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Subjective Well-being and Social Evaluation in a Poor Country¹

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Abstract

The empirical literature on the economics of happiness has grown rapidly, and much has been learned about the determinants of subjective well-being. Less attention has been paid to its normative implications. Taking China as a case study, this paper first summarises empirical results on the determinants of subjective well-being and then considers whether that evidence can be used for social evaluation. Different criteria for social evaluation give very different answers: on the one hand, real income per capita and the human development index have risen rapidly in recent years but, on the other hand, subjective well-being appears not to have risen at all. Ultimately a value judgement is required: arguments are presented for and against including subjective well-being, either alone or with other criteria, in the social welfare function.

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JEL Classification: D03, D63, O15.

1. Introduction

China's remarkable rate of economic growth since the start of economic reform is generally assumed to have raised the economic welfare of the Chinese people dramatically. This is regarded as self-evident from the facts that, in less than three decades, average real income per capita rose more than six times and that more than 300 million people were lifted out of 'dollar a day' poverty (Ravallion and Chen, 2007). Moreover, within a quarter of a century China's 'human development index' rose from 0.37 to 0.68 (UNDP, 2010: table 2). For us to question whether economic growth has raised happiness in China appears either absurd or disingenuous.

Nevertheless, starting from the pioneering work of Easterlin (1974), economists have increasingly asked this question of advanced economies. It has been shown that, in several economies - including the United States, Japan, the United Kingdom, France, Germany, Italy and the Netherlands - income per capita rose consistently over one or more decades and yet the mean subjective well-being score remained roughly constant (for instance, Blanchflower and Oswald, 2004; Easterlin, 2009). By contrast, Stevenson and Wolfers (2009) report a cross-country equation indicating that, within countries over time but given a common slope, happiness increases with income. However, a re-specification allowing country slopes to differ produces an average value of the country coefficients that is negative albeit not significantly so (Krueger, 2009: 99). There is indeed something odd to be explained.

Very few such studies have apparently been made for developing countries, probably owing to a lack of relevant time series data on subjective well-being. However, one would expect that the happiness of people in poor countries is determined in a different way. For instance, it is arguable that the greatest concern of poor people is to meet their basic physical needs for food, shelter and clothing, whereas non-poor people are more concerned with their position and achievement in relation to society. Thus, absolute income might be important to happiness at low levels of income but relative income might be more important at higher levels.²

The paper is divided into two main parts. In the first part we ask: are the findings for the advanced economies true also for China? We present time series evidence to suggest that this is indeed the case. Although the lack of appropriate time series data prevents us from directly analysing the reasons why happiness has not risen in China, we consider the reasons indirectly on the basis of four papers reporting research on subjective well-being in China by means of a cross section national household survey (Knight *et al.*, 2009; Knight and Gunatilaka, 2010a, 2010b, 2012). This part follows the argument of our summary paper (Knight and Gunatilaka, 2011) but without explaining the methodology or providing the detailed empirical estimates.

In the second main part of the paper we ask: can our measures of and explanations for subjective well-being be used for purposes of social evaluation? Ultimately a value

² As Kingdon and Knight (2007) found for South Africa, a country with high income inequality. Whereas the effect of absolute income on subjective well-being was significantly positive for both groups, the effect of relative income on subjective well-being was insignificant for the poor but important for the non-poor.

judgement is required. We examine other potential criteria for social progress, and contrast them with the subjective well-being criterion. This leads to a discussion of the case for and against viewing subjective well-being in normative as well as positive terms. A subjective well-being function is estimated that is intended to encompass the other indicators by including them as explanatory variables.

2. Can Subjective Well-being be Explained?

2.1 Background

This section provides some background evidence on subjective well-being (we use the terms subjective well-being, happiness and satisfaction with life interchangeably). Kahneman and Krueger (2006) present a graph obtained from the Gallup Organization, which had conducted surveys of respondents in China in four years ranging from 1994 to 2005. The percentage of respondents who were somewhat satisfied or very satisfied with life fell monotonically by 15% over that period, and the proportion of respondents who were somewhat dissatisfied or very dissatisfied thus rose monotonically. Yet over that period household real income per capita rose annually on average by 3.7% in rural China and by 5.4% in urban China. Easterlin and Sawangfa (2010) provide evidence of the trend in reported life satisfaction or happiness in China from three sources: the Gallup survey, the Asiabarometer survey, and the World Values survey. The results are shown in Table 1. In each case the average life satisfaction score fell: from 2.82 in 1997 to 2.67 in 2004; from 3.73 in 2003 to 3.68 in 2007; and from 6.83 in 1995 to 6.76 in 2007, respectively (each survey used different units). The happiness score in the World Values

Survey also fell, from 3.05 in 1995 to 2.94 in 2007. Unfortunately, these time series data sets are not rich enough to permit direct analysis of the reasons for their trends.

[Table 1 about here]

The question being posed therefore cannot be dismissed out of hand. It is worth exploring further. To do so, it is necessary to review the reasons that have been put forward for the ‘Easterlin paradox’ (Easterlin, 1974, 1995). Easterlin’s own explanation, both in his original paper and subsequently, is that subjective well-being is a positive function of income but a negative function of aspirations, and that aspirations rise along with income, so cancelling out the positive effect of income. Moreover, the reason why aspirations tend to rise with absolute income is that they are influenced by relative income.

Any explanation would have to deal with the obvious fact that nearly everyone, in rich as well as poor countries, if asked, would say they wanted more income, other things being equal; and, if offered more income, would reveal their preference for it. Easterlin’s explanation provides an answer: people want more income because they wish to raise their relative income, or they recognise that the incomes of their comparator groups will rise, or they fail to recognise that their aspirations will rise as well as their income. Thus, people run on a ‘hedonic treadmill’.

A potential criticism of the Easterlin paradox is that people redefine their happiness scores over time. For instance, if people adjust their aspirations to the utility they

normally experience, an improvement in their normal utility would lead them to report no higher happiness than previously, even if they were experiencing higher utility than previously. People are thus on an 'aspirations treadmill' and not a 'hedonic treadmill'. A test of this argument requires separate measures of 'experienced utility' ('net affect', or feelings) and of subjective well-being (life satisfaction). Kahneman and Krueger (2006) present evidence suggesting that measures of net affect show as much adaptation as do measures of life satisfaction, and accordingly reject this criticism. In any case, there is no consensus that there is such a thing as utility independent of aspirations, that is, that the utility which a person experiences can be separated from their perception of happiness, however formed.

On the other hand, there is now a considerable literature providing evidence - largely for advanced economies - that happiness is sensitive to relative income (for instance, Frank, 1997; Clark and Oswald, 1998; Frey and Stutzer, 2002; Luttmer, 2004; Di Tella *et al*, 2006; Graham and Felton, 2007; Clark *et al*, 2008). The effect of reference group income is normally negative but a couple of studies have shown it to be positive (Senik, 2004; Kingdon and Knight, 2007). There is also evidence-based research showing that aspirations are important to subjective well-being (Stutzer, 2003; di Tella *et al*, 2003; di Tella *et al*, 2007; Easterlin, 2004). The research provides the justification for examining the effect of economic growth on happiness within the framework of Easterlin's explanation for his paradox.

