increased (see fig. 3).

In 1990 the average level of life satisfaction of people from the five quintiles of the Chinese income distribution was relatively concentrated between 7 and 8 points on the 10-points life satisfaction scale. The period up to 2001 saw a generalized decrease in the average well-being and a much higher dispersion across quintiles. In about 10 years the poorest income quintile lost about 1.5 points in well-being, whereas the richest quintile lost about 0.5 points. During the following 6 years the well-being conditions stopped worsening and possibly reverted. Overall, the average life satisfaction by income quintile in 2007 is much more dispersed than previously, thus confirming the observation that, in the case of China, economic growth increased well-being inequalities.

In other words, the relationship between income and well-being switches from being basically flat – a condition of substantial equality – in 1990 to steep in 2007 (see fig. 4).

What is behind this transformation? What does explain the different outcome in terms of well-being of Chinese people? The following subsections
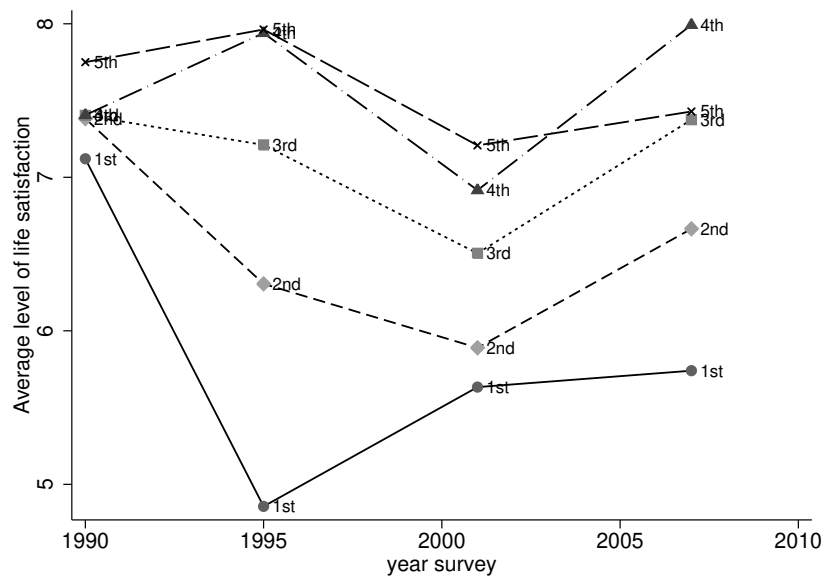
Figure 3: Trends of life satisfaction by income quintiles of the Chinese population.

describe the predictors of the well-being gap for the lower, the middle and the upper class between 1990 - 2001 and 2001 - 2007. People in the three lowest deciles of the income distribution belong to the lower class; people in the three highest deciles belong to the upper class and those in between belong to the middle class.

5.1.1 The period 1990 − 2001

The first phase of the Chinese economic growth can be defined as anti-poor from the point of view of well-being. Figure 5) documents that the first ten years of the Chinese development have left unchanged the well-being of the richest classes, while substantially penalizing the lower ones.
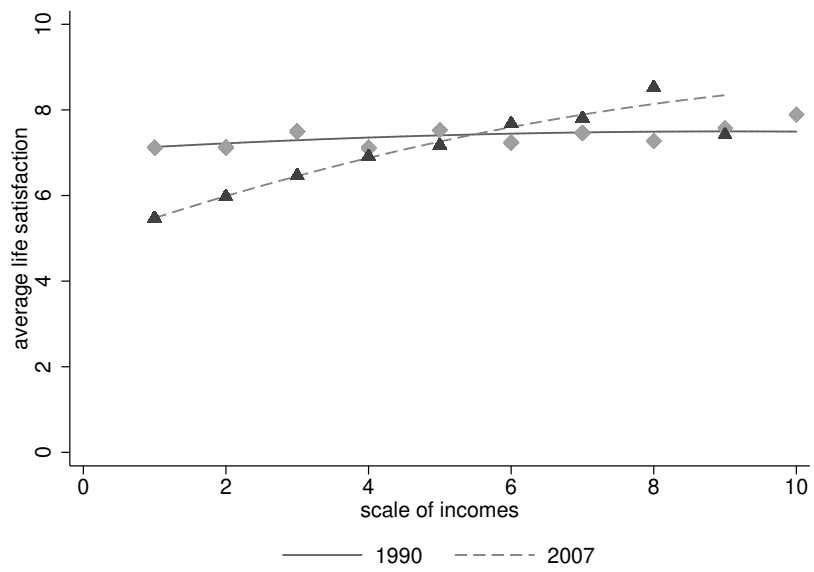
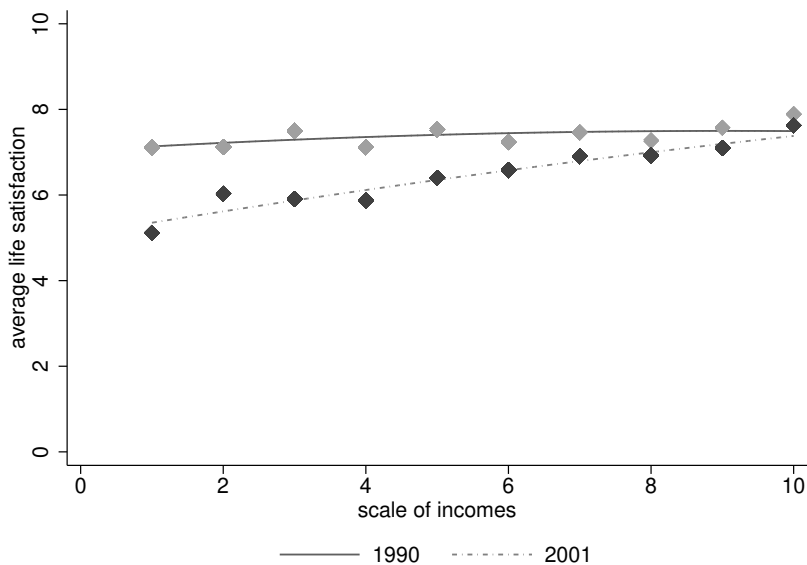Figure 4: Relationship between life satisfaction and income decile in 1990 and 2007.

Figure 5: Anti-poor economic growth: life satisfaction and income deciles in 1990 and 2001.

Between 1990 and 2001 the life satisfaction of people in the poorer class dropped by -1.64 points, that is to say a variation of -16.4%. Besides the socio-demographic changes, 81% of the life satisfaction gap is explained by changes in endowments, whereas the changes in preferences account for the remaining 19% (see tab. C in Appendix C on page 37). The contribution of each of the relevant variables to the composition of the gap is graphically summarized in fig. 6.

Between 1990 and 2001 Chinese people belonging to the lowest three deciles of the income distribution became largely dissatisfied with their financial situation, shared lower levels of social capital, perceived less freedom of choice and control over their lives and had worst perceptions about their health (see fig. 6a). Among these, the effect of financial dissatisfaction was pivotal. The negative impact for well-being of these changes is further reinforced by the changes in preferences (see fig. 6b). In 2001 well-being was considerably more related to financial dissatisfaction and less connected to social capital. The negative effect of these two forces was only marginally offset by the increase in income and in its importance.

