Journal of Happiness Studies (2024) 25:92
https://doi.org/10.1007/s10902-024-00724-z

RESEARCH PAPER

The Quality of Society and Happiness: Fairness, Trust, and Community in China

John Knight[1] · **Ramani Gunatilaka**[2]

Accepted: 12 December 2023

Abstract
Adam Smith argued that 'moral sentiments' – the norms, customs and conventions of society - provide a benefit, improving both economic efficiency and well-being. Three important moral sentiments are a perception of fairness, a willingness to trust people, and a sense of community. We analyse representative national socioeconomic surveys of the China Household Income Project (CHIP), containing information that is used to create scores of happiness, fairness, trust, and community for each respondent. Three main hypotheses are tested: that higher reported fairness, higher reported trust, and greater sense of community each raises happiness. Evidence is found for each hypothesis, as well as for related questions, Attempts are made to ascertain whether the associations are causal; some support is found. The evidence is generally consistent with the broader argument that an informal social contract constrains antisocial behaviour and improves wellbeing in ways little studied by economists.

Keywords China · Happiness · Fairness · Trust · Community · Societal quality

JEL Classification A13 · D03 · D69

1 Introduction

Adam Smith is famous for his insight in *The Wealth of Nations* that the market – through its 'invisible hand' - ensures that the self-interested pursuit of profit benefits society (Smith, 1776). It is less well-known that he also argued in *The Theory of Moral Sentiments* that 'moral sentiments', as opposed to market sentiments, provide a benefit to society (Smith,

✉ John Knight
john.knight@economics.ox.ac.uk

Ramani Gunatilaka
rsgunatilaka@yahoo.com.au

[1] Department of Economics, University of Oxford, Oxford, United Kingdom

[2] Faculty of Graduate Studies, University of Colombo, Colombo, Sri Lanka

Published online: 31 August 2024

1759). He defined moral sentiments as the norms which reflect the mutual sympathy of sentiments that are developed in society and create habits and principles of behaviour. They are embedded in tradition, institutions, culture, and trust. They emanate, he argued, from a human need to be well thought of and well regarded. Mark Carney (Carney, 2020) in his Reith Lectures makes a distinction between market and moral sentiments, and argues that in recent years, market sentiments, or market values, have become more important and have eroded moral sentiments, or moral values, to the detriment of well-being in society. We take our cue from these ideas.

The rapidly expanding research on the economics of happiness suggests a growing recognition that the promotion of people's subjective well-being should be an important – some would say, the overriding - ultimate objective of government policy. There is accumulating evidence from happiness functions estimated within countries, across countries, and over time that happiness can be well explained by economic, social and demographic variables. It is well established in the literature that happiness is influenced by many variables besides the economic variables that normally enter economists' analyses of utility functions.

One such potential influence that deserves further research is the 'quality of society'. By that we mean, in part, the extent to which people can interact reliably and fruitfully with other people, and thus the degree of perceived trust in society. We also mean, in part, the extent to which people feel that their position relative to other people is justifiable, and thus the degree of perceived fairness in society. The quality of society can also be influenced by the extent to which people interact and cooperate beneficially with each other in the community.

History, culture, institutions, social norms, sense of identity, and, in particular, the framework of laws, govern the extent to which trust can be found in society, spanning both economic and personal relationships. Lack of trust is likely to increase the amount of insecurity that people feel and to curb actions and initiatives that would otherwise be in their interests, and so to restrict their well-being. The same variables and, in particular, state institutions and government policies, influence the extent to which people feel that life in their society, community, or economy is fair. Inequality of people's market value - opportunities, resources, income, or treatment, for which no justification seems possible - can give rise to perceptions of relative deprivation. Recognition of unfairness is likely to make people less happy.

It can be argued that feeling part of a community also contributes to the quality of society. That community might be broad, even national, or narrow, corresponding to a person's social network and its strength. Both forms of community can raise a person's perception of well-being by providing fellow-feeling and cooperation, a sense of identity and of belonging, self-esteem, and prospective support in adversity. Putnam (2000) analysed 'social capital', which he defined as social networks that give rise to norms of reciprocity and trust. He distinguished two forms: 'bridging' social capital (inclusive and outward-looking) and 'bonding' social capital (exclusive and inward-looking). The former helps people to 'get ahead' and the latter helps them to 'get by'. The distinctive, well-known, Chinese form of social capital is *guanxi*, i.e. bonds among relatives and friends. Whereas bonding social capital promotes reciprocity and trust within the group, it might do nothing for, or might even deter, such norms with people outside the group. By contrast, bridging social capital is likely to promote reciprocity and trust generally in society. Possession of either form of social capital can be expected to enhance the happiness of an individual.

The various concepts that we introduce are difficult to define, but that is not important. What is important is that the analysis of variables proxying these concepts, as defined and measured in the data sets, should estimate their predictable effects on people's happiness, as defined and measured.

Our objective in this paper is to argue that there are certain societal characteristics that influence people's happiness. Combined, they measure 'the quality of society'. Our data sets enable us to analyse three such characteristics in China: perception of fairness, degree of trust, and (in village China) sense and strength of community. These characteristics correspond well to Adam Smith's moral sentiments. A contribution of the paper is to emphasise, more than is generally the case in the happiness literature, that the nature of society can be important for people's happiness.

These results are likely to apply more widely than in China, as evidenced by the introductory literature surveys in each of the relevant sections. Nevertheless, China is itself of interest: representing a fifth of humanity; having an evolving society that is richer, economically freer, and more materialistic, than in the past; experiencing rising, and now high, inequality of income and wealth; but retaining traditional elements of social capital; and possessing sharp differences in the way of life between cities and villages. Another contribution of the paper is to extend to China research on the effects of particular societal characteristics on people's happiness, by means of high quality data sets.

Section 2 describes our data, derived from the two national household surveys of the China Household Income Project, CHIP 2002 and CHIP 2013. Sections 3 and 4 estimate happiness functions to analyse the effect on happiness of fairness and trust respectively, distinguishing rural and urban China. Section 5 does the same for sense of village community. Section 6 is concerned to identify the causal effects of fairness, trust, and community on happiness. Section 7 concludes and reflects.

2 The Data

We make use of the CHIP, a nationally representative household-based survey conducted every five or seven years and designed by an international team of researchers including one of the authors. Our main source of data will be the CHIP 2013 survey, drawing where necessary on the CHIP 2002 survey in various places. The CHIP 2002 survey contained a special module on happiness, which produced a flow of papers. The CHIP 2013 survey questionnaires contain many of the same questions that are relevant to our analysis of the relationships between fairness and happiness, and between trust and happiness. The survey contains rich information on the sampled individuals, households, and communities. These are not only the conventional economic data but also social data and attitudinal data. The rural and urban questionnaires differ because of the economic and administrative differences and different ways of life in rural and urban China. For instance, rural people are at a great disadvantage in their income levels, in the degree of state support and social protection, and in the provision of public services. Accordingly, we analyse rural and urban China separately.