2.2 Survey, data and method

The data used in this paper come from the national household survey, relating to 2002, of the China Household Income Project (CHIP). This is the third CHIP cross-section national household survey, containing rich socioeconomic information. This and the previous two surveys (1988 and 1995) were designed by the research team, with hypotheses in mind, but only the 2002 survey contained questions on subjective well-being.

There were just a couple of subjective well-being questions in the questionnaires for the sub-samples of (registered) urban resident households and rural-urban migrant households, but the questionnaire for rural households contained a specially designed module on subjective well-being. The analysis has to be based on a snapshot picture with no panel element. The paper pioneers the analysis of the question being posed but it can only be a suggestive beginning.

The subjective well-being question that is available for all three sub-samples can be translated as ‘how happy are you nowadays?’ Five answers were offered: very happy, happy, so-so, unhappy, and not at all happy. This forms the dependent variable in much of the analysis. It was treated either as an ordinal or as a cardinal measure, involving either ordered probit or OLS estimation. In line with the methodological study by Ferrer-I-Carbonnel and Frijters (2004), we found no substantive differences between the results using the two measures, and accordingly we report only the cardinal results since they are

easier to interpret. The household head, or its main member present, was asked the question; the respondent is identified.

The explanatory variables in the happiness equations are a set of individual, household and community socioeconomic characteristics. We distinguish what we term basic variables, conventional economic variables, comparison variables, insecurity variables, and attitudinal variables. We retain the specifications taken from the four papers but, to simplify, we do not present the tables (available in the summary paper Knight and Gunatilaka, 2011) and generally discuss only those variables of most relevance to our theme.

The coefficients in the happiness functions represent associations and not necessarily the hypothesized causal relationships. They might instead reflect the influence of unobserved variables on both the dependent and the independent variable, or reverse causation. In some cases we shall suggest reasons why the independent variable might have a causal effect on happiness but without establishing causation, either because the variable is not germane to the main argument or because a valid instrument is not available. If the interpretation is important to our story - as in the case of income - we try to isolate the effect of exogenous variation in the independent variable by means of instrumenting.

2.3 Rural happiness

We begin with rural happiness, drawing on the paper which analyses its determinants (Knight *et al.*, 2009). Despite the fact that rural-dwellers have relatively low incomes and

have been left behind in China's economic development, it appears that rural China is not a hotbed of dissatisfaction with life. No less than 62% of the sample reported to be happy or very happy, and only 9% not happy or not at all happy. With very happy having a score of 4, happy 3, so-so 2, unhappy 1, and not at all happy 0, the mean score was 2.67. Nevertheless, there is much variation in happiness scores, and this variation can be well explained by the variables in the survey.

Many of the coefficients in the rural happiness equations are statistically significant, have predictable signs, and display the regularities that are common to many happiness studies around the world. For instance, the age-happiness profile has a U-shaped pattern, and being female, being married, and being in good health all raise happiness. The conventional economic variables affect happiness, in line with basic economic theory, but the contributions of $\ln$ income and net wealth (positive), and of working hours (negative) are weak. We instrumented the income variable in case it was endogenous. The effect was to raise the coefficient on $\ln$ income. We had expected unobserved characteristics, such as a happy disposition, to raise both income and happiness, so producing upward bias in the OLS equation. The downward bias suggested either that aspirations raise income but lower happiness or that there is attenuation bias resulting from measurement error. Even then, the effect of a doubling of income was to raise the happiness score by less than 0.4 points.

Despite the apparent unimportance of income for happiness, 64% of the unhappy gave lack of income as the reason for their unhappiness. A possible explanation for these

discrepant results is that happiness is not only a positive function of income but also a negative function of aspirations, and that the latter can be governed by the income of the reference group. The reference group is likely to be determined by information sets and by social interactions. Most rural people report confining their reference groups to the village: 68% make comparisons with their neighbours or fellow-villagers.

Happiness is sensitive to respondents' perceptions of their household's position in the village income distribution (since only ten households were sampled in each village, it is not possible to use actual instead of perceived position). Five categories are distinguished: income perceived to be much above, above, at, below, and much below the village average, with the middle category being the omitted variable in the dummy variable analysis. The coefficients are large: that of the highest income category is greater than that of the lowest by 1.05 (column 2). The notion of relative deprivation, as developed by sociologists such as Runciman (1966), appears to be relevant. Thus, a rise or fall in income tends to be offset if there is a simultaneous rise or fall in village income. Aspirations appear to adjust to the income of the community, so producing a hedonic treadmill.

By contrast, income inequality in the county (as measured by the Gini coefficient of income per capita of the sampled households) is found to raise happiness. Hirschman's (1973) 'tunnel effect' - the analogy of two lines of cars jammed in a tunnel - might provide the explanation: initially at least, the movement of one line raises expectations

that the other will also move. Thus, county income inequality might serve as a ‘demonstration effect’ of possible progress in the future.

Reference time is relevant as well as reference income: those whose current living standards are considered to be higher than five years ago are happier than those whose living standards are now lower. By comparison with static expectations, those who expect an increase in income over the next five years have a higher current happiness score while those who expect a decrease have a lower score, other things being equal. This is inconsistent with the standard assumption that current utility depends on current consumption and not on expected future consumption; it suggests that people internalize their future states into their current happiness. That being the case, it is consistent with the psychological research findings (for instance, Rabin, 1998) that people tend to base their aspirations on current incomes, and that they are better able to project their income into the future than their aspirations.

There is some more evidence that aspirations are important for happiness. We can distinguish those whose comparators are within and those whose comparators are beyond the village. Relative income within the village appears to be less important, and the coefficients showing the effect of future income on current happiness all have lower values, in the case of those with reference groups beyond the village. This suggests that the aspirations, relative to current income, of villagers with wider horizons are raised by the higher incomes of their comparators.

We introduced a set of attitudinal variables into our happiness functions, in an attempt to explore otherwise hidden influences. The significant coefficients suggest that rural people who derive their satisfaction from life more from personal relationships and less from material goods and services are happier, other things being equal, although reverse causation is also possible.

2.3 Urban happiness

Our discussion of urban happiness draws on another paper (Knight and Gunatilaka, 2010b). Estimating urban happiness equations, we obtained the conventional results for some of the standard variables. The coefficients on the ln income variable were roughly twice the size of the coefficients in the corresponding functions for rural residents: it appears that urban people may be more materialistic, in the sense that either aspirations for or need for income are raised by urban living. When the income variable was instrumented, its coefficients rose but lost their significance.

Our hypothesis is that urban people also experience relative deprivation. We find two indicators that relative income is important for happiness. First, households in each city were grouped into four income per capita quarters. Given the highest quarter as the reference category, the coefficients on the quarters become monotonically more and more negative, and the effect is both statistically significant and substantively important. City mean income per capita across the cities varies sufficiently for this variable not simply to reflect the variation in household incomes. Second, the log of average urban income per capita in the province of residence has a negative coefficient. In the urban case, unlike the

rural case, the effect of surrounding prosperity on aspirations may arouse feelings of relative deprivation.