In the same period also the middle class experienced a substantial well-
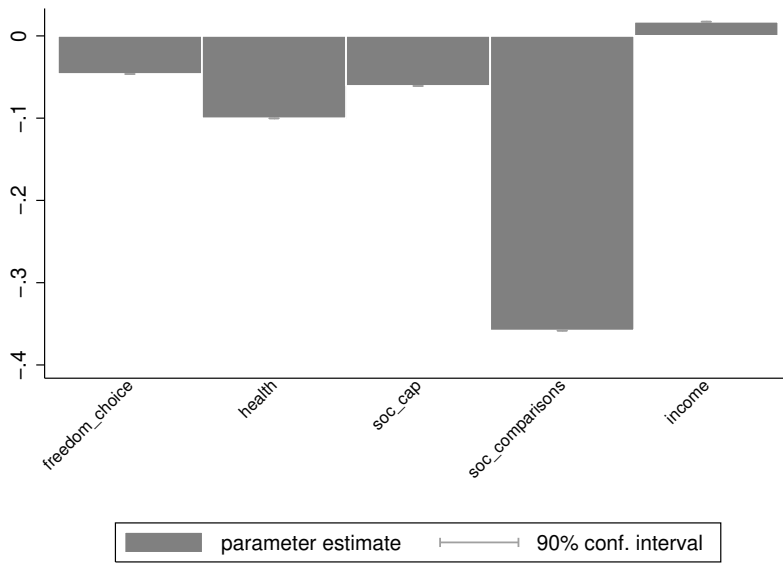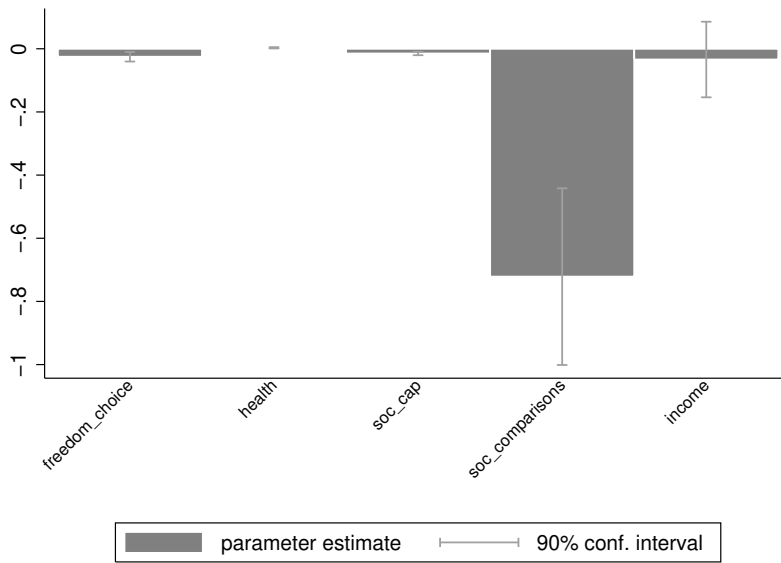
(a) Explained part of the gap
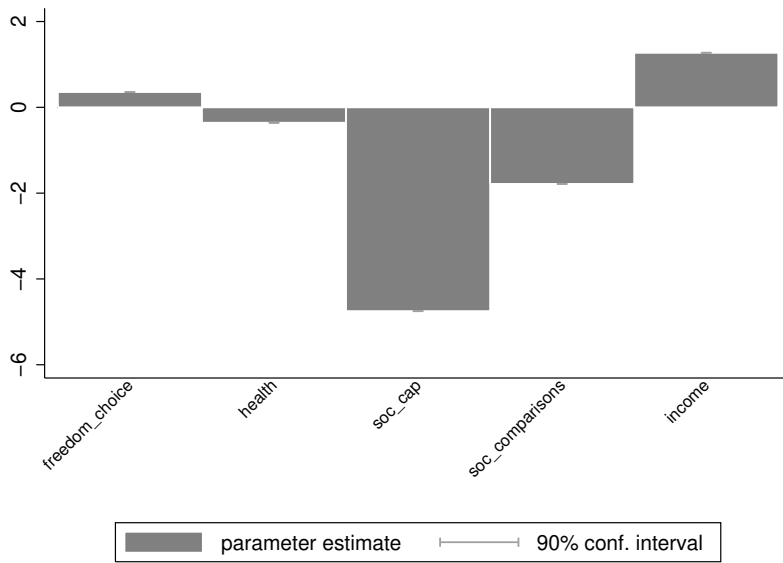
(b) Unexplained part of the gap

Figure 6: Explained and unexplained part of the well-being gap for the lower class between 1990 and 2001 in China.

being loss of approximately -13%. Also in this case the largest part of the gap (about 91%) was due to changes in endowments and, in particular, in financial dissatisfaction and, to a much smaller extent, in freedom of choice and control over one's life and social capital. Also for what concerns the middle class the period between 1990 and 2001 was characterized by deep changes in preferences. In particular, the highest importance that people attach to social capital predicts the largest share of the positive effect for well-being together with the higher importance attached to income. All other variables, social comparisons, health and freedom of choice, predict a decrease in life satisfaction (see fig. 7).

Rich people are those who lost less in terms of well-being from the first 10 years of economic growth. In this period, the average well-being of people in the three upper deciles of the income distribution decreased by 7%, less than the half of the loss of the lower class. The decomposition of the life satisfaction gap identifies the changes of preferences as the main cause of the change in well-being (see tab. E in Appendix E on page 41). In particular, the changes of preferences concerning social capital, together with the ones for income, predicted an increase in well-being. Their positive effect is more than counterbalanced by the increase of the importance of social comparisons, health and freedom of choice and control (see fig. 8).

Summarizing, the change in the position and inclination of the relationship between life satisfaction and income between 1990 and 2001 (see fig. 5) is largely related to changes in the endowments of the middle and the lower classes. In both cases, the increased financial dissatisfaction explains a large share of the overall variation. However, the lower classes experienced a greater loss of life satisfaction mainly because they are the only class experiencing also a decline in their social capital. Moreover, the increase in the importance of social comparisons and income for life satisfaction across all income classes suggests a generalized spread of materialistic values. Such spread seems relatively stronger among the lower classes, thus further contributing to the relatively greater diminution of their well-being. Indeed, the lower classes experienced a decrease in the importance attached to social capital, whereas such importance increased for the middle and the upper class. On the contrary, the moderate decrease in the life satisfaction of the upper class was entirely explained by changes in the preferences. In particular, the higher importance attached to social comparisons coupled with the lower importance attached to health and freedom of choice and control offset the positive effect for well-being predicted by the higher importance of social
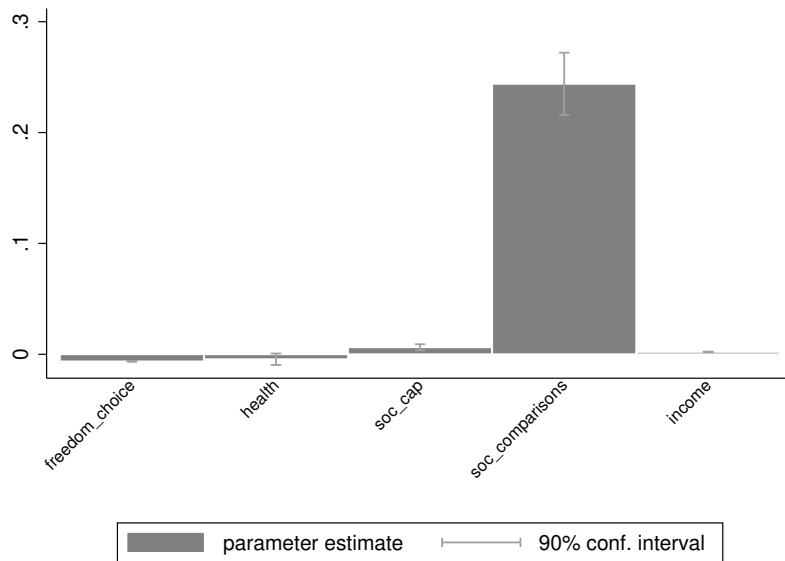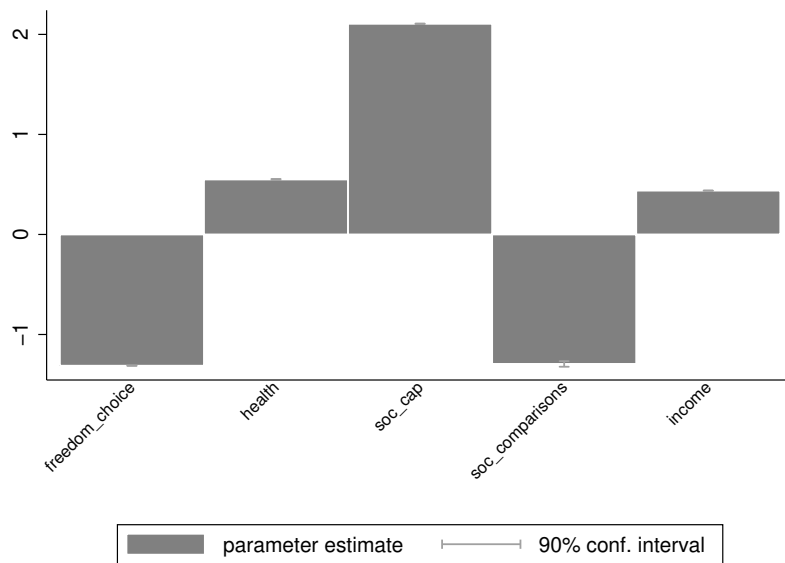
21