Each sample was drawn from a representative sub-sample of the National Bureau of Statistics (NBS) nationally representative sample for its annual household survey. In addition to taking information directly from the logbooks of each house compiled by the NBS,

further information was gathered for each household using the usual NBS interviewers, much of it with research hypotheses in mind.

Both the rural and urban questionnaires contain a question that can be converted into a measure of happiness, in the sense of life satisfaction. It can be translated as: how happy are you nowadays? The choice of answers offered was: very happy, happy, so-so, not happy, not at all happy, or hard to say. Answers to this question form the dependent variable in much of the analysis. They can be converted into a cardinal variable ranging from 4 (very happy) to 0 (not at all happy); the small percentage that reported 'hard to say' is excluded from the analysis. An alternative variable - how satisfied with life are you? – was tried as well with data from the 2002 surveys. However, the functions produced almost identical results for life satisfaction and for happiness 'nowadays'. In this paper, as in several of our previous publications, we base the dependent variable on the happiness question. It embodies the concept that we wish to investigate. The happiness functions were estimated using OLS rather than ordered probit and logit specifications of the dependent variable because the results were very similar and the OLS (and IV) specifications have presentational advantages.

A total of 10,600 rural households were surveyed in 2013. The rural sample covered 14 provinces. Within each province on average 14.3 counties were sampled, and within each county on average 5.9 villages, each containing roughly ten observation households.[1] Rural respondents were also classified according to their answers to the question: how does your living standard compare with the average for your village: much below average, below average, average, above average, or much above average? This question generates a measure of 'comparator income' or 'relative income', i.e. own income relative to that of other households in the village.

Rural interviewees were asked about the people with whom they made comparisons: neighbours, relatives, people in the village, people in the township, people in the county, rural people, urban people, all of China? The answers indicate the nature and breadth of reference groups.

The same 14 provinces were covered in the 2013 urban sample, which contained 12,700 households, spread over 423 urban areas (towns, cities, and municipal districts).[2] The average number of observations in an urban area was 30 households. The urban questionnaire contained the same or very similar key questions as did the rural sample. The question intended to establish the main reference group distinguished people who were relatives or neighbours, in the same community or 'street', in the same district, in urban areas, in rural areas, in China as a whole.

The CHIP 2002 and/or 2013 data sets contain variables that are direct measures of fairness, trust, and community, or variables that are assumed to be proxies for them. Although trust and fairness are different concepts, there is some overlap. Accordingly, a couple of variables appear in the happiness equations testing trust and also fairness. The survey questions on fairness, trust, and community to be utilised in the analysis will be explained in the sub-sections setting out our hypotheses and their testing.

[1] However, 7,277 rural households were analysed when villages with less than nine sampled households and observations with missing values were excluded.

[2] However, the number was reduced to 5,542 households when urban areas were excluded if less than nine households were sampled and when observations with missing values were omitted. The average number of households in these remaining areas was 37.

3 Happiness Functions: The Effect of Fairness

3.1 Literature on Fairness and Happiness

There are two approaches to the concept and measurement of fairness. One is to rely on people's own perceptions of fairness or unfairness. These can be based on household surveys, for instance, by exploring reported attitudes and their effects on subjective well-being. The other is to follow 'the idea of justice' that is developed by Sen in his book of the same title (Sen, 2009). His objective was to provide practical reasoning about how to remedy injustice, which he equated with unfairness. In order to identify unfairness, he adopted the appeal of Smith (1759) to an 'impartial spectator' so as to avoid the influence of vested interests and entrenched attitudes. In this paper we make use of the perceptions criterion because we choose to place weight on people's subjective well-being, and because the CHIP surveys provide a ready measure of perceived fairness.

Of the few socioeconomic surveys which enquire about perceived fairness, most ask about the fairness of income inequality. We concentrate on these. Economists tend to examine income inequality, often with the presumption that inequality is too high. There is little discussion in the economics literature of the distinction between 'fair' and 'unfair' inequality. This lack is probably related to the difficulties of conceptualising and measuring fair and unfair inequality. However, reflecting the distinction that ordinary people often have in mind, there is a groundswell towards making that distinction in research on inequality. For instance, Deaton (2019), in setting out his thoughts at the start of the five-year research programme entitled 'Inequality in the Twenty-first Century' that he was to lead, observed: 'It is not inequality itself that is hurting people, but the mechanisms of enrichment'; and elsewhere, 'Inequality is not the same thing as unfairness, and to my mind it is unfairness which has incited so much turmoil in the world today'.

Several studies have found that happiness depends on whether people perceive inequality to be fair or unfair (Cappelli, 2014; Huang, 2019; Oishi et al., 2012). The research that is closet to our own is Bjornskov et al. (2013), which analysed the *World Values Survey* covering 80 countries over the years 1990–2008, employing three measures of perceived fairness in society. Although the thrust of the paper was elsewhere, they found that higher inequality reduced happiness, that higher perceived fairness raised happiness, and that when inequality was interacted with fairness, higher perceived fairness weakened the effect of inequality on happiness.

Turning to China: when in 1978 China embarked on economic reform it had too much equality. The egalitarian arrangements in the communes and the factories stifled incentives and produced inefficiency. The new Chinese leadership recognised that greater income inequality was necessary to provide the incentives essential to an economy that was in the process of making the transition from a centrally planned to a market-driven system. Income inequality increased rapidly over the reform period as people acquired incentives for using talent, for effort, saving, investment in physical capital and in human capital, and risk-taking. However, some of the new inequalities cannot be justified by the criterion of economic efficiency. They might be better explained in terms of institutional segmentation of labour, rent-seeking, corruption, and abuse of power. A sociological survey conducted in 2004 examined Chinese people's attitudes to the degree of inequality and what inequality they regarded as fair (Whyte, 2010). It was found that Chinese people were not averse to

inequality based on merit, effort, or risk-taking. Indeed, such inequality appeared to offer people incentives or other opportunities for improving their economic positions. By contrast, inequality based on unfairness in treatment or in access to opportunities was generally disliked.

3.2 Hypotheses and Hypothesis Tests on Fairness and Happiness

The 2013 CHIP surveys contain no direct measures of fairness. However, it is possible instead to use the 2002 CHIP data set, which generates a basic equation that is very similar to the 2013 basic equation and includes more attitudinal variables that might provide better proxies for fairness.