Those who consider income distribution, both in the nation and in the city, to be fair are happier, *ceteris paribus*, although it is unclear which way causation runs. As with rural-dwellers, expected future income is important to current happiness, possibly because people internalize their future states and they also assume that their aspirations in the future will be the same as their current aspirations.

There was a high rate of retrenchment from state-owned enterprises in the years prior to the survey, and retrenched workers faced great difficulties in finding re-employment. The social security system was in transition from being employer-based to insurance-based, and unemployment benefits were not reliable, so that many unemployed workers received very little. We expected the new uncertainties of urban living to depress happiness. We therefore explored the effect of insecurity on urban-dwellers' happiness.

The experience of current unemployment, and of having been laid off in the past, had a significant negative coefficient, as also did the dummy variable denoting that a worker's employing enterprise made a loss: this would increase the employee's chances of being made redundant. Emil Durkheim's (1897) notion of *anomie* might be relevant. He defined *anomie* as normlessness, when social rules break down and people do not know what to expect of each other. The remarkable economic progress, the rapid creation of markets, the withdrawal of institutional support, and the demise of ideology might have

created a state of *anomie*. The survey does not possess good attitudinal questions to identify *anomie*. However, respondents were asked what they considered to be the most important social problem. Three suggestive pointers are the negative coefficients on corruption, on social polarization, and on immorality in the happiness function.

2.4 A rural-urban comparison

We went on to make a comparison of rural and urban China (Knight and Gunatilaka, 2010a). China has a remarkable rural-urban divide (Knight and Song, 1999): the ratio of urban to rural household income per capita has exceeded 2.0 to 1 throughout the period of economic reform, and actually rose in recent years despite the economic reforms and marketization that partly integrated the rural and urban sectors. In 2002, the year of the survey, the ratio from the survey stood at 3.1 to 1. We would therefore expect a corresponding large divide in subjective well-being. Yet the survey also shows that, when happiness is converted into a cardinal value, the urban score is no higher than the rural score. Indeed, the reported mean urban happiness (2.5) is actually lower than the mean rural happiness (2.7). How can this result be explained?

We first calculated a standard ‘Oaxaca decomposition’ of these mean differences in happiness using those variables in the equations that are identical in the two sub-samples. The difference in income of course simply added to the puzzle. What raised the happiness of rural people was their superior happiness generation function. Unfortunately, much of the work was being done by the difference in the intercept terms, which remained

unexplained. It was necessary to produce an explanation from the separate and non-identical rural and urban happiness functions.

It is possible that in some societies there is a cultural unwillingness to report happiness, or alternatively unhappiness, and that comparisons made across culturally distinct groups might be misleading as a result. Thus a greater willingness of urban than of rural people to report being less than happy might explain our results. We cannot reject the hypothesis, but one piece of evidence points against it: rural migrant households living in the cities reported having lower average happiness than did urban households. A culture of not wishing to admit being unhappy is not observable among households that were recently part of rural society.

Our preferred explanation runs as follows. On the one hand, rural China is not a hotbed of dissatisfaction with life, despite the relative poverty and low socioeconomic status of its people in Chinese society. The basic reasons are that they have limited information sets and narrow reference groups, they expect their income to rise in the future, and they place a high value on personal and community relationships. On the other hand, the relatively low happiness of urban people despite their relatively high income and their expectations of higher income in the future has to do with the nature of the urban society that has emerged in recent years. High aspirations, governed by reference groups, appear to give rise to the relative deprivation that makes for unhappiness. In addition, the greater insecurity associated with redundancy, unemployment and various other urban social ills also makes city-dwellers unhappy.

2.5 Migrant happiness

Rural-urban migration in China has grown remarkably in recent years: the number of rural-urban migrants probably exceeded 130 million in 2002. Many of the migrants are temporarily in the cities but settlement is increasingly permitted. The higher income to be obtained in the city than in the village appears to provide a strong incentive to migrate. The 2002 CHIP survey contained a unique feature – a nationally representative subsample of rural-urban migrants, that is, rural *hukou* households living in the urban areas. Their subjective well-being is analysed in Knight and Gunatilaka (2010a). The average happiness score of these, fairly settled, migrants is lower than that of rural residents. This appears to be inconsistent with the economic theories of rural-urban migration based on utility maximization. We looked at three main possible explanations: in terms of the hardships of urban life that they experience, in terms of self-selection, and in terms of revised aspirations.

We proceeded by estimating migrant happiness functions. Again we found the usual results for several of the basic variables. The coefficient on $\ln$ income per capita is significantly positive but its values indicate that a doubling of income raises the happiness score by only 0.13 points. Although this effect is increased, to 0.35 points, the inference that income level is relatively unimportant is not altered by instrumenting the income variable. The coefficient tends to rise with length of stay, suggesting either that there is a process of self-selection or that migrants may become more materialistic as they lay down deeper urban roots. Although current income is not important to happiness,

expectations of income over the next five years enter powerfully and significantly into the current happiness score. Again, this suggests that anticipated future happiness is absorbed into current happiness and that people are bad at forecasting how their aspirations will change if income changes so that they judge their future happiness on the basis of their current aspirations. An alternative interpretation is that expected future income determines current consumption, in line with the 'permanent income' theory of consumption, and that the relationship would therefore not survive if current income were replaced by current consumption in the happiness function. However, this substitution made no notable difference to the coefficients on expected income; moreover, the same result was found for the other two sub-samples.

When migrants who reported that they were unhappy or not at all happy were asked the reason for their unhappiness, over two-thirds said that their income was too low. This pointer to the possible importance of perceptions of relative deprivation is confirmed by the negative, large and significant coefficient on per capita income of urban residents in the destination province. This effect is stronger for the migrants who had been in the city for more than the median length of time, 7.5 years. The migrants appear to compare their own situations with those of others living in their new surroundings, and increasingly to do so as they become more settled.

China's political economy accords urban *hukou* people a set of rights and privileges that are denied to rural *hukou* people residing in the cities (Knight and Song, 1999, 2005). The migrants are generally 'second class citizens'. When we included various proxies for

these disadvantages in the happiness function, job dissatisfaction, perceptions of discrimination against migrants, and measures of job insecurity had significant negative coefficients. The unsatisfactory conditions in which migrants live and the unpleasant and insecure nature of their employment depress happiness.

We explored the reasons why migrants were on average less happy than peasants by conducting a decomposition analysis using happiness functions with identical determinants for the migrant and rural sub-samples. The objective was to explain the migrant shortfall in mean happiness score, equal to 0.31, distinguishing between the contributions of the different mean values of the explanatory variables and those of their coefficients. The effect of characteristics was actually to increase the difference in mean happiness scores: in particular, the migrants had higher mean income. The explanation was therefore to be found in the superior happiness function of rural people. Here the expectations of future income were crucial. With static income as the reference category, the coefficients of the migrants were uniformly lower, suggesting that migrants had higher income aspirations relative to their current income. This can be expected if aspirations depend on the income of the relevant comparator group. The rural respondents are representative of rural society and so their mean income is close to the mean income of their likely comparator group. But the migrant sub-sample is unrepresentative of urban society: migrants tend to occupy the lower ranges of the urban income distribution. If migrants make comparisons with urban-born residents as well as with other migrants, their aspirations will be high in relation to their current income.