(a) Explained part of the gap
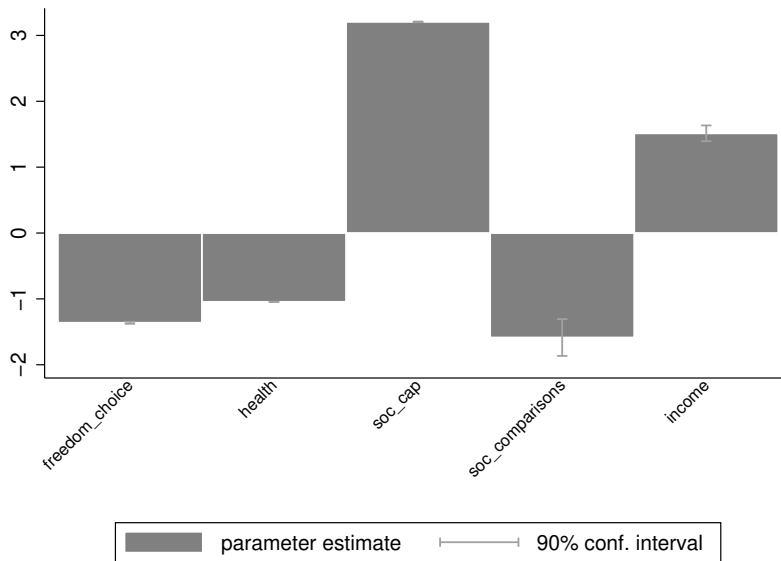
(b) Unexplained part of the gap

Figure 7: Explained and unexplained part of the well-being gap for the middle class between 1990 and 2001 in China.

(a) Explained part of the gap

(b) Unexplained part of the gap

Figure 8: Explained and unexplained part of the well-being gap of rich people between 1990 and 2001 in China.

capital and of income.

5.1.2 The period 2001 − 2007

What does happen in the subsequent period? Between 2001 and 2007 economic growth was characterized by a further shift upwards of the relationship between life satisfaction and income. However, while the first phase was characterized by worsening conditions for the poorer classes, the second phase saw a gradual improvement of the conditions of the upper classes (see fig. 9).
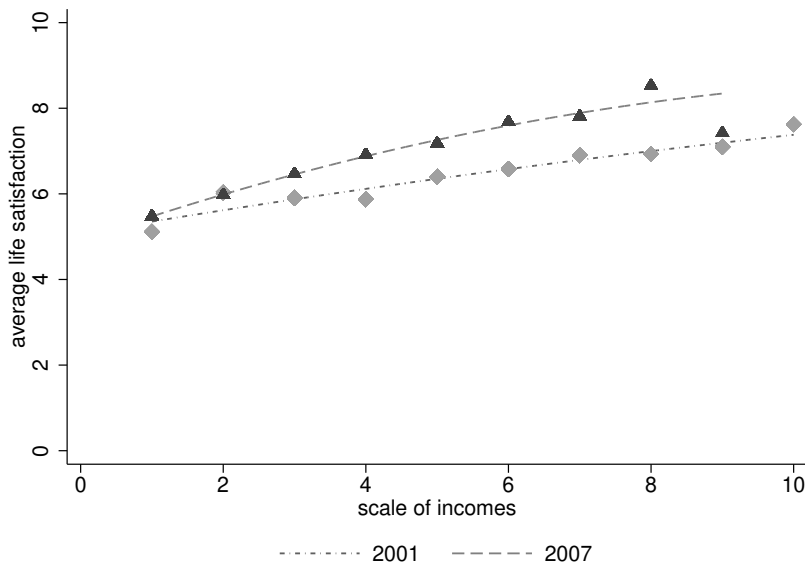

Figure 9: Pro-rich economic growth: life satisfaction and income deciles in 2001 and 2007.

Indeed, in this period the average life satisfaction of people in the lower class changed very modestly (about 2.3%) and its explained and unexplained components are not significantly different from zero (see tab. F in the Appendix F on page 43). Figure 10a informs that between 2001 and 2007 the variation of the endowments of social capital did not predict a significant change in life satisfaction, whereas the main contributors to the increasing life satisfaction are the decreased financial dissatisfaction and the improvement in perceived health.

The other two classes were those who gained the most from the second period of economic growth: after the initial decline of well-being, the middle and the upper class experienced an increase in well-being of about 9.5%.
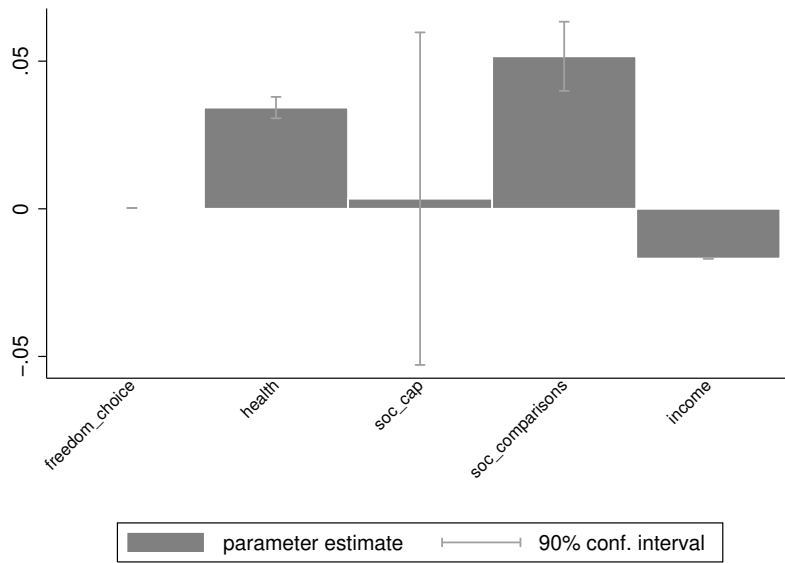
(a) Explained part of the gap
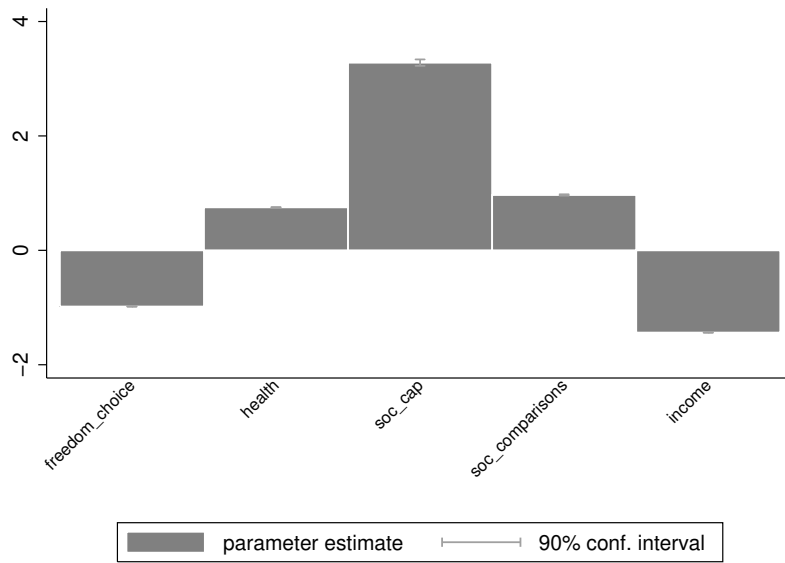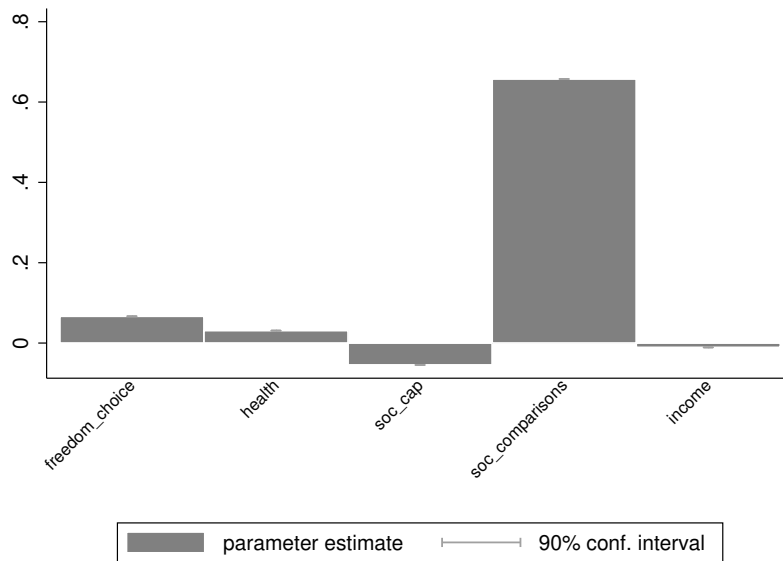