Fairness can be regarded as fairness in society generally and fairness of income inequality. The latter can be explored using the 2002 urban questionnaire, which contains the direct questions: do you think the current income distribution nationwide is fair; do you think the current distribution in your city is fair? The permitted replies are: very fair, fair, not fair, not at all fair, no reply. Discarding the last one, we have four replies which can be valued from 3 (very fair) to 0 (not at all fair) and can be categorised in the happiness function. Because there are very few observations reporting very fair, the categories fair and very fair are combined. Thus, we analyse three categories: fairness 1 (not at all fair), fairness 2 (unfair), and fairness 3 (fair or very fair). Whether it is fairness in the city or in China as a whole, it is startling that the mean fairness score in both urban and rural samples is low, being between not at all fair and unfair.

The same question is not available in the 2002 rural questionnaire but there are several possible proxies for fairness in broad or narrow society. Three questions might be relevant: are the relations among different village groups harmonious; do village cadres serve as spokesmen for the peasants; do village cadres do well in moderating conflicting interests among villagers? The permitted replies range from very much (or very high), relatively much, so-so, not very much, not at all (and hard to say). As proxies for fairness, the replies range from 4 (very much) down to not at all (0). The three chosen questions are analysed as a combined cardinal total, ranging from 0 to 15, and as categories derived from a combined score. The categories (fairness 1–4) correspond to scores 0–3, 4–7, 8–11, and 12–15 respectively.

Although it is plausible that perceived fairness will have a causal effect on happiness, it is possible that the fairness variable is endogenous. For instance, a respondent's personality might determine both happiness and perceptions of fairness: happy people might view life through rose-tinted glasses and report a greater sense of fairness. Unfortunately, there are no potential instrumental variables in the data set – variables which are associated with fairness but cannot plausibly affect happiness. However, it is possible to test for endogeneity using the method suggested by Lewbel (2012), which relies on instruments based on heteroscedasticity of errors. This analysis of all three test variables is conducted in Sect. 6.

Whereas our first hypothesis is that perceived fairness raises happiness, our second hypothesis is that perceived fairness ameliorates the negative effect of income inequality on happiness. Our innovation is to introduce interaction terms representing relative income x fairness. Do these terms weaken or eliminate the depressing effect of inequality on happiness? We build a matrix of interaction term coefficients to show the extent to which greater fairness reduces the harmful effect of inequality in urban China. We add to the usual parsi-

monious equation perceived position in the city income distribution and reported fairness. In addition to these terms, we include interaction terms, being the multiplication of the relative income categories and fairness categories.[3]

3.3 Analyses of the Effect of Fairness on Happiness

Table 1 reports estimates of happiness functions designed to measure the effect on happiness of fairness, measured as a cardinal variable, in urban China in 2002. Column 1 shows the standard, parsimonious happiness function and confirms the conventional results for China and elsewhere: age bears a u-shaped relationship, men are less happy than women, marriage is good for happiness, health status has a powerful effect, and both income per capita and wealth per capita have a positive effect. All these coefficients are statistically significant; by contrast, ethnicity, education, and hours worked are not. Column 2 adds relative income: the respondent's perceived income quarter in the city. This has a powerful effect, ranging from 0 in the top, omitted, income quarter to -1.174*** in the bottom quarter. Its introduction also halves the coefficient on ln household income per capita, to 0.146***.

Various measures of fairness were tried in the happiness equation, all of which were statistically significant. For instance, combined fairness raises happiness, from 0 in the category fairness 1 to 0.182*** in fairness 2 and to 0.435*** in fairness 3 (not shown in the table). National fairness and city fairness each produces results very similar to that of the combined score (again not shown). Column 3 shows that the coefficient on combined fairness expressed as a cardinal value is 0.102***. This increase is large in relation to the mean combined fairness score (1.60) and its standard deviation (1.27). A cardinal score rising from unfair to fair increases the happiness score by 0.204. Higher fairness is associated with substantially greater urban happiness.

Table 2 conducts a similar analysis for rural China in 2002. Column 1 shows the standard, parsimonious, happiness function, with results similar to those in the urban case. One difference is that working hours now have a significant negative effect on happiness. Column 2 adds the perceived relative village income dummy variables. With having average village income being the omitted category, their coefficients fall monotonically and substantially as we move from much above to much below average village income, and the coefficient on ln income per capita is halved.[4]

It is relevant that the components of the combined score all relate to perceptions of fairness within the village. It is local fairness that matters for happiness. With lowest fairness (fairness 1) as the omitted category, happiness rises with reported fairness and the coefficient of the highest category, fairness 4, is 0.365*** (not reported in the table). When the fairness score is entered instead as a cardinal variable, the coefficient is positive and significant (column 2). With the average score being 8.15 and its standard deviation being (2.24), an additional unit in the possible range of 0 to 15 adds 0.062*** to the happiness score.

Summarising the results for the first hypothesis, Tables 1 and 2 show that higher reported fairness scores are strongly and significantly associated with greater happiness. Turning to hypothesis two, we examine the interaction between income inequality and fairness in

[3] A similar analysis was attempted for rural China but the proxies for fairness, being unrelated to income inequality, failed to produce any pattern.

[4] Relative income effects and absolute income effects can be distinguished because of the great variation in average village income across the sample.

Table 1 The effect on happiness of measures of fairness, urban China, 2002

	Mean	(1)	(2)	(3)
Dependent variable				
Happiness score	2.50			
	(0.84)			
Personal variables				
Age (years)	46.35	-0.0482***	-0.0333***	-0.0276***
	(11.09)	(0.0000)	(0.0000)	(0.0000)
Age squared	2271.27	0.0005***	0.0004***	0.0003***
	(1096.53)	(0.0000)	(0.0000)	(0.0000)
Male (sex)	0.45	-0.0555**	-0.0551**	-0.0633***
	(0.50)	(0.0171)	(0.0129)	(0.0038)
Married	0.94	0.2151***	0.1271	0.1238
	(0.24)	(0.0079)	(0.1001)	(0.1043)
Divorced	0.01	-0.1826	-0.2640**	-0.2752**
	(0.12)	(0.1326)	(0.0226)	(0.0160)
Widowed	0.03	0.0075	-0.0613	-0.0661
	(0.16)	(0.9440)	(0.5453)	(0.5086)
Ethnic minority dummy	0.04	0.0376	0.0566	0.0628
	(0.19)	(0.4998)	(0.2875)	(0.2310)
Education (years)	10.98	0.0006	-0.0020	-0.0020
	(3.17)	(0.8661)	(0.5723)	(0.5756)
In good health	0.61	0.2590***	0.2091***	0.1971***
	(0.49)	(0.0000)	(0.0000)	(0.0000)
Economic variables				
Log of per capita household income 2002 (Yuan)	8.87	0.2795***	0.1463***	0.1426***
	(0.59)	(0.0000)	(0.0000)	(0.0000)
Net wealth ('000 Yuan)	3.05	0.0662***	0.0329***	0.0296***
	(1.27)	(0.0000)	(0.0005)	(0.0015)
Perceptions of relative income variables				
Perceived income in 2nd quarter of city	0.34		-0.3350***	-0.3204***
	(0.47)		(0.0044)	(0.0057)
Perceived income in 3rd quarter of city	0.56		-0.6585***	-0.6128***
	(0.50)		(0.0000)	(0.0000)
Perceived income in 4th quarter of city	0.10		-1.2658***	-1.1740***
	(0.30)		(0.0000)	(0.0000)
Fairness variables				
Combined fairness score	1.60			0.1018***
	(1.27)			(0.0000)
Constant		0.4767**	2.1672***	1.8898***
		(0.0428)	(0.0000)	(0.0000)