An equivalent exercise was conducted to decompose the difference in mean happiness between migrants and urban-*hukou* residents, the migrant shortfall in happiness score being 0.11. In this case the difference in coefficients makes no net contribution to the explanation. Two differences in mean characteristics can explain all of the difference: the higher mean income of urban residents and their superior position in the urban income distribution. Position in the city income distribution has a powerful effect on happiness, and this is true for both samples. A far higher proportion of migrants than of urban residents fall into the lowest quarter of city households in terms of living standards. If the income of the relevant comparator group influences aspirations, the inferior position of migrants in the city income distribution can thus explain why they appear to have higher aspirations in relation to their current income.

There might be selection on the basis of unobserved characteristics. For instance, migrants might be inherently unhappy people who have unsuccessfully sought happiness through migration. Our test was to use the residual (actual minus predicted) happiness score as a proxy for inherent disposition and to introduce this variable into a probit equation predicting that the migrant reported urban living to yield more happiness than rural living. The coefficient was significantly positive and large, implying that the unobserved characteristic was acquired after migration. Thus, this explanation lacked empirical support.

2.6 Aspiration income and happiness

Our argument has centred on peoples' aspirations in relation to their income, and yet the evidence has been only indirect. We should ideally measure aspirations, or at least aspirations for income. There is a proxy for 'aspiration income' in the rural data set, which is analysed in Knight and Gunatilaka (2012).

Respondents were asked: 'What is the minimum income needed to sustain the household for a year?'. It was possible to justify this as a proxy for income aspirations. The strategy was first to analyse its determinants and then to include income aspirations as an additional argument in the happiness functions for the rural sample that had previously been estimated.

We estimated the determinants of aspiration income, with log of household income need as the dependent variable. Among the demographic and physiological determinants of income need, good health and satisfaction with the village (both reducing the need for protecting health), and size and composition of the household are important, and the age, sex, and marital status of the respondent are also relevant. The equations contain several variables that might influence aspirations for income. In particular, the coefficient on log of household income is both positive and significant. The coefficient is 0.19 (OLS) and 0.57 (IV), that is, a doubling of actual income increases the perceived minimum income by 13% or 39% respectively. Years of education also has a significantly positive coefficient: the more education the respondent had received, the higher the income needed. With static living standard as the base category, those whose current living

standard is worse than five years ago have a significantly higher aspiration for income. By contrast, financial assets may have a negative effect, that is, more wealth appears to provide security rather than to raise aspirations. Those whose main reference group is outside the village have higher aspiration income, as do households whose income is below their village's average household income.

At the second stage, we added the aspiration income variable to the function estimating happiness, again converted into a cardinal score. Some equations had ln per capita income need as the only aspiration variable and others had a full list of aspiration variables. When other variables that are likely to represent aspirations are introduced as well as minimum income need, they generally have significant coefficients. However, our particular interest here lies in aspiration income. As expected, the coefficient on log of household income per capita is significantly positive in the OLS specifications, with an average value of about 0.20; the coefficients are higher but not significantly positive in the, less precise, IV estimates. Log of minimum income needed has a significantly negative coefficient, averaging -0.07 in the OLS estimates; it is more negative but not significant in the IV estimates. Although the conventional statistical tests of good instruments are passed, it is not possible to find a set of instruments which reliably identify the separate effects of the two income variables. Nevertheless, this set of results provides direct, albeit only suggestive, evidence that, other things being equal, having higher aspirations for income can reduce happiness. Moreover, a comparison of the positive and negative coefficients suggests that people run on a partial 'hedonic treadmill'.

3. Does Subjective Well-being Have Normative Value?

It is one thing to explain subjective well-being but another to utilise it in social evaluation. Because income can be readily quantified, most poverty research in developing countries relies on measures of household income per capita as the criterion for social progress in poverty alleviation.³ A broader approach is to include but go beyond household income per capita in order to derive a Human Development Index or a Human Poverty Index.⁴ Sen (1983, 1984, 1990, etc.) has eschewed the metric of utility as a criterion for social evaluation, preferring instead people's 'capabilities' to be or to do things of intrinsic worth. Ultimately, social evaluation requires a value judgement to be made. Accordingly, our discussion is simply about the arguments – philosophical, political, or economic - for choosing one criterion rather than another.

3.1 Other indicators of social progress

Different criteria can produce very different evaluations. This is illustrated by Table 2, which sets out a series of possible alternative measures of social welfare in China and of its change during the period 1995-2007, each an objective rather than subjective measure. The period is chosen to correspond roughly to the period over which measures of subjective well-being, shown in Table 1, are available.

The results of Table 2 stand in sharp contrast to those of Table 1. Household real income per capita grew rapidly in both rural and urban China, as did real GDP per capita (by 6.3, 8.3 and 8.8% per annum respectively). The UNDP's Human Development Index (HDI) is

³ For instance, The World Bank's Dollar-a-day Index, shown in its *World Development Report* (annual).

⁴ For instance, the UNDP's *Human Development Report* (annual).

a measure of achievement in three aspects of well-being: health and longevity, access to knowledge, and standard of living. China's HDI increased over the period, and it rose in international rank (the top country being 1). All three components of the HDI improved, although whereas GDP per capita was unbounded, both life expectation and the educational enrolment ratio were effectively bounded. The Human Poverty Index (HPI) measures deprivation in the same three indicators of well-being. China's HPI fell over the period, improving in all three components. The Gini coefficient of household income per capita rose rapidly in the reform years prior to 1995 but remained fairly constant in the next dozen years, at a high level (0.48 in 2007).

[Table 2 about here]

The World Bank publishes its annual Worldwide Governance Indicators (available online). We see that China does well on 'government effectiveness', and improved over the period, but poorly on 'control of corruption' and 'voice and accountability', and these scores deteriorated. In 2007 China was in the seventh percentile (the bottom country being 1) on 'voice and accountability', which effectively measures the ability of people to monitor and influence government conduct. With these exceptions, the various potential measures of well-being in Table 2 suggest that objectively measured well-being improved over the period in which measured subjective well-being remained constant.

3.2 Criteria for social evaluation

Should the level of happiness, or satisfaction with life, be the criterion for social evaluation? The criterion in terms of happiness might be modified to include not only the level but also the distribution of happiness, for instance, by according a higher weight in the social welfare function to people who, according to their characteristics, are expected to be less happy. The value judgement that happiness should be used in social evaluation has been forcefully made by Layard (2005). Reasoned but cautious support for some use of happiness measures is to be found in Frey and Stutzer (2003), Kahneman and Krueger (2006), and Di Tella and MacCulloch (2006).