(b) Unexplained part of the gap

Figure 10: Explained and unexplained part of the well-being gap of the lower class between 2001 and 2007 in China.

Remarkably, the variation of the previous period was about -13% thus suggesting that the net effect for people's well-being in the middle class was negative (about -7%) and that the real winner from the 17 years of uninterrupted economic growth was the upper class.

For what concerns the middle class, 2/3 of the increase in well-being are explained by lower financial dissatisfaction, higher health and freedom of choice and control over one's life and is moderated by the negative effect of the decreasing availability of social capital (see fig. 11a). The remaining 1/3 of the increase in well-being is attributed to changing preferences: a higher importance of income, of freedom of choice and control and, to a smaller extent, of health, and a lower importance of social comparisons. Also in this case the positive impact for well-being is moderated by the lower importance that Chinese people attach to social capital. Arguably, if the endowments and the importance for people of social capital had not changed over time, than the actual well-being gain for the middle class would have been higher (see tab. G in Appendix G on page 45 and fig. 11).

The Chinese at the top of the income distribution were those who gained the most both between 2001 and 2007 and in the overall period. In the second phase of the economic growth, the average happiness of richest people increased by 9.5%, basically as much as the middle class. However, differently from the middle class, they had lost much less in terms of well-being during the period 1990 - 2007. Hence, the net effect at the end of the 17 years considered was an increase in well-being by about 4%. Put it differently, people belonging to the Chinese upper class were the true winners from the Chinese economic miracle. Figures from the decomposition in tab. 20 on page 48 point out that this effect was entirely explained by changes in the endowments, whereas the changes in preferences predict a very negligible variation of well-being. Between 2001 and 2007 Chinese people in the upper class reported lower levels of dissatisfaction with their financial situation, had more freedom of choice and control over their lives and shared less social capital (see tab. H in Appendix H on page 47 and fig. 12a). Similarly to what happened to other Chinese people, if social capital had not been eroded, people's subjective well-being would have been higher.

The analysis of the well-being change of the period 2001 - 2007 confirms that the upper class benefited the most from Chinese economic growth. The middle and upper classes became more satisfied with their financial situation, attached less importance to and shared less social capital and were giving more emphasis to social comparisons. As for the lower class, the good news
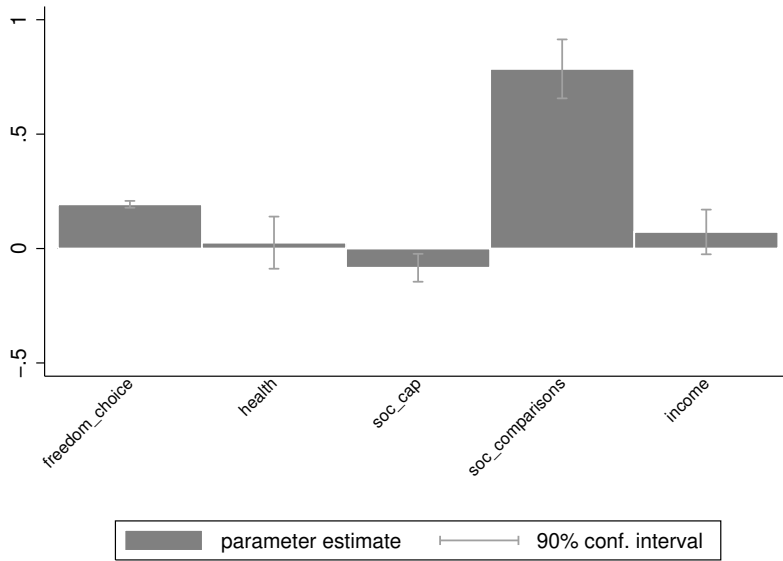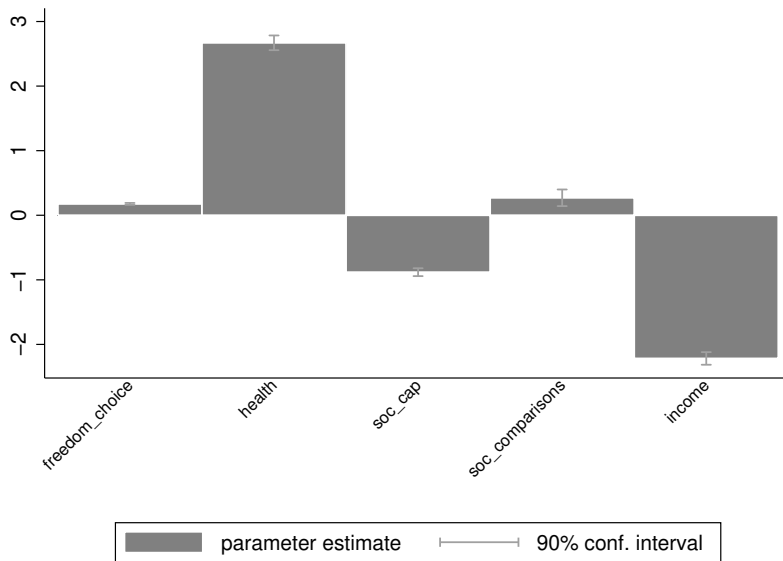
(a) Explained part of the gap
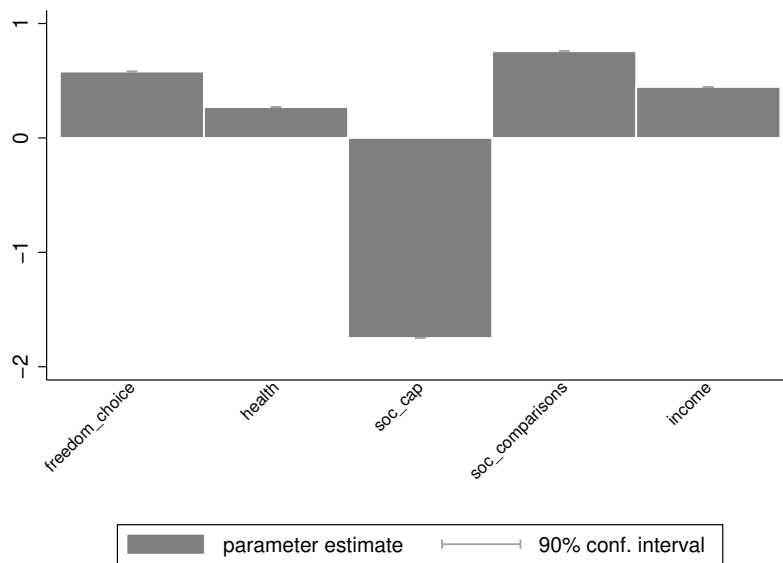
(b) Unexplained part of the gap

Figure 11: Explained and unexplained part of the well-being gap of the middle class between 2001 and 2007 in China.