Table 1 (continued)

	Mean	(1)	(2)	(3)
R-squared		0.1058	0.1882	0.2108
Number of observations		5542	5542	5542

Source: CHIP 2002, urban survey. Notes: Columns 1–7 report coefficients from happiness equations. The omitted dummy variables are: female sex, marital status single, Han, not in good health, at average village income. Probabilities are reported in brackets below coefficients. ***, **, * denote statistical significance at the 1%, 5%, and 10% level respectively. In this table (and others) the explanatory variables were tested for multicollinearity using the variable inflation factor test: none was found

urban China, using CHIP 2002. Table 3 reports three sets of interaction terms, relating to the combined fairness score, fairness in China as a whole, and fairness in the respondent's city. It shows matrices of interaction terms, with the four income quarters shown across the rows and the three fairness categories down the columns. The top income quarter and the lowest fairness level are the omitted categories in the regression analysis, and thus the cell which combines them has a value of zero. Other cells indicate the departure of the conditional happiness score from the zero cell, and its statistical significance.

We begin with the combined fairness score. There is little variation in coefficients according to the fairness level when interaction terms are included in the estimated equation but when interaction terms are omitted from the equation the effect of fairness on happiness is large and positive: it is 0.182*** more in fairness category 2, and 0.435*** more in category 3, than in category 1 (Panel 4). If people perceive that the income distribution is fair or very fair, their happiness is raised in each income quarter other than quarter 1 (for which the coefficients are all set to zero by definition). Looking across the row for fairness 1 in Panel 1, the interaction terms are all zero, because this fairness category is the omitted dummy variable. However, when derived from the coefficients for income quarter in the full equation, happiness is lower by 1.471*** in the lowest income quarter than in the highest (Panel 4). Looking across the row for fairness 3 in Panel 1, the coefficient increases monotonically, being 0.642* in the lowest income quarter. The disparity across income quarters is significantly smaller if respondents are in the highest fairness category than in the lowest.[5] It appears that the poorest urban people, feeling relative deprivation most keenly, derive most additional happiness from regarding their relative income as fair or very fair.

The pattern of interaction coefficients is very similar in the analysis of fairness for China as a whole (Panel 2) and for the respondent's city (Panel 3) to that for the combined fairness measure. However, the ameliorating effect of fairness is somewhat greater for national fairness than for city fairness. For instance, the coefficient in the city income quarter 4, fairness 3 cell is 0.949** for the former and 0.677* for the latter.

To summarise the results for the second hypothesis, we have presented evidence that in urban China perceptions of fairness ameliorate the effect of perceived relative income position on happiness, and that this effect is strongest for people in the poorest income quarter. However, even those in the highest fairness category were still quite sensitive to their relative income within the community.

[5] An alternative cardinal specification was estimated, involving mean city income per capita as the measure of relative income. The interaction term with the fairness score was negative, implying an ameliorating effect, but the coefficient was small and not significant.

Table 2 The effect on happiness of measures of fairness, rural China, 2002

	Mean	(1)	(2)
Dependent variable			
Happiness score	2.70		
	(0.87)		
Personal variables			
Age (years)	45.30	-0.0068	-0.0110*
	(10.52)	(0.3076)	(0.0755)
Age squared	2162.86	0.0001*	0.0002**
	(984.2)	(0.0556)	(0.0127)
Male (sex)	0.76	-0.0785***	-0.0812***
	(0.43)	(0.0010)	(0.0003)
Married	0.95	0.1173	0.1199*
	(0.21)	(0.1044)	(0.0768)
Divorced	0.003	-0.6655***	-0.6189***
	(0.05)	(0.0008)	(0.0009)
Widowed	0.02	-0.2511***	-0.2006**
	(0.15)	(0.0083)	(0.0247)
Ethnic minority dummy	0.13	0.0932***	0.0625**
	(0.34)	(0.0011)	(0.0197)
Education (years)	7.22	0.0070*	-0.0021
	(2.55)	(0.0786)	(0.5839)
In good health	0.75	0.5218***	0.3992***
	(0.43)	(0.0000)	(0.0000)
Economic variables			
Log of per capita household income 2002 (Yuan)	7.67	0.1580***	0.0844***
	(0.66)	(0.0000)	(0.0000)
Net wealth (‘000 Yuan)	1.12	0.0688***	0.0515***
	(1.58)	(0.0000)	(0.0000)
Working hours	17.09	-0.0028**	-0.0032***
	(9.23)	(0.0106)	(0.0015)
Perceptions of relative income variables			
Village income much above average income	0.02		0.2709***
	(0.13)		(0.0001)
Village income above average income	0.20		0.1896***
	(0.40)		(0.0000)
Village income below average income	0.19		-0.3891***
	(0.39)		(0.0000)
Village income much below average income	0.02		-1.0946***
	(0.15)		(0.0000)
Fairness variables			
Fairness score	8.15		0.0618***
	(2.24)		(0.0000)
Constant		0.9674***	1.4021***
		(0.0000)	(0.0000)

Table 2 (continued)

Mean	(1)	(2)
R-squared	0.1297	0.2341
Number of observations	7273	7273

Source: CHIP 2002, rural survey. Notes: Columns 2 and 3 report the coefficients of the happiness equations. The omitted dummy variable categories are: female sex, marital status single, Han, not in good health, at average village income. Probabilities are shown in brackets below coefficients. ***, **, * denote statistical significance at the 1%, 5% and 10% level respectively

4 Happiness Functions: The Effect of Trust

4.1 Literature on Trust and Happiness

According to the *World Values Survey*, the four Nordic countries are among the countries of the world with the highest proportion of respondents who answer the survey question 'can most people be trusted?' affirmatively. They also report happiness scores that are among the highest in the world. This positive association suggests the hypothesis that trust is an important determinant of happiness.