This approach is in accordance with traditional welfare economics, which has given utility the status of being uniquely important in assessing well-being (Sen, 2009: 272). The notion of utility, that is, units of happiness, is central to a great deal of normative as well as positive economic analysis, invariably entering the social welfare function that underlies welfare economics and thus policy prescription. Yet the profession has been loth to try to measure happiness directly. Economists normally regard reported perceptions as suspect, and they want economic agents' preferences to be revealed by their actions rather than words. They are willing to value utility at the margin, by assuming that the price of a good, or leisure, measures its marginal utility, but not to measure total utility. For this reason the quantitative economic analysis of subjective well-being is not a mainstream concern.

For the moment, let us accept that happiness is one, or even the only, relevant criterion for social evaluation. Various arguments can be put which suggest that happiness is a poor measure of well-being. At one time it was a common assumption in welfare economics that interpersonal comparisons of utility are intrinsically impossible. However, this assumption is a very restrictive basis for social evaluation. Let us assume that interpersonal comparisons are difficult but not impossible to make, and consider reasons why use of happiness scores might be unreliable.

It has been argued that utility is different from happiness, and that utility is the variable to include in the social welfare function. One version of this argument concerns the role of changing aspirations and adaptation. This raises the question: is there a distinction between reported happiness, or satisfaction with life, and 'true utility' – between subjective and objective notions of utility? If people gradually adjust their aspirations to the utility that they normally experience, they might report no higher happiness from an improvement in life circumstances even if they experience higher utility. In other words, is there an 'aspirations treadmill' rather than a hedonic treadmill? Di Tella and MacCulloch (2006) are sceptical on the grounds that the happiness score is correlated with other variables (such as unemployment, divorce, and brain activity) that they expect to be associated with 'true utility'. Kahneman and Krueger (2006), using the 'day reconstruction method' of recording people's feelings during the day, create a measure of utility ('net affect', or feelings) that is separate from reported life satisfaction. They find that net affect shows no less adaptation than life satisfaction, and so reject the hypothesis.

Some empirical literature on poverty lines attempts to measure ‘income need’ purged of the aspirational response to actual income (for instance, Van Praag and Kaptein, 1973; Goedhart et al., 1977; Colasanto et al., 1984; Pradhan and Ravallion, 2000). Minimum income functions generally show that the minimum income that a household claims to need rises with household income, *ceteris paribus*. The standard practice is to treat the level at which the minimum equals the actual income as the subjective poverty line: below that level minimum income exceeds and above it falls short of actual income. The reason for choosing the intersection rather than the average minimum income is ‘preference drift’, that is, people’s perceived minimum income adjusts to their actual income. It is argued that the true minimum income is normally misperceived and that only at the intersection is the distortion not present. This view carries the value judgement that subjective well-being as an objective of policy against poverty should be measured after eliminating the adjustment of the minimum income that people feel they need to the income that they experience, that is, after standardising for endogenous aspirations.⁵

Another version of the argument is concerned with a positive issue but has normative implications. According to Becker and Raya (2008), happiness is an important determinant of utility but not the only one. If ‘utility’ is defined as whatever set of factors governs individual economic behaviour, then happiness – as it is measured in the surveys – is one but not the only factor; Becker and Raya mention health and longevity as among the others. They regard happiness as an inadequate criterion for individual decision making. A possible counterargument is that these other factors do affect happiness.

⁵ In fact, this measure may not fully eliminate aspirations: insofar as a rise in the income of the community over time raises aspirations generally and thus the minimum income function, the intersection income and thus the poverty line rises.

Indeed, they might be regarded simply as instruments in the indirect or unconscious pursuit of happiness.

It might be argued that happiness scores of individuals cannot be compared because people have in mind different scales: the upper bound ('very happy') might mean one thing to A but another to B (for instance, Veenhoven, 2004). The difference in scales might arise because people have different 'frames of reference', for instance a poor person might never have experienced great happiness (Ravallion and Lokshin, 2005). The argument is less powerful if the comparisons are made within a large sample rather than between two people. In the former case, moreover, Kahneman and Krueger (2006) propose a measure (the percentage of time that the individual spends in an unpleasant state) which depends on an ordinal ranking of feelings and does not require a scaling of subjective responses, and are reassured by the fact that it bears a strong relationship to the categories of life satisfaction. Ravallion (2012) describes an empirical test of the argument that different people use different happiness scales: by embedding 'vignette' rankings in the standard happiness regression for Tajikistan, Beagle et al. (2012) found the 'scale' (or frame-of-reference) bias in coefficients, including that on income, to be negligible. Nevertheless, there is a case for introducing vignette rankings into happiness regressions in China.

The problem of making interpersonal comparisons that might be discounted in a homogeneous sample can be more serious when comparing distinct ways of life even within a single country. Assume that person A living in a poor area, whose frame of

reference is their local community, reports a higher happiness score than B, who has the same individual and household characteristics but lives in a rich area. Can it be claimed that the two individuals have the same ‘true utility or ‘objective welfare’? If A has neither experienced great happiness nor observed it in their community, this can give rise to a scale problem. It might however mean that A, in ignorance, has lower aspirations to happiness than B, and consequently is more satisfied with life. If A’s happiness is increased by community poverty and B’s decreased by community wealth, the sense of relative income does indeed influence their perceived well-being. The difference in reported subjective well-being between A and B does reflect the difference in happiness that they feel. To argue instead that this difference in subjective well-being is irrelevant to social evaluation based on ‘objective utility’ is essentially to make a value judgement.

It is possible that cultural differences are responsible for differences in reported happiness. For instance, in some cultures happiness might be overstated because happiness is positively valued, whereas in others there might be understatement because it is regarded as immodest or as tempting fate to do otherwise. Alternatively, cultural differences might indeed produce different levels of happiness that enter a social welfare function based on subjective well-being. To give examples, the unobserved presence of beneficial social networks or of high degrees of trust may be responsible for promoting happiness in some cultures. There is a problem for social evaluation if cultural differences give rise to differences in scales, but not if they simply reflect unobserved determinants of subjective well-being.

Sen (1983, 1984, 1990) went so far as to reject entirely the metric of utility for evaluative purposes. Instead, he favoured the notion of capabilities and functionings – the capabilities of people to be and to do things of intrinsic worth. His criticism of the utility approach is that people adjust to their circumstances and to adjust their aspirations to what is feasible.

“The more blatant forms of inequality and exploitation survive in the world by making allies of the deprived and exploited. The underdog bears the burden so well that he or she overlooks the burden itself. Discontent is replaced by acceptance... suffering and anger by cheerful endurance.” (Sen, 1984: 308-9).

“In situations of longstanding deprivation the victims... very often make great effort to take pleasure in small mercies and cut down personal desires to modest – ‘realistic’ – proportions. The person’s deprivation, then, may not at all show up in the metrics of pleasure, desire fulfilment, etc, even though he or she might be quite unable to be adequately nourished, decently clothed, minimally educated and so on (Sen, 1990: 45).