(a) Explained part of the gap

(b) Unexplained part of the gap

Figure 12: Explained and unexplained part of the well-being gap of the rich people between 2001 and 2007 in China.

is limited to the halt of the worsening of its well-being. For what concerns the evolution of social comparisons, the coefficients associated with financial dissatisfaction have a similar U shape across all social classes. Considering the whole sample, between 1990 and 2001 social comparisons assumed a pivotal role for Chinese well-being (from -0.19 in 1990 to -0.58 in 2001). In the subsequent period the importance of social comparisons attenuated (from -0.58 in 2001 to -0.34 in 2007). Nonetheless, the net effect of these changes was still very negative since the coefficient almost doubled between 1990 and 2007.

Summarizing, the spread of materialism recorded in the period 1990 and 2001, especially among the lower classes, attenuated and eventually reverted in the subsequent period. This change was particularly pronounced among lower classes between 2001 and 2007. Indeed, differently from the upper and the middle class, the lower class exhibits an increase in the importance of social capital, beyond the decrease in the relevance of financial dissatisfaction. However, this change missed to improve the life satisfaction of the lower income classes. In the period 2001-2007, the relative gains of life satisfaction were mainly affected by the gains in financial satisfaction, which are disproportionately favorable to the upper and the middle class compared to the lower income classes.

6   Conclusion

The recent debate suggests that the trend of social capital plays a much greater role than economic growth in shaping the evolution over time of people's subjective well-being. In the long run it is much more likely that well-being grows in countries where social capital grows than where the economy grows. These findings – plenty of policy implications – are mainly drawn from evidence concerning developed countries. This raises the question of the generality of these conclusions. To what extent can they be applied to developing countries?

China has a very important role to answer this question. One obvious reason is the gigantic scale of the Chinese take-off. Another reason is that if there is a country where economic growth should have played a significant role for people's well-being, than it is China. This country scores outstanding improvements in all indicators of standards of life. However, these objective records are in striking contrast with those from subjective perceptions. In

2007 the average Chinese felt substantially less satisfied with his/her life than in 1990. What predicts this change? To answer this question present work uses the Blinder-Oaxaca decomposition of the time-series of life satisfaction using the World Values Survey data collected in China in the period 1990 – 2007.

Our findings suggest that subjective data capture something that is missed by objective data: the increase in the importance of social comparisons and the decline of social capital. These two powerful drivers of the decline of well-being appear to be strictly connected to the increasing orientation of Chinese people toward materialistic values. The decreasing role of sociability and the increasing role of income comparisons in the life experience and values of Chinese people are at the core of the decline in their well-being.

A simulation suggests that, if preferences for social capital had stayed constant at their values of 1990, the well-being in 2007 would have been - 1.8% rather than the observed -7.1%, i.e. the life satisfaction gap would have been 5.3% smaller. Hence, the Chinese economic growth has been going hand in hand not only with the erosion of social capital, but also with the erosion of its importance for well-being. However, our results also confirm the evidence from previous studies documenting the strong role of social comparisons in frustrating Chinese well-being. However, important differences emerged among Chinese social classes and among periods.

Economic growth not only had a disappointing impact on average well-being, but it also increased well-being inequalities among people. China moved from a situation of substantial equality of well-being among income deciles in 1990 to an unequal one: in 2007 income was positively related to life satisfaction.

In the period 1990 - 2001 the lower and middle classes experienced a substantial worsening of their life satisfaction due mainly to lower financial satisfaction, lower social capital and more materialistic concerns. In the same period also the upper class experienced a reduction of life satisfaction, but much less than the other two classes – the well-being gap for the upper class was about half the gap of the lower – and mainly because of social comparisons that became pivotal for people's well-being.

Between 2001 and 2007 the well-being of the lower classes improved marginally, whereas the middle and the upper class experienced a significant improvement: for the middle class the net effect of the two periods remained negative, but for the richest one economic growth delivered the expected results. The increase in the financial satisfaction of the upper class

shows that they felt the winners of social comparisons, whose importance for well-being doubled. This more than off-set the negative impact of the decline of their social capital, whose importance shrank.

Overall, between 1990 and 2007 the well-being of the lower class reduced by about 14%. The gap is mainly explained by the fact that these people became poorer in social capital, reported health and financial satisfaction. At the same time they experienced a stronger materialistic orientation.

Summarizing, between 1990 and 2007 the good news for Chinese life satisfaction are limited to a 2.5% increase for the upper class. The breaking news are negative: a 4% and 14% decrease for the middle and the lower class, respectively. The picture of a little gain in well-being for the few winners of the Chinese economic miracle paid at the price of substantial losses of life satisfaction for the great majority of people mirrors the picture of a country that grew rapidly more uneven and in which increasing social poverty was the dark side of rising economic wealth. The decline in social capital indeed lies at the core of these disappointing trends, including the limited increase in the life satisfaction of rich people.

China seems to replicate patterns experienced by western countries, despite the enormous historical, economic, cultural, and institutional differences. The declines of Chinese life satisfaction and American happiness in the past few decades share a crucial role for the decline of social capital and social comparisons (Bartolini et al., 2013a). All in all, the decline in social capital seems to be central to the major episodes of the Easterlin paradox in the developed and developing world.

A Life satisfaction decomposition between 1990 and 2007

Table 3: Coefficients and X-values for 1990 and 2007 in China.

	b_{2007}	b_{1990}	b_{ref}	X_{2007}	X_{1990}
age	-0.087	-0.011	-0.053	44.340	43.921
age squared	0.001	0.000	0.001	2139.795	2073.807
female	-0.062	0.028	0.042	0.519	0.398
how many children do you have	0.099	-0.002	0.063	1.873	2.224
married	0.680	1.652	0.460	0.840	0.957
living together	0.112	3.158	0.439	0.010	0.003
divorced	0.052	0.836	-0.205	0.015	0.008
separated	-0.738	0.826	-0.485	0.004	0.003
widowed	0.457	2.164	0.456	0.039	0.029
part time	-0.011	0.080	-0.116	0.085	0.020
self-employed	0.158	0.160	0.216	0.042	0.236
retired	-0.297	0.201	-0.110	0.051	0.061
housewife	0.081	0.320	-0.080	0.075	0.010
student	-0.777	0.635	-0.082	0.019	0.003
unemployed	-0.331	0.028	0.158	0.034	0.003
other	-0.594	-0.124	-0.642	0.079	0.003
scale of incomes	0.070	0.010	0.027	3.983	3.179
financial dissatisfaction	-0.370	-0.207	-0.465	4.967	4.717
state of health	0.386	0.356	0.308	3.806	3.798
freedom of choice	0.197	0.294	0.169	7.344	7.197
trust in others	0.064	0.147	0.143	0.543	0.617
index of civicness	0.045	0.118	0.064	8.806	9.549
social participation	0.098	-0.024	0.116	0.374	0.711
Constant	6.160	2.431	7.247	1.000	1.000

Table 4: Detailed decomposition of the life satisfaction gap betwen 1990 and 2007 in China.