In a well-known study Fukuyama (1995) argued that differences in trust levels among countries are important in determining country differences in economic efficiency and prosperity: trust in society improves the economy. More rigorously, Knack and Keefer (1997) found a cross-country effect of trust on economic growth. It is possible, therefore, that different national levels of trust influence happiness indirectly via different national levels of income. However, our analysis is confined to the direct effect of trust on happiness.

Several (mainly cross-country) studies have found a positive association between trust and happiness, and those that were able to instrument the trust score found evidence that the association represented a causal relationship (Helliwell, 2003, who also showed that living in a high-trust society generates happiness; Hudson, 2006; Helliwell & Wang, 2011; Carattini and Roessi, 2020). Closest to our own testing was Churchill and Mistra (2017), using the World Values Survey for China.

4.2 Hypotheses and Hypothesis Tests on Trust and Happiness

The 2013 rural and urban surveys contain two direct measures of perceived trustworthiness: would you say your relatives and friends are trustworthy; would you say that others (besides your relatives and friends) are trustworthy? The permitted answers are very trustworthy, trustworthy, so-so, not very trustworthy, not at all trustworthy, and no answer. Ignoring this last one, we have five replies which can be given values ranging from 4 (very trustworthy) to zero (not trustworthy at all) and entered as a cardinal score in the happiness functions. Kith or kin are viewed as more trustworthy than society in general: the median observation for both urban and rural trust lies between so-so and trustworthy in the case of relatives and friends, and between not trustworthy and so-so in the case of others.

We test two hypotheses. One is that an increase in the level of trust reported by the respondent raises their happiness. Both the dependent variable – the respondent's happiness – and the explanatory variables – including the respondent's trust score – stem from individual or household data. In testing hypothesis 1, it will be necessary to address the issue of potential endogeneity. There might be reverse causation, implying that people who are

Table 3 The effect on happiness of interaction between perceived city income quarter and reported fairness category: combined fairness, national fairness, and city fairness, urban China 2002

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Panel 1: combined fairness				
Fairness 1	0.0000	0.0000	0.0000	0.0000
Fairness 2	0.0000	0.3828	0.4487	0.3401
		(0.1762)	(0.1112)	(0.2392)
Fairness 3	0.0000	0.2394	0.3904	0.6424*
		(0.5050)	(0.2760)	(0.0949)
Panel 2: national fairness				
Fairness 1	0.0000	0.0000	0.0000	0.0000
Fairness 2	0.0000	0.1194	0.2002	0.1183
		(0.6853)	(0.4947)	(0.6932)
Fairness 3	0.0000	0.4442	0.6052*	0.9487**
		(0.2140)	(0.0896)	(0.0129)
Panel 3: city fairness				
Fairness 1	0.0000	0.0000	0.0000	0.0000
Fairness 2	0.0000	0.3908	0.4503	0.2947
		(0.1730)	(0.1144)	(0.3124)
Fairness 3	0.0000	0.2277	0.4040	0.6769*
		(0.5018)	(0.2321)	(0.0622)
	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Panel 4: combined fairness with and without interaction terms				
Income quarter coefficients:				
Equation without interaction terms	0.0000	-0.3182***	-0.6107***	-1.1744***
		(0.0060)	(0.0000)	(0.0000)
Equation with interaction terms	0.0000	-0.5896**	-0.9371***	-1.4712***
		(0.0137)	(0.0001)	(0.0000)
		Fairness 1	Fairness 2	Fairness 3
Fairness coefficients:				
Equation without interaction terms		0.0000	0.1819***	0.4349***
			(0.0000)	(0.0000)
Equation with interaction terms		0.0000	-0.2364	0.0980
			(0.3990)	(0.7824)

Source: CHIP 2002. *Notes*: The perceived city income categories are top quarter (Q1), 2nd quarter, 3rd quarter, and bottom quarter (Q4). In the combined fairness equation, scores of 0–1 are fairness 1, of 2–3 are fairness 2, and of 4–6 are fairness 3. In the national fairness and city fairness equations, scores of 0 (not at all fair) are fairness 1, of 1(unfair) are fairness 2, and of 2–3 (fair or very fair) are fairness 3. There are only a few cases of very fair. Probabilities are reported in brackets below coefficients. ***, **, * denote statistical significance at the 1%, 5%, and 10% level respectively

happier are more willing to trust others, Alternatively, the trust score and the happiness score might be influenced by some unobserved third variable which raises both trust and happiness. Social trust might have developed from a culture or set of social norms that contribute to a sense of community and fellow-feeling or to empathy, which in turn raises happiness. These are the most probable third variables - generated by positive social interaction such as reciprocal support. They might be summed up by the term social capital, which Putnam (2000:19) defines as 'connections among individuals – social networks and the norms and reciprocity and trustworthiness that result from them'.

In that case, sense of community, fellow-feeling, and social capital might be the causal variable and trust is merely a component or a consequence. Trust should then be interpreted as a proxy for a broader notion of societal quality that is encompassed by social capital. It might be tested against other possible measures of social capital. The alternative method, one of instrumenting trust with variables that are well correlated with the trust variable but do not plausibly affect happiness, presents us with a research challenge. We shall attempt to meet it in Sect. 6.

The second hypothesis is that a higher level of trust in the community generates greater happiness for the respondent. We add the mean value of trust in the community as another explanatory variable. The mean trust score in the province is included in all equations; in addition, the mean trust score in the town or city appears in the urban equations and the mean trust score in the village in the rural equations.

What is the relationship between the trust reported by an individual and the average trust reported in their community? There is likely to be a positive association between one's own trust in others and the average of other people's trust in others. If a person encounters trusting people, he or she is more likely to trust others. Those who live in a high- (or low-) trust society form their perceptions of the trustworthiness of others by three criteria: one's own personality, one's own experience, and general information about trust in society. There is variation in individual trust around the mean, reflecting individual personalities and experiences, but the important variable is the average level of trust. In a low-trust society there can be an exogenous increase in average trust as a result, for instance, of institutional changes that increase the risk of being found to be untrustworthy or of the associated penalty. This might in turn improve or strengthen the culture of trust in society, so further raising the average level. More than one trust equilibrium is possible.

4.3 Analysis of the Effects of Trust on Happiness

Table 4, relating to urban China in 2013, includes two notions of trust: trust score as a continuous variable ranging from 1 to 5, and four trust categories: not at all trustworthy plus not trustworthy (trust 1, combined because of small numbers), so-so (trust 2, the omitted dummy variable), trustworthy (trust 3), and very trustworthy (trust 4).