In other words, human beings have an elastic capacity to make the best of a bad situation, and that capacity should not enter the social welfare function. The capabilities which Sen has in mind involve both physical social functionings. Physical functionings correspond to meeting ‘basic needs’, such as the capability to be fed, housed and sheltered, and good health and basic education. Social functionings involve the capability to live well in

society, to be accepted as a member of it, and to avoid social shame. This is likely to require that a person's income is not relatively low.

The capabilities approach is also open to criticism. It does not offer a practical criterion for evaluating the various capabilities to function nor does it seek an aggregation of the social values of the separate capabilities. It might be argued instead that it is defensible to place value on individual freedom and thus on each individual's expressed views about their subjective well-being. Moreover, the objective of alleviating subjectively felt misery and raising people's sense of well-being is a value judgement that is widely held. The average level of subjective well-being might thus be viewed as the people's democratic expression of the society's well-being.

Sen (2009: 269-90) appeared to revise his approach to social evaluation - arguing that happiness is relevant, but not sufficient, for judging well-being. Other criteria should enter and should not be subsidiary to the happiness criterion. As in the American Declaration of Independence, people should be accorded the right, for instance, to life and liberty as well as to the pursuit of happiness. In Sen's judgement, success in the pursuit of other objectives, such as health, longevity and knowledge, should not be judged solely by the effect that it has on happiness. For instance, the personal well-being of a Gandhi or Mandela is sacrificed for the cause of achieving political objectives. A potential counterargument is that, bearing in mind the risks involved, chosen acts of altruism are in themselves evidence that they are expected to bring happiness to the altruist, and that the alternative of failing to pursue keenly felt political objectives is

expected to cause even lower happiness. Thus, people reveal their preference for greater, directly- or indirectly-achieved, happiness when they make choices between alternatives.

Even if this counterargument is accepted, there are reasons to treat subjective well-being on its own as an inadequate criterion for social evaluation. A good example comes directly from our results above. Economic policy in China is heavily biased in favour of urban people and against rural people, an outcome to be explained in terms of the underlying political economy and the greater political threat from urban people (for instance, Knight and Song, 1999). Does the higher mean happiness score of rural than of urban people mean that the current policy discrimination against them is justified?

Here the perspective in Sen (2009), that happiness is one criterion but not the only one for social evaluation, appears apposite. The policy bias which has maintained and even increased the urban/rural income ratio is inequitable. If we are willing to judge that the advancement of subjective well-being is socially valuable, it seems reasonable also to make the further value judgement that every citizen, irrespective of place of birth or residence, has a right to be treated equally in respect of such public services as education, social security, and health care. Two conclusions follow: the state's implicit social welfare function which justifies the discriminatory policies ought not to be given support by our happiness findings; and policies to raise happiness should be conditioned on fairness in the state's treatment of rural-dwellers in relation to urban-dwellers.

3.3 Subjective well-being as an encompassing concept

There are at least three possible concepts in relation to the objective of alleviating poverty. They can be termed ‘income poverty’, ‘capabilities poverty’ and, now, ‘subjective well-being poverty’. Kingdon and Knight (2006) estimated subjective well-being functions⁶ for South Africa in which the arguments were measures of income and of people’s capabilities. The objective was to provide an encompassing framework within which the estimated coefficients on income and on various capabilities would yield a set of weights that were determined by the average of individual preferences.

We adopt the same approach. Tables 3 and 4 report happiness functions for both rural and urban China, in which the dependent variable is the cardinal value of the happiness score and the independent variables are, in addition to household income per capita, indicators of capabilities selected from such plausible variables as are available in the rural and urban sub-samples of the CHIP national household survey for 2002. We categorize the independent variables as economic, physical functioning, social functioning, and conditioning variables. The exercise is simply illustrative: no attempt is made to establish that the relationships are causal.

[Table 3 about here]

Consider the urban happiness function (Table 3). The economic variables (income and wealth) have positive coefficients but they are not substantial. In the full equation

⁶ In fact, they estimated ‘ill-being’ functions as their dependent variable was ‘subjective well-being poverty’.

(column 2), for instance, a doubling of income raises the happiness score (mean value 2.51, standard deviation 0.84) by 0.10 points. For physical functionings we have proxies for health, knowledge, and shelter. Reporting good (or very good) health (as opposed to three lower categories) raises the happiness score by 0.21 in the full equation. The coefficient on years of education is negligible: any effect of education on happiness comes through its effect on income. House size per capita has only a very weak effect.

It is difficult to decide the best indicators of the capability to function well in a society. Adam Smith (1776: 469-71), for instance, illustrated the need to avoid shame in society as the wearing of leather shoes and linen shirts. We see the great importance of relative income: being in the bottom quarter rather than the top quarter of the city income distribution implies having a happiness score lower by 0.97. Being laid off also has a strong effect, even standardizing for income. The perception that the city income distribution is fair (a cardinal variable created from a Likert scale) raises happiness. Social functionings appear to be important for happiness.

Table 4 reports the factors associated with rural happiness. The richer rural data set yields more proxies for physical and social functionings. Income and wealth both raise happiness, but income is even less important than in urban China: a doubling of income raises happiness score (mean value 2.74, standard deviation 0.85) by 0.06 points (column 2). Among the physical functionings, good health has a powerful effect (coefficient 0.40 in the full equation), and education is again irrelevant. Our attempt to find a good proxy for the quality of shelter was not successful. For instance, having a house built of

permanent materials is positive but not significantly so. The quantity and quality of local public goods is important: village collective expenditure per capita and satisfaction with the village primary school and with the village clinic all have significantly positive effects on happiness.

[Table 4 about here]

Among the social functionings, relative household income per capita is again important for happiness: the difference between reporting being very much above and very much below the village average is no less than 1.35 points. Similarly, proxies for social cohesion (the degree of harmony among villagers [a cardinal value created from a Likert scale], and whether the village cadre acts as a spokesman for the villagers) raise happiness. The coefficient on possession of a phone (improving social interaction) is also significantly positive. Even in a society as poor as rural China's, the capability to function well in society appears to be important for subjective well-being.

The coefficients in these OLS equations show associations and not necessarily causal relationships. For instance, the possession of a phone might simply reflect unobserved personal characteristics which might themselves promote social functioning. Establishing causation would require a separate study. A further problem with the weights derived above is that they are relevant to the sample as a whole and might therefore be inappropriate for policy against poverty. Nevertheless, this illustrative analysis is sufficient to show how the various possible criteria for social evaluation – income,

physical functioning (or basic needs), and social functioning – can be encompassed by the criterion of subjective well-being. Of course, this way of incorporating the other criteria requires making the value judgement that reported average subjective well-being is sufficient for social evaluation.

4. Conclusion

We have addressed two main questions, one positive and the other normative. Does our analysis of subjective well-being in China explain why the national happiness score has failed to rise in recent years despite China's great economic progress? Do the measures of subjective well-being in China provide criteria for social evaluation? We are now in a position to draw conclusions.

Our main results can be summarised as follows.