	Differential	satisfaction with life Explained	Unexplained
Prediction_1	6.832*** (7.50e + 15)		
Prediction_2	7.546*** (3.85e + 16)		
Difference	−0.714*** (−7.35e + 14)		
age		0.0190** (2.39)	−1.592*** (−200.47)
female		0.00508 (0.97)	−0.0484*** (−9.19)
how many children do you have		−0.0222*** (−3.51)	0.212*** (33.57)
mar_stat		−0.0479** (−1.97)	−1.024*** (−42.15)
empl_stat		−0.0994*** (−3.40)	−0.0337 (−1.15)
scale of incomes		0.0215 (0.92)	0.227*** (9.71)
soc_comparisons		−0.116*** (−6.15)	−0.745*** (−39.50)
health		0.00254*** (6.65)	0.114*** (297.90)
freedom_choice		0.0248*** (4.80)	−0.690*** (−133.37)
soc_cap		−0.0973*** (−5.70)	−0.632*** (−37.02)
Total		−0.462*** (−3.67)	−0.252** (−2.00)
Constant			3.729*** (2.93e + 12)
Observations	2085		

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

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B   Three scenarios for the unexplained life satisfaction gap

Table 5: Coefficients and X-values for the proxies of social capital.

variable	β_{2007}	β_{1990}	β_{ref}	X_{2007}	X_{1990}
trust in others	0.064	0.147	0.143	0.543	0.617
index of civic cooperation	0.045	0.118	0.064	8.806	9.549
social participation	0.098	−0.024	0.116	0.374	0.711

Table 5 provides figures about the coefficients and the endowments for 1990 and 2007 for the three proxies of social capital. These figures are used to compute the life satisfaction variation predicted by the proxies of social capital.

According to the unexplained side of the Oaxaca-Blinder decomposition, the variation of life satisfaction due to differences in the coefficients of social capital proxies is given by:

$$LS_{gap}^{SC} = [E(X_{2007})' \cdot (b_{2007} - b_{ref}) + E(X_{1990})' \cdot (b_{ref} - b_{1990})] \qquad (2)$$

amounting to -0.63 (see tab. 6).

Table 6: Life satisfaction variation due to differences in the coefficients of social capital.

variable	Δlife satisfaction
trust in others	−0.04
index of civic cooperation	−0.68
social participation	0.09
total	−0.63

How much does life satisfaction change when holding the endowment of social capital constant to its 1990 level? Formally, the unexplained part of the Oaxaca-Blinder decomposition turns to be:

$$LS_{gap}^{SC} = [E(X_{1990})' \cdot (b_{2007} - b_{ref}) + E(X_{1990})' \cdot (b_{ref} - b_{1990})] \qquad (3)$$

amounting to -0.66 (see tab. 7).

Table 7: Life satisfaction variation due to differences in social capital coefficients holding constant the levels of 1990.

variable	Δlife satisfaction
trust in others	-0.05
index of civic cooperation	-0.69
social participation	0.08
total	-0.66

How much does life satisfaction change when holding the coefficients of social capital constant to their 1990 values? Formally, the unexplained part of the Oaxaca-Blinder decomposition turns to be:

$$LS_{gap}^{SC} = [E(X_{2007})' \cdot (b_{1990} - b_{ref}) + E(X_{1990})' \cdot (b_{ref} - b_{1990})] \qquad (4)$$

amounting to -0.09 (see tab. 8).

Table 8: Life satisfaction variation due to differences in the coefficients of social capital holding the 1990 values.

variable	Δlife satisfaction
trust in others	-0.01
index of civic cooperation	-0.08
social participation	0.008
total	-0.09

C Life satisfaction decomposition for the lower class between 1990 and 2001

Table 9: Coefficients and X-values for 1990 and 2001 in China for the three lowest deciles of the income distribution.

	β_{2001}	β_{1990}	β_{ref}	X_{2001}	X_{1990}
age	−0.091	−0.048	−0.053	40.880	42.952
age squared	0.001	0.000	0.001	1809.769	1986.095
female	−0.309	−0.073	−0.167	0.513	0.392
how many children do you have	−0.129	0.004	−0.006	1.778	2.266
married	2.139	1.976	1.923	0.838	0.950
living together	3.389	3.426	3.009	0.009	0.004
divorced	−0.671	1.139	0.825	0.009	0.010
separated	0.000	0.377	0.333	0.000	0.002
widowed	1.317	2.556	2.197	0.034	0.033
part time	1.110	0.295	0.850	0.111	0.014
self-employed	−1.932	0.387	0.466	0.009	0.247
retired	−0.508	0.231	0.257	0.017	0.046
housewife	1.396	0.006	−0.532	0.085	0.012
student	0.000	0.751	0.979	0.000	0.004
unemployed	2.037	1.918	1.507	0.051	0.002
other	−1.333	0.013	0.242	0.009	0.002
scale of incomes	0.686	0.165	0.123	2.427	2.288
financial dissatisfaction	−0.507	−0.196	−0.287	6.103	4.853
state of health	0.230	0.333	0.328	3.479	3.784
freedom of choice	0.328	0.276	0.252	6.974	7.158
trust in others	0.212	0.231	0.243	0.453	0.614
index of civicness	−0.415	0.157	0.130	9.415	9.587
social participation	0.865	−0.039	0.113	0.718	0.712
Constant	7.214	2.385	5.110	1.000	1.000

Table 10: Detailed decomposition of the life satisfaction gap betwen 1990 and 2001 in China for the three lowest deciles of the income distribution.

	Differential	satisfaction with life	
		Explained	Unexplained
Prediction_1	5.872*** (1.10e + 18)		
Prediction_2	7.512*** (9.16e + 16)		
Difference	−1.640*** (−2.14e + 16)		
age		0.00647*** (1.45e + 14)	−0.146*** (−6.80e + 16)
female		−0.0202*** (−4.87e + 15)	−0.109*** (−5.68e + 16)
how many children do you have		0.00289*** (3.16e + 15)	−0.242*** (−2.20e + 16)
mar_stat		−0.200*** (−1.43e + 15)	0.0741*** (1.08e + 16)
empl_stat		−0.00278*** (−2.27e + 14)	0.196*** (5.46e + 15)
scale of incomes		0.0172*** (1.66e + 15)	1.271*** (4.87e + 16)
soc_comparisons		−0.358*** (−1.90e + 16)	−1.786*** (−2.55e + 17)
health		−0.100*** (−3.70e + 16)	−0.360*** (−2.87e + 18)
freedom_choice		−0.0463*** (−1.36e + 15)	0.356*** (4.18e + 16)
soc_cap		−0.0609*** (−3.43e + 16)	−4.750*** (−1.32e + 17)
Total		−1.323*** (−3.03e + 16)	−0.317*** (−2.63e + 15)
Constant			4.829 (.)
Observations	635		

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

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D Life satisfaction decomposition for the middle class between 1990 and 2001

Table 11: Coefficients and X-values for 1990 and 2001 in China for the four intermediate deciles of the income distribution.

	β_{2001}	β_{1990}	β_{ref}	X_{2001}	X_{1990}
age	−0.074	0.102	−0.016	39.612	47.022
age squared	0.001	−0.001	0.000	1678.606	2350.067
female	−0.288	0.386	−0.127	0.494	0.406
how many children do you have	0.022	0.025	0.057	1.791	2.222
married	0.702	−0.186	0.516	0.924	0.972
living together	0.000	0.000	0.000	0.000	0.000
divorced	−0.822	0.000	−1.034	0.012	0.000
separated	0.000	−0.528	−0.014	0.000	0.006
widowed	0.379	0.000	0.095	0.018	0.022
part time	−0.516	−0.738	−0.470	0.082	0.039
self-employed	0.166	−0.296	−0.183	0.009	0.211
retired	0.500	−0.450	−0.149	0.009	0.106
housewife	0.593	2.419	0.312	0.068	0.006
student	−4.472	0.000	−4.002	0.003	0.000
unemployed	1.352	−1.569	0.993	0.038	0.006
other	0.476	−0.094	0.299	0.012	0.006
scale of incomes	0.065	−0.240	−0.073	5.221	4.756
financial dissatisfaction	−0.532	−0.179	−0.465	5.750	4.200
state of health	0.237	0.509	0.361	3.853	3.844
freedom of choice	0.125	0.313	0.164	7.124	7.278
trust in others	0.328	0.295	0.339	0.559	0.622
index of civicness	0.227	−0.095	0.143	9.473	9.479
social participation	0.042	−0.149	0.061	0.821	0.700
Constant	5.218	3.874	4.326	1.000	1.000

Table 12: Detailed decomposition of the life satisfaction gap betwen 1990 and 2001 in China for the four intermediate deciles of the income distribution.