Consider hypothesis 1. When the trust score enters the happiness equation, it has a significantly positive coefficient (0.147***) for trust in friends and relatives and a similar coefficient (0.140***) for trust in other people. Greater trust raises happiness: a move from regarding other people as untrustworthy to regarding them as trustworthy lifts the happiness score by 0.280 points. When the two forms of trust are combined, the coefficient is 0.105***. Because the range in this case is from 1 to 10, the conditional difference in happiness between not trustworthy (4) and trustworthy (8) is 0.420.

Table 4 The effect on happiness of measures of trust, urban China, 2013

	Mean	(1)	(2)	(3)	(4)
Dependent variable					
Happiness score	2.73				
	(0.79)				
Trust variables					
Trust score relatives and friends	3.79	0.1470***			0.1149***
	(0.89)	(0.0000)			(0.0000)
Trust score others	3.03		0.1421***		0.0967***
	(0.82)		(0.0000)		(0.0000)
Combined trust score	6.82			0.1064***	
	(1.41)			(0.0000)	
Constant		1.2629***	1.2939***	1.0673***	1.0700***
		(0.0000)	(0.0000)	(0.0001)	(0.0001)
Adjusted R squared		0.1812	0.1757	0.1892	0.1891
Number of observations		4091	4091	4091	4091

Source: CHIP 2013 urban data. Notes: The specification included the usual control variables age, age squared, male, married, divorced, widowed, ethnicity, education years, perception of health status, log of per capita household income, log of financial assets, working hours and perceived city income categories. The friends and relatives trust and others trust variables are based on answers to the questions, "Would you say that your relatives or friends(others), are trustworthy? The possible answers to these questions were, (1) Not trustworthy at all; (2) Not very trustworthy; (3) So-so; (4) Trustworthy; (5) Very trustworthy; (6) Unsure/no answer. Those who selected 6 were excluded from the analysis. The responses were cardinalized, with scores ranging from 1 to 5

Trust categories were used to investigate the possibility of non-linearities. The results are shown from row 4 onwards. Happiness was higher by 0.635*** if other people were reported to be very trustworthy instead of so-so (the omitted category). However, trust 1 had a significantly positive coefficient (0.084*). The discrepancy between the trust score and the trust category results is likely to be due to the small number of cases reporting trust 1.

The equivalent estimations for the rural sample (Table 5) produce similar results in most respects. However, it is notable that the coefficient of the trust score in the case of trusting friends and relatives (0.158***) is greater than in the case of trusting others (0.116***), whereas in urban China the corresponding values are 0.147*** and 0.140*** respectively. Being able to trust beyond one's *guan*xi, for which fewer sanctions are available in the city, might be more valuable than being able to trust within it. Again, reporting that friends and relatives are very trustworthy rather than so-so raises happiness substantially, by 0.553***.

The rural trust dummy variable results are very similar to those for urban China. Moving from combined trust 2 to combined trust 4 raises happiness by 0.56***. The positive coefficient on trust 1, denoting lack of trust, lacks a plausible explanation.[6]

Turning to hypothesis 2, Table 6 introduces the effect of trust in the locality on happiness. It is our measure of the trustworthiness of people in the community. Although it contains all the explanatory variables of Tables 4 and 5, it reports only the coefficients on individual trust and on average locality trust. Columns 1–2 are the urban and columns 3–5 the rural results. The table has three panels, relating to trust in relatives and friends, trust in others, and com-

[6] The fact that this occurs in both samples suggests that it is not due to the incorrect recording of some answers and might instead reflect either a real phenomenon or a systemic coding error.

Table 5 The effect on happiness of measures of trust, rural China, 2013

	Mean	(1)	(2)	(3)	(4)
Dependent variable					
Happiness score	2.58				
	(0.82)				
Trust variables					
Trust score relatives and friends	3.81	0.1583***			0.1363***
	(0.86)	(0.0000)			(0.0000)
Trust score others	3.20		0.1160***		0.0554***
	(0.82)		(0.0000)		(0.0000)
Combined trust score	7.01			0.0974***	
	(1.42)			(0.0000)	
Constant		1.3600***	1.5371***	1.2682***	1.2657***
		(0.0000)	(0.0000)	(0.0000)	(0.0000)
Adjusted R squared		0.2074	0.1931	0.2079	0.2098
Number of observations		9302	9302	9302	9302

Source: CHIP 2013 rural data. Notes: As for Table 4 but with perceived village income categories as control variables instead of perceived city income categories

bined trust. The first row of a panel reports the sample mean trust score. In each panel rural trust is higher but it is notably so only for trust in others. There are likely to be more effective sanctions over duplicitous others in the village than in the city. Comparing Table 6 with Tables 4 and 5, the coefficients on the individual trust scores are reduced by the inclusion of the variables denoting mean trust in the locality. For instance, in the case of relatives and friends, the coefficient falls by 16% for cities and by 27% for villages. This implies a positive correlation between individual trust scores and scores in the locality – suggesting that trust in these localities is infectious.

Comparing the individual and the group trust coefficients, note that all fifteen individual trust coefficients are significantly positive. There is an interesting contrast between trust in relatives and friends and trust in others. In the former case, the city group trust coefficient is two-thirds of the individual coefficient, and the village and county group trust coefficients are effectively equal to the individual coefficients. In the case of trust in others, the mean group coefficients are significantly positive in only one case, that of the village. It appears that trust is more infectious among friends and relatives than with others.

We conclude from Table 6 that the introduction of group mean trust scores in the happiness function reduces the coefficients on individual trust owing to their positive collinearity, and that the coefficients on group trust are significantly positive at city, village and county level. Indeed, in the last two cases, the group trust coefficient is no smaller than that on individual trust. As well as individual trust, the extent of trust in the locality can play an important role in the determination of happiness.