1. In all three data sets – the rural, the urban, and the migrant - current income has a positive and significant effect on happiness. However, in none of these sub-samples is the coefficient on current income substantively large. Clearly, there are other, more important, determinants of individual subjective well-being.
2. This pure effect of individual income level is further weakened by the fact that economic growth will tend to raise incomes generally. Insofar, as the income of the reference group rises as well as own income, the decline in relative income reduces individual happiness. As the economy grows, it is important to 'keep up with the Zhous'.

3. The higher the incomes to which people aspire, the lower is their subjective well-being.
4. Aspirations are influenced by peoples' reference groups and reference times. For rural people, the reference group is generally their fellow-villagers, for urban people it is their fellow-citizens within the city, and for rural-urban migrants, it is also other people living in the city, urban as well as rural *hukou* holders. It is not the income of 'any old Zhou' that produces feelings of relative deprivation but the income of the 'Zhou you know' - those who fall into a person's reference group.
5. China's national Gini coefficient of household income per capita rose from 0.39 in 1988 to 0.47 in 2002 (Gustafsson *et al.*, 2008: 19). It is likely that this rising income inequality reduced happiness, but the relationship is complicated by the importance of local reference groups and the possibility of demonstration effects as well as relative deprivation effects.
6. Aspirations for income are much influenced by reference time income, and this is governed mainly by the present. It is current income - both absolute and relative - that mainly determines aspirations for income. However, there appears also to be a 'ratchet effect': previous income can also influence aspirations, so that experience of a past fall in income reduces happiness, other things being equal. In general terms, the analysis highlights the important role that aspirations play in peoples' perceptions of their own well-being.
7. Expectations of future income are important for current happiness. This suggests that a gloomier view of the economy's prospects could be serious for well-being, and maybe even for political stability.

Using this framework of empirical findings, we can see that the changes in the economy and in the society that stem from, or go along with, economic growth are likely to have influenced overall happiness in China. The effects of income growth itself are limited because of the resultant growth in aspirations, this being a function of both own and relative income. The importance of relative income for subjective well-being in all three sub-samples, together with rising income inequality over time, helps to explain the failure of happiness scores to rise with income levels. The new urban insecurities and uncertainties generated by economic reform and marketization have a negative impact on the subjective well-being of the growing number of urban residents. In particular, rural-urban migrants – rapidly expanding in number - suffer both from their second-class status in the cities and from the widening of their reference groups to include the more affluent urban-*hukou* population. By extending the reference groups of rural-dwellers beyond the village, migration can also have the effect of reducing rural happiness. These findings help to explain why mean happiness in China appears not to have risen in recent years.

Easterlin et al (2012) include two time series on mean life satisfaction in China in addition to those discussed above in Table 1, which suggest that the mean happiness score rose somewhat after 2005 after reaching a trough in the period 2000-5.⁷ Their interpretation – that unemployment began to fall and social security provision began to improve – is consistent with our explanation of some of the forces contributing to the earlier decline.

⁷ The life satisfaction score produced by Horizon Research (confined to cities) rose from 3.33 in 2002 to 3.41 in 2010, and that produced by PEW rose monotonically each year from 5.27 to 5.85 over the same period.

An interesting but unexamined hypothesis was raised by Xiaobo Zhang in his discussion of the paper. It is that the rising male-female sex ratio in the young generation has increased expected and actual marriage competition for young men, and that the effect of this on household behaviour and on life outcomes helps to hold down happiness. The 2002 CHIP survey provides scope for testing this hypothesis.

Qualifications are in order. We had to tackle the pervasive problem that happiness functions can generate biased coefficients on account of unobserved heterogeneity. One appropriate remedy – the use of panel data to eliminate the influence of unobserved fixed effects – was not available to us. It was therefore necessary to instrument income (and, later, aspiration income) in our cross-section analysis. However, even when the conventional statistical requirements for good instruments were met, there remained the further test of their theoretical and contextual plausibility, and this was a matter of debate and judgement.

Our analysis of the relationship between economic growth and happiness in China is only a beginning. Progress – in China as in many other countries – awaits a ‘second generation’ of household panels which contain modules on subjective well-being designed with research questions in mind. A start could have been made in the CHIP household survey of 2007, which was the first year of an annual panel. However, their political sensitivity required that questions on happiness be excluded from the surveys of

rural and of urban resident households – the implementation of which required the cooperation of the National Bureau of Statistics.

Our analysis raises, and also illuminates, some basic normative and policy issues. To what extent should subjective well-being enter into the social welfare function, and be accepted as one of the criteria for policy making? There is no right answer: ultimately, a value judgement is required. Our discussion was an attempt to set out the case for and against making this, and alternative, value judgements.

There is a case, grounded in economic theory but not incontestably so, for using subjective well-being as one of the criteria. The case has been criticised in several ways: that subjective well-being is misleadingly tainted by aspirations and adaptation, that happiness is not the only objective which guides people's actions, that reports of subjective well-being are unreliable because they are biased by use of different happiness scales. However, each of these arguments is in turn open to debate. Even if the case for including subjective well-being in the social welfare function is accepted, it remains possible that other criteria should be included as well.

The alternative, capabilities, approach to social evaluation discards the use of subjective well-being on account of the adaptation of the deprived to their deprivation. Instead it includes in the social welfare function the achievement of certain capabilities to function, that is, to be and to do things of intrinsic worth. However, this approach is also open to

criticism, requiring as it does an externally imposed valuation of the various capabilities, not based on clear criteria for selection or aggregation.

We made an attempt to present subjective well-being as an encompassing concept by including income, physical functionings and social functionings as inputs in the happiness equation. The estimated coefficients of the equation can be viewed as the weights that people attach to the contributions that these inputs make to their welfare, averaged over society as a whole. This approach is also open to criticism: the subjective values that people on average attach to the variables in the equation may not be an acceptable reflection of their social values, either because aspirations and adaptation are not tethered or because the social value is not well measured by the effect on happiness.

Powerful and plausible regularities were observed in the positive analysis. Thus, in making the necessary value judgement, it is difficult simply to dismiss as irrelevant peoples' reported perceptions of their own welfare. Our own position is that, provided it is guided by knowledge of the determinants of subjective well-being, there can be a case for including subjective well-being in the social welfare function, but also for including other criteria as well, such as concern for individual freedoms and social fairness. Subjective well-being can be appropriate not only for judging social progress but also for making policy choices.

It is government which effectively makes the value judgements about the implicit social welfare function that guides policy. There are some difficult policy trade-offs between the

gains from economic growth in China, and the losses from the socioeconomic changes accompanying growth, and these have not always been sufficiently recognised. For over a quarter of a century China's reformist policy-makers gave the highest priority to the achievement of rapid economic growth. In the last few years, however, the balance of policy objectives has moved somewhat in the direction of creating a 'Harmonious Society', for instance, showing greater concern for reducing income inequality and for improving social security. That move can be seen as a response to the issues that underlie this paper. Whether it is because of their threat to social stability and thus to continued Communist Party rule or for other reasons, the forces that influence subjective well-being appear to have entered the government's social welfare function.