	Differential	satisfaction with life Explained	Unexplained
Prediction_1	6.324*** (5.90e + 15)		
Prediction_2	7.622*** (2.90e + 15)		
Difference	−1.299*** (−4.59e + 14)		
age		−0.0730 (−1.42)	−4.215*** (−81.87)
female		−0.0113 (−0.48)	−0.288*** (−12.25)
how many children do you have		−0.0244** (−2.00)	0.00835 (0.68)
mar_stat		−0.0376** (−2.32)	0.866*** (53.34)
empl_stat		0.0729** (3.10)	0.109*** (4.64)
scale of incomes		−0.0340 (−0.47)	1.514*** (20.80)
soc_comparisons		−0.722*** (−4.24)	−1.587*** (−9.33)
health		0.00307** (2.51)	−1.045*** (−855.68)
freedom_choice		−0.0253** (−2.76)	−1.363*** (−148.76)
soc_cap		−0.0150*** (−4.66)	3.206*** (992.44)
Total		−1.182*** (−91.44)	−0.117*** (−9.05)
Constant			1.344*** (2.11e + 12)
Observations	520		

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

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E Life satisfaction decomposition for the upper class between 1990 and 2001

Table 13: Coefficients and X-values for 1990 and 2001 in China for the three highest deciles of the income distribution.

	β_{2001}	β_{1990}	β_{ref}	X_{2001}	X_{1990}
age	−0.092	0.164	−0.123	40.287	42.447
age squared	0.001	−0.003	0.001	1751.591	1960.868
female	0.252	−0.747	0.153	0.493	0.447
how many children do you have	−0.008	0.401	0.019	1.710	1.658
married	0.572	0.000	0.884	0.880	0.974
living together	2.153	0.000	2.318	0.003	0.000
divorced	0.000	−5.104	1.053	0.000	0.026
separated	−1.687	0.000	−1.762	0.003	0.000
widowed	−0.037	0.000	0.226	0.022	0.000
part time	0.341	−0.975	0.256	0.092	0.026
self-employed	0.705	1.657	0.555	0.092	0.211
retired	−0.386	3.386	−0.343	0.078	0.053
housewife	0.077	0.000	−0.037	0.056	0.000
student	−0.260	0.000	−0.228	0.008	0.000
unemployed	0.547	0.000	0.385	0.045	0.000
other	−0.734	0.000	−0.863	0.008	0.000
scale of incomes	−0.066	−0.122	−0.072	7.838	7.868
financial dissatisfaction	−0.552	−0.307	−0.530	4.855	5.316
state of health	−0.050	−0.196	−0.084	3.816	3.763
freedom of choice	0.239	0.417	0.236	7.315	7.342
trust in others	0.266	−1.089	0.198	0.571	0.632
index of civicness	0.094	−0.025	0.050	9.431	9.362
social participation	0.166	−0.016	0.115	0.866	0.737
Constant	9.088	11.292	10.137	1.000	1.000

Table 14: Detailed decomposition of the life satisfaction gap betwen 1990 and 2001 in China for the three highest deciles of the income distribution.

	Differential	satisfaction with life Explained	Unexplained
Prediction_1	6.950*** (1.51e + 16)		
Prediction_2	7.658*** (1.42e + 16)		
Difference	−0.708*** (−1.63e + 15)		
age		−0.0133 (−1.03)	−3.191*** (−246.63)
female		0.00699 (1.02)	0.451*** (66.18)
how many children do you have		0.000981 (1.22)	−0.680*** (−847.16)
mar_stat		−0.104** (−2.45)	0.742*** (17.51)
empl_stat		−0.0518*** (−10.91)	−0.363*** (−76.52)
scale of incomes		0.00217*** (12.00)	0.439*** (2425.81)
soc_comparisons		0.244*** (14.28)	−1.294*** (−75.77)
health		−0.00445 (−1.42)	0.550*** (174.85)
freedom_choice		−0.00645*** (−32.63)	−1.312*** (−6637.64)
soc_cap		0.00634*** (3.81)	2.106*** (1263.88)
Total		−0.118 (−0.66)	−0.590*** (−3.30)
Constant			−2.203*** (−2.58e + 12)
Observations	397		

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

F Life satisfaction decomposition for the lower class between 2001 and 2007

Table 15: Coefficients and X-values for 2001 and 2007 in China for the three lowest deciles of the income distribution.

	β_{2007}	β_{2001}	β_{ref}	X_{2007}	X_{2001}
age	-0.028	-0.091	-0.038	46.295	40.880
age squared	0.000	0.001	0.001	2301.874	1809.769
female	-0.203	-0.309	-0.105	0.498	0.513
how many children do you have	0.115	-0.129	0.111	2.105	1.778
married	0.117	2.139	0.348	0.860	0.838
living together	0.445	3.389	0.761	0.012	0.009
divorced	0.180	-0.671	-0.033	0.010	0.009
separated	-0.805	0.000	-0.498	0.005	0.000
widowed	-0.087	1.317	0.115	0.053	0.034
part time	0.149	1.110	0.133	0.078	0.111
self-employed	0.502	-1.932	0.419	0.041	0.009
retired	-0.482	-0.508	-0.448	0.034	0.017
housewife	0.502	1.396	0.380	0.062	0.085
student	-1.373	0.000	-1.476	0.009	0.000
unemployed	-0.680	2.037	-0.498	0.047	0.051
other	-0.754	-1.333	-0.897	0.095	0.009
scale of incomes	0.096	0.686	0.073	2.195	2.427
financial dissatisfaction	-0.348	-0.507	-0.392	5.971	6.103
state of health	0.445	0.230	0.428	3.559	3.479
freedom of choice	0.187	0.328	0.184	6.976	6.974
trust in others	0.026	0.212	0.050	0.533	0.453
index of civicness	0.012	-0.415	-0.008	8.845	9.415
social participation	-0.110	0.865	0.011	0.266	0.718
Constant	4.332	7.214	6.941	1.000	1.000

Table 16: Detailed decomposition of the life satisfaction gap betwen 2001 and 2007 in China for the three lowest deciles of the income distribution.

	Differential	satisfaction with life Explained	Unexplained
Prediction_1	6.102*** (5.21e + 15)		
Prediction_2	5.872*** (7.40e + 16)		
Difference	0.230*** (1.95e + 14)		
age		0.0681** (3.18)	0.857*** (39.95)
female		0.00153 (1.24)	0.0557*** (45.08)
how many children do you have		0.0362*** (14.84)	0.436*** (178.70)
mar_stat		0.0102 (0.62)	−1.771*** (−107.07)
empl_stat		−0.0951*** (−10.98)	−0.284*** (−32.73)
scale of incomes		−0.0169*** (−1201.85)	−1.438*** (−102462.93)
soc_comparisons		0.0516*** (7.25)	0.967*** (135.83)
health		0.0343*** (15.57)	0.752*** (341.60)
freedom_choice		0.000277*** (52.13)	−0.983*** (−185222.35)
soc_cap		0.00343 (0.10)	3.281*** (95.84)
Total		0.169 (0.92)	0.0613 (0.34)
Constant			−2.882*** (−8.04e + 12)
Observations	697		

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

G Life satisfaction decomposition for the middle class between 2001 and 2007

Table 17: Coefficients and X-values for 2001 and 2007 in China for the four intermediate deciles of the income distribution.