A positive association between individual trust and average trust in the locality is open to more than one interpretation. Our argument is that individual trust depends partly on the level of trust in the community, reflecting an infectious effect. However, the associa-

Table 6 The effect on happiness of trust in the locality, urban and rural China, 2013

	Urban		Rural		
	(1)	(2)	(3)	(4)	(5)
Dependent variable					
Mean happiness score	2.73	2.73			
	(0.79)	(0.79)			
Panel 1: Trust in relatives and friends					
Sample mean trust score	3.79	3.79	3.81	3.81	3.81
	(0.89)	(0.89)			
	Coefficients				
Individual trust score	0.1222***	0.1433***	0.1160***	0.1397***	0.1572***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Locality mean trust score					
City	0.1143***				
	(0.0003)				
Province		0.2734**			0.0423
		(0.0194)			(0.4189)
Village			0.1172***		
			(0.0000)		
County				0.1423***	
				(0.0000)	
Adjusted R squared	0.1837	0.1821	0.2109	0.2099	0.2074
Observations	4091	4091	9302	9302	9302
Panel 2: Trust in others					
Sample mean trust score	3.03	3.03	3.20	3.20	3.20
	(0.82)	(0.82)			
	Coefficients				
Individual trust in others score	0.1204***	0.1412***	0.0992***	0.1122***	0.1163***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Locality mean trust score					
City	0.0889***				
	(0.0063)				
Province		0.1064			-0.0096
		(0.4665)			(0.8687)
Village			0.0451**		
			(0.0198)		
County				0.0301	
				(0.2790)	
Adjusted R squared	0.1770	0.1756	0.1935	0.1931	0.1930
Observations	4091	4091	9302	9302	9302
Panel 3: Combined trust					
Sample mean trust score	6.82	6.82	7.01	7.01	7.01
	(1.41)	(1.41)			
	Coefficients				
Individual combined trust score	0.0913***	0.1050***	0.0779***	0.0904***	0.0975***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Locality mean trust score					
City	0.0618***				
	(0.0009)				
Province		0.1069			-0.0033

Table 6 (continued)

	Urban		Rural		
		(0.1240)			(0.9131)
Village			0.0513***		
			(0.0000)		
County				0.0499***	
				(0.0010)	
Adjusted R squared	0.1912	0.1895	0.2097	0.2088	0.2079
Observations	4091	4091	9302	9302	9302

Source: CHIP urban and rural data sets. Notes: All the explanatory variables in Tables 4 and 5 are included in the estimation but not reported. The meaning and calculation of the trust score is explained in the text or table notes

tion might instead or as well represent unmeasured determinants of trust in the community. This is Manski's 'reflection problem' (Manski, 1993, 2000): the mean trust score reflects the unobserved characteristics of the locality that influence individual trust, other than the effects of mutual interdependence.

5 Happiness Functions: The Effect of Community

5.1 Literature on Social Capital and Happiness

To our knowledge there is surprisingly little analysis of the effect that sense and strength of community has on people's happiness. In fact, we can refer to only two studies. Yet community is potentially an important component of social capital, especially in rural China. Accordingly, we cover the broader topic social capital in the sub-Sect. 5.1 literature review. Because the only component of social capital (apart from trust) that our data sets permit us to analyse is community, we refer to the effect of community in the headings for Sect. 5 and sub-Sect. 5.2 and 5.3.

Social capital can be interpreted in various, partly overlapping, ways, including the size and strength of social networks, the extent of trust, and the sense of community or degree of cooperation among people. In this section would like to study how social capital (apart from trust) affects happiness. However, our data sets permit us to analyse just one additional aspect of social capital – community - and then only for rural China.

The usual way of creating a social capital variable is to combine various possible indicators by means of principal components analysis. For instance, Portela et al. (2013), using the European Social Survey, employed a large set of 24 variables classified as networks (both social and formal), norms (both civic and political), and trust (both institutional and social). The factor analysis showed social networks, social trust and institutional trust to have the highest correlation with subjective well-being. Bjornskov et al. (2003) created a measure of social capital at country level for a sample of 32 countries. Their factor analysis produced an index combining generalised trust, civic participation, and perceived (lack of) corruption, which had a positive coefficient in the regression analysis predicting life satisfaction. The index was better than any one of its various components. The main conclusion reached was that high trust and cooperation for common causes raise happiness.

The research that is closest to ours is Yip et al. (2007) as it also concerns rural China, in this case three counties. The authors find that cognitive social capital is positively associated with subjective well-being, via pathways of social networks and support, at both the individual and the village level. Their measure is a composite index of twelve measures of trust, reciprocity, and mutual help., derived from factor analysis.

Two studies dealt specifically with the role of community. Davidson and Cotter (1991) used a seventeen-item measure of sense of community in two U.S. states and found that the estimated index was positively and significantly related to subjective well-being. Kramer and Powsey (2023) analysed respondents in 74 countries in the latest World Value Survey. The key question was to ask them how they felt towards… followed by their city, region, country, etc. The authors found that: conditional happiness is generally raised by feelings of belonging; the stronger the feelings the happier; and the city has the greatest effect on happiness.

5.2 Hypotheses and Hypothesis Tests on Community and Happiness

The CHIP 2013 urban and rural and the 2002 urban questionnaires lack data on social capital, but the CHIP 2002 rural questionnaire contains several questions that can be used to measure sense of community and strength of cooperation at the village level. These data are used to test the hypothesis that this form of social capital increases happiness.

The Chinese village is generally regarded as an influential social unit, given its need to raise most of its own revenue and resources, its concentration of houses in the centre surrounded by farms, and the frequent dominance of one or two family names. It is very likely that various forms of cooperative behaviour in the village as a community, and their strength, raise the happiness of village people.

A set of six questions asks respondents to evaluate the village services provided to support household production, such as collective management of irrigation and machinery, and coordination of village activities such as disease protection or out-migration. The answers can range from very useful (4) down to not available (0). There is a question asking about the degree of harmony in the village. Possible answers range from very harmonious (4) to not at all harmonious (0). The constructed cardinal variable is a measure of perceived village harmony. The median observation for the score lies between so-so and harmonious. Finally, a question 'how many people have you made gifts to this year?', can be regarded as a proxy for the size of a person's *guanxi*, implying membership of a social network involving mutual obligations. This provides a test of whether one's size of social network raises one's happiness.

5.3 Analysis of the Effect of Community on Happiness

Table 7 reports the results of our hypothesis tests for rural China in 2002. The aggregate public services score (0 to 24) has a coefficient of 0.0071*** when included on its own and 0.0063*** when the other two test variables are included. In the latter case, a rise in average score from not available to very useful adds 0.151 to the happiness score. The coefficient measuring the effect of the degree of perceived village harmony on happiness is a significantly positive 0.1786*** (with all three test variables). An improvement from not at all harmonious to very harmonious raises happiness by no less than 0.714 points. The second

last row shows that the number of gifts (mean 9.62, standard deviation 11.45) has a coefficient of 0.0033***. An increase in size of social network (measured as number of gifts) by one standard deviation raises the happiness score by 0.038.

We have been able to explore the role of social capital in a limited way, analysing only rural China and only three dimensions: the extent of village-provided services, the degree of village harmony, and the size of social networks. In all three, we found significantly positive effects on happiness. These associations might not be causal effects. For instance, naturally happy people might have more friends, or naturally happy villagers might promote village harmony, or there might be two-way causation. In Sect. 6 we turn to the issue of causality.