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TABLE 1. *Mean life satisfaction or happiness in China over time*

	about 1995	about 2000	about 2005
<i>Life satisfaction score</i>			
Gallup survey (1-4 scale)	2.82	2.78	2.67
Year:	1997	1999	2004
Asiabarometer survey (1-5 scale)		3.73	3.68
Year:		2003	2006
World Values survey (1-10 scale)	6.83	6.53	6.76
Year	1995	2001	2007
<i>Happiness score</i>			
World Values survey (1-5 scale)	3.05	2.87	2.94
Year:	1995	2001	2007

Sources: Easterlin and Sawangfa (2010); World Values Survey, data for China. *Notes:* An earlier World Values survey is excluded because it was confined to the urban population. The 1995 World Values survey covered central China (two-thirds of the national population) and the 2001 and 2007 surveys were intended to be nationally representative. The 1994 Gallup survey is excluded because it had five rather than four response categories.

TABLE 2. *Measures of socioeconomic progress in China, 1995-2007*

	1995	2007	Change ‘95-07
Rural household real income per capita	100	208	6.3% p.a.
Urban household real income per capita	100	259	8.3% p.a.
Real GDP per capita	100	276	8.8% p.a.
Human Development Index			
value	0.556	0.772	0.216
rank (percentile)	61	51	-10
<i>of which:</i>			
Life expectancy			
years	69.2	72.9	3.7
index	0.74	0.80	0.06
Combined gross enrolment rate			
percentage	64	69	5
index	0.76	0.85	0.09
Real GDP per capita			
PPP US\$ (000)	2.935	5.383	5.2% p.a.
index	0.46	0.61	0.15
Human Poverty Index			
value	17.1	7.7	-9.4
<i>of which:</i>			
Adult illiteracy rate %	18.5	6.7	-11.8
Population below real \$1 a day %	29.4	15.9	-13.5
Gini coefficient of household income per capita			
rural	0.364	0.363	-0.001
urban	0.339	0.338	-0.001
national	0.469	0.481	0.016
Worldwide Governance Indicators			
<i>of which:</i>			
Government effectiveness			
score	-0.30	+0.18	+0.48
percentile	45	63	18
Control of corruption			
score	-0.25	-0.59	-0.34
percentile	43	33	-10
voice and accountability			
score	-0.12	-1.70	-1.58
percentile	12	5	-7

Notes: The Worldwide Governance Indicators relate to 1996 (their first year), not 1995.

Sources: Household income per capita data: NBS (2009); human development data: UNDP (2009, 1998); Gini coefficient: Knight and Ding (2012), from the China Household Income Project (CHIP) surveys, 1995, 2007; worldwide governance indicators: World Bank <info.worldbank.org/governance/wgi/index.asp>.

TABLE 3. *Subjective well-being as an encompassing concept: happiness functions in urban China, 2002*

	Mean or proportion	Basic model	Full model
		(1)	(2)
<i>Economic variables</i>			
Log of per capita household income 2002 (Yuan)	8.85	0.2501***	0.1394***
Log of total net wealth per capita	1.68	0.1064***	0.0334
<i>Physical functionings</i>			
In good health	0.61	0.2670***	0.2120***
Education (years)	10.85	0.0007	-0.0026
House area per capita	18.45	0.0048***	0.0020
<i>Social functionings</i>			
Extent of fairness, income distribution in city	0.82		0.1818***
Living standard in second highest quarter in city	0.33		-0.1593
Living standard in third highest quarter in city	0.56		-0.4461***
Living standard in lowest quarter in city	0.10		-0.9671***
Currently laid off	0.04	-0.2613***	-0.1756**
<i>Conditioning variables</i>			
Male	0.45	-0.0607***	-0.0612***
Age	46.83	-0.0462***	-0.0269***
Age squared	2321.24	0.0005***	0.0003***
Married	0.94	0.1591**	0.0714
Divorced	0.01	-0.3250**	-0.3669**
Widowed	0.03	-0.0999	-0.1435
Intercept		0.7422**	1.8365***
		0.2501***	0.1394***
R-squared		0.1064***	0.0334
Number of observations		5805	5805

Notes: The dependent variable is the happiness score with 'very happy 4, happy 3, so-so 2, not happy 1' and not at all happy 0 (mean 2.51, standard deviation 0.84).; ***, **, and* denote statistical significance at the 1, 5 and 10% level respectively. Independent variables with cardinal values assigned to qualitative assessments so that greater intensity is represented by a higher value are: in good health, Extent of fairness, income distribution in city. The omitted categories in the dummy variable analysis are: respondent does not have good health, is female, and single; household's living standard is in highest quarter of city. The models have been clustered at city level for robust standard errors.

TABLE 4. *Subjective well-being as an encompassing concept: happiness functions in rural China, 2002*

	Mean or proportion	Basic model	Full model
		(1)	(2)
<i>Economic variables</i>			
Log of per capita household income 2002 (Yuan)	7.68	0.1786***	0.0866***
Log of total net wealth per capita	2.71	0.0356**	0.0369***
<i>Physical functionings</i>			
In good health	0.77	0.5072***	0.3989***
Education (years)	7.29	0.0056	-0.0027
House of permanent materials	0.84	0.0702	0.0271
Log of village collective expenditure per capita	8.1	0.0389***	0.0359***
Satisfied with primary school in village	2.44	0.0924***	0.0548***
Satisfied with clinic in village	2.42	0.0875***	0.0605***
<i>Social functionings</i>			
Household income much above village average	0.02		0.3121***
Household income above village average	0.21		0.1742***
Household income below village average	0.18		-0.3931***
Household income much below village average	0.02		-1.0417***
Phone	0.45		0.0606**
Harmony among villagers	2.87		0.1314***
Village cadre acts as spokesman	2.69		0.0611***
<i>Conditioning variables</i>			
Male	0.78	-0.0454	-0.0396
Age	45.24	-0.0026	-0.007
Age squared	2152.62	0.0001	0.0001
Married	0.96	-0.0642	-0.038
Divorced	0.00	-0.8202***	-0.7728***
Widowed	0.02	-0.3932**	-0.3121**
Intercept		0.0620	0.7053***
R-squared		0.167	0.263
Number of observations		5423	5423

Notes: The dependent variable is happiness score, with very happy =4, happy =3, so-so = 2, not happy = 1, and not at all happy = 0 (mean 2.74, standard deviation 0.85). ***, **, and * denote statistical significance at the 1, 5 and 10% level respectively. Independent variables with cardinal values assigned to qualitative assessments so that greater intensity is represented by a higher value are: satisfied with primary school in village, satisfied with clinic in village,

harmony among villagers, village cadre acts as a spokesman for the village. The omitted categories in the dummy variable analysis are: household does not have a phone, has income p.c. at village average, respondent is in good health, is male, and single. The following variables were tried but excluded because they were not significant in either equation – physical functionings: house area p.c., household experienced a natural disaster in 2002, village has a junior middle school, has a medical insurance scheme, has an age insurance scheme; social functionings: respondent has lived out of village, number of gifts made by household, number of dinners with relatives or friends. The models have been clustered at city level for robust standard errors.