	β_{2007}	β_{2001}	β_{ref}	X_{2007}	X_{2001}
age	−0.129	−0.074	−0.098	42.965	39.612
age squared	0.001	0.001	0.001	2029.233	1678.606
female	−0.003	−0.288	−0.091	0.519	0.494
how many children do you have	0.098	0.022	0.051	1.722	1.791
married	0.975	0.702	0.759	0.826	0.924
living together	−0.980	0.000	−1.122	0.006	0.000
divorced	0.301	−0.822	−0.023	0.020	0.012
separated	−0.779	0.000	−0.767	0.003	0.000
widowed	0.682	0.379	0.407	0.026	0.018
part time	0.060	−0.516	−0.136	0.096	0.082
self-employed	−0.106	0.166	−0.002	0.043	0.009
retired	−0.191	0.500	−0.062	0.065	0.009
housewife	0.067	0.593	0.159	0.085	0.068
student	−0.358	−4.472	−0.468	0.025	0.003
unemployed	0.219	1.352	0.683	0.022	0.038
other	−0.337	0.476	−0.283	0.066	0.012
scale of incomes	0.156	0.065	0.040	4.952	5.221
financial dissatisfaction	−0.376	−0.532	−0.477	4.372	5.750
state of health	0.307	0.237	0.294	3.958	3.853
freedom of choice	0.204	0.125	0.163	7.532	7.124
trust in others	0.120	0.328	0.143	0.557	0.559
index of civicness	0.042	0.227	0.034	8.787	9.473
social participation	0.290	0.042	0.082	0.440	0.821
Constant	6.761	5.218	7.010	1.000	1.000

Table 18: Detailed decomposition of the life satisfaction gap betwen 2001 and 2007 in China for the four intermediate deciles of the income distribution.

	Differential	satisfaction with life *Explained*	*Unexplained*
Prediction_1	7.282*** (9.89e + 15)		
Prediction_2	6.324*** (6.16e + 15)		
Difference	0.959*** (7.62e + 14)		
age		0.0557*** (8.06)	−1.378*** (−199.32)
female		−0.00221 (−0.65)	0.143*** (41.70)
how many children do you have		−0.00353 (−1.21)	0.132*** (45.38)
mar_stat		−0.0803*** (−5.77)	0.256*** (18.36)
empl_stat		−0.0396*** (−25.83)	−0.0400*** (−26.10)
scale of incomes		−0.0108 (−0.63)	0.446*** (25.78)
soc_comparisons		0.657*** (6.11)	0.758*** (7.04)
health		0.0310*** (11.76)	0.270*** (102.22)
freedom_choice		0.0667*** (3.74)	0.580*** (32.47)
soc_cap		−0.0545 (−1.21)	−1.749*** (−38.69)
Total		0.642*** (6.19)	0.317** (3.06)
Constant			1.543*** (2.33e + 12)
Observations	988		

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

H Life satisfaction decomposition for the upper class between 2001 and 2007

Table 19: Coefficients and X-values for 2001 and 2007 in China for the three highest deciles of the income distribution.

	β_{2007}	β_{2001}	β_{ref}	X_{2007}	X_{2001}
age	−0.118	−0.092	−0.103	42.331	40.287
age squared	0.001	0.001	0.001	1954.992	1751.591
female	0.092	0.252	0.233	0.620	0.493
how many children do you have	0.039	−0.008	0.029	1.570	1.710
married	1.440	0.572	0.848	0.818	0.880
living together	1.926	2.153	1.864	0.017	0.003
divorced	−1.509	0.000	−1.726	0.008	0.000
separated	0.000	−1.687	−1.991	0.000	0.003
widowed	1.626	−0.037	0.271	0.033	0.022
part time	−0.040	0.341	0.152	0.066	0.092
self-employed	−0.562	0.705	0.329	0.033	0.092
retired	0.408	−0.386	−0.463	0.058	0.078
housewife	−0.823	0.077	−0.265	0.083	0.056
student	−1.382	−0.260	−0.884	0.041	0.008
unemployed	0.122	0.547	0.303	0.041	0.045
other	−2.820	−0.734	−1.622	0.074	0.008
scale of incomes	−0.362	−0.066	−0.153	7.364	7.838
financial dissatisfaction	−0.487	−0.552	−0.518	3.339	4.855
state of health	0.600	−0.050	0.072	4.174	3.816
freedom of choice	0.261	0.239	0.246	8.099	7.315
trust in others	−0.042	0.266	0.194	0.521	0.571
index of civicness	0.025	0.094	0.107	8.718	9.431
social participation	0.025	0.166	−0.005	0.545	0.866
Constant	11.333	9.088	9.130	1.000	1.000

Table 20: Detailed decomposition of the life satisfaction gap betwen 2001 and 2007 in China for the three highest deciles of the income distribution.

	Differential	satisfaction with life Explained	Unexplained
Prediction_1	7.926*** (3.41e + 15)		
Prediction_2	6.950*** (1.68e + 16)		
Difference	0.976*** (4.17e + 14)		
age		0.0145 (0.69)	−1.278*** (−60.92)
female		0.0296*** (10.25)	−0.0968*** (−33.53)
how many children do you have		−0.00405 (−0.75)	0.0798*** (14.70)
mar_stat		−0.0328** (−1.97)	0.780*** (46.78)
empl_stat		−0.158*** (−3.74)	−0.255*** (−6.03)
scale of incomes		0.0725 (1.22)	−2.217*** (−37.35)
soc_comparisons		0.785*** (10.03)	0.270*** (3.45)
health		0.0257 (0.37)	2.670*** (38.56)
freedom_choice		0.193*** (21.26)	0.176*** (19.34)
soc_cap		−0.0842** (−2.27)	−0.882*** (−23.81)
Total		0.951*** (129.84)	0.0252*** (3.44)
Constant			2.245*** (3.09e + 12)
Observations	480		

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

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I   Factor analysis for the index of civicness

In the pooled sample, factor loadings range from .72 to .80 thus suggesting that the four variables contribute equally to the definition of civic cooperation. The picture does not change much when observing results wave by wave. In this case, factor loadings stay approximately constant across waves.

The slight variability among factor loadings both in the pooled sample and within waves support the decision to build an aggregated index of civic cooperation resulting from the average of the four items.

Table 21: Factor loading and unique variances for the pooled sample

	$Factor1$	Psi
justifiable: claiming government benefits	.7354614	.4590965
justifiable: avoiding a fare on public transport	.7844583	.3846252
justifiable: cheating on taxes	.8061527	.3501179
justifiable: someone accepting a bribe	.7274631	.4707974

Table 22: Factor loadings and unique variances across waves

wave 1	$Factor1$	Psi
justifiable: claiming government benefits	.7966403	.3653643
justifiable: avoiding a fare on public transport	.834389	.303795
justifiable: cheating on taxes	.7776205	.3953064
justifiable: someone accepting a bribe	.6871919	.5277673

wave 2	$Factor1$	Psi
justifiable: claiming government benefits	.6669682	.5551534
justifiable: avoiding a fare on public transport	.7524343	.4338426
justifiable: cheating on taxes	.7656387	.4137974
justifiable: someone accepting a bribe	.5649274	.6808571

wave 3	$Factor1$	Psi
justifiable: claiming government benefits	.6884222	.5260749
justifiable: avoiding a fare on public transport	.7724496	.4033216
justifiable: cheating on taxes	.7844648	.384615
justifiable: someone accepting a bribe	.6200904	.6154879

wave 4	$Factor1$	Psi
justifiable: claiming government benefits	.7373559	.4563062
justifiable: avoiding a fare on public transport	.7846328	.3843513
justifiable: cheating on taxes	.8119551	.3407289
justifiable: someone accepting a bribe	.7871107	.3804567

wave 5	$Factor1$	Psi
justifiable: claiming government benefits	.7772684	.3958539
justifiable: avoiding a fare on public transport	.8067852	.3490976
justifiable: cheating on taxes	.8470783	.2824584
justifiable: someone accepting a bribe	.7956081	.3670077

wave 6	$Factor1$	Psi
justifiable: claiming government benefits	.7613381	.4203643
justifiable: avoiding a fare on public transport	.7248758	.474555
justifiable: cheating on taxes	.8180381	.3308137
justifiable: someone accepting a bribe	.7286719	.4690373

J List of groups and associations mentioned in the WVS/EVS questionnaire

Respondents were asked to mention whether they belonged or were performing unpaid voluntary work for any of the following list of associations:

- social welfare service for elderly;

- religious organization;

- education, arts, music or cultural activities;

- labour unions;

- political parties;

- local political actions;

- human rights;

- conservation, the environment, ecology, animal rights;

- conservation, the environment, ecology;

- animal rights;

- professional associations;

- youth work;

- sports or recreation;

- women's group;

- peace movement;

- organization concerned with health;

- consumer groups;

- other groups.

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