To summarise: in the two other studies of community and our own, the effect of community is to raise happiness. However, there are notable differences among them. Whereas our sample is confined to rural China, the other two studies include urban areas as well. In each case different measures of community are employed. Kramer and Powsey (2023) find that it is perception of community that raise happiness, Davidson and Cotter (1991) combine both perception and behaviour, and of our three measures, one measures perception and two measure behaviour. The paucity of studies, together with their promising results, suggests that the effect of community deserves further research, both in China and elsewhere. It should examine the extent to which samples are localised and discover what the choice of indicators reveals about the nature of community.

6 The Causal Effects of Fairness, Trust and Community on Happiness

Helliwell et al. (2020), using the World Gallup Poll for many countries, analysed the effect of social environment (measured in four ways, including support of friends and relatives and lack of corruption) on subjective well-being, using mean values at each national level. All four variables had a significantly positive effect. The authors recognised that both happiness and social environment are subjective perceptions, which might depend on each personality.

By employing the method of using city or village mean variables, we hope to reject the hypothesis that the associations we have found are due to individual personality. This result in itself would not establish causality but it would eliminate one explanation. Use of mean values of cities and of villages should reduce the role of personality because average personality is less likely to differ across villages and, especially, across cities.

Table 8 reports the test coefficients when village and city average data are used for the estimation. and compares them with the coefficients obtained by estimating the same models with individual data The coefficients on the average village or city variables are significantly positive in all cases and are higher than the corresponding coefficients in all but one case. It seems that individual personality is not responsible for the positive associations that need to be explained.

We proceed to instrument the test variables by means of internal instruments based on heteroskedasticity of the errors (Lewbel, 2012 and explained in Baum & Lewbel, 2019). We tried several external instruments but none was valid.[7] The validity of internal instruments can be judged by two main criteria listed in Table 9, which reports the coefficients of the suspect variables, fairness score, trust score, and village harmony score, both OLS and IV.

[7] Including father's education (in years), parents' education, spouse's education, CCP membership.

Table 7 The effects of three measures of community on happiness in happiness functions, rural China, 2002

	Mean	Coefficients				
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable						
Happiness score	2.70					
	(0.86)					
Explanatory variables						
Age (years)	45.27	-0.0068	-0.0080	-0.0061	-0.0032	-0.0042
	(10.47)	(0.0066)	(0.0068)	(0.0065)	(0.0070)	(0.0071)
Age squared	2159.21	0.0001*	0.0001**	0.0001*	0.0001	0.0001
	(977.19)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Male (sex)	0.76	-0.0785***	-0.0825***	-0.0661***	-0.0722***	-0.0656**
	(0.42)	(0.0238)	(0.0246)	(0.0235)	(0.0250)	(0.0255)
Married	0.95	0.1173	0.1423*	0.1035	0.0483	0.0787
	(0.21)	(0.0722)	(0.0753)	(0.0711)	(0.0748)	(0.0767)
Divorced	0.00	-0.6655***	-0.6536***	-0.7006***	-0.7521***	-0.7660***
	(0.05)	(0.1990)	(0.2049)	(0.1959)	(0.2036)	(0.2067)
Widowed	0.02	-0.2511***	-0.2460**	-0.2753***	-0.3317***	-0.3327***
	(0.15)	(0.0951)	(0.0983)	(0.0936)	(0.0993)	(0.1009)
Ethnic minority dummy	0.15	0.0932***	0.0763***	0.0636**	0.0516*	0.0168
	(0.35)	(0.0285)	(0.0293)	(0.0281)	(0.0292)	(0.0296)
Education (years)	7.21	0.0070*	0.0073*	0.0053	0.0070*	0.0059
	(2.55)	(0.0040)	(0.0041)	(0.0039)	(0.0042)	(0.0043)
In good health	0.75	0.5218***	0.5208***	0.4831***	0.5211***	0.4837***
	(0.43)	(0.0225)	(0.0232)	(0.0222)	(0.0235)	(0.0240)
Log of per capita household income 2002 (Yuan)	7.66	0.1580***	0.1512***	0.1504***	0.1572***	0.1509***
	(0.66)	(0.0164)	(0.0170)	(0.0162)	(0.0173)	(0.0177)
Net wealth ('000 Yuan)	1.09	0.0688***	0.0664***	0.0659***	0.0693***	0.0637***
	(1.60)	(0.0067)	(0.0069)	(0.0066)	(0.0069)	(0.0071)
Working hours	17.06	-0.0028**	-0.0029***	-0.0029***	-0.0026**	-0.0030**
	(9.16)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0012)

Table 7 (continued)

	Mean	Coefficients				
Aggregate public services score	4.91		0.0071***			0.0063***
	(6.49)		(0.0015)			(0.0016)
Extent of village harmony	2.85			0.1861***		0.1786***
	(0.77)			(0.0122)		(0.0132)
Number of gifts	9.63				0.0035***	0.0033***
	(11.50)				(0.0009)	(0.0009)
Constant		0.9674***	0.9951***	0.5508***	0.9242***	0.4844**
		(0.1850)	(0.1923)	(0.1841)	(0.1943)	(0.2015)
R-squared		0.1297	0.1320	0.1568	0.1336	0.1618
Number of observations		7273	6845	7273	6588	6196

Source: CHIP 2002, rural survey. Notes: Columns 1–5 report the coefficients of the happiness equations. The omitted dummy variable categories are: female sex, marital status single, Han, not in good health, at average village income. Standard errors are shown in brackets below coefficients. ***, **, * denote statistical significance at the 1%, 5% and 10% levels

Table 8 Coefficients on mean and individual values of the test variables

	Means	Individuals
T 2013 Combined trust score		
Urban	0.1454***	0.1064***
Rural	0.1101***	0.0974***
F 2002 Combined fairness score		
Urban	0.0885	0.1018***
Rural	0.0656***	0.0618***
C 2002 Rural community scores		
Village harmony	0.2609***	0.1861***
Aggregate village services	0.0121***	0.0071***
The number of gifts	0.0029	0.0035***

The table shows that in every case the test of homoskedasticity of the errors is rejected: the use of internal instruments is possible. In two cases, rural fairness and village harmony, the instrumented coefficient is positive, similar in size to the OLS coefficient, and significant. In two other cases, rural trust and urban trust, the IV coefficient is positive and similar to the OLS coefficient. However, identification is weak: the standard error is large, indicating that the coefficient could arise by chance. Our attempt to establish causality is suggestive but the evidence is not reliable.

7 Conclusion and Reflection

The questions posed and hypotheses tested in this paper relate to the years 2002 or 2013. The analysis appears to be dated but societal characteristics change slowly: where both years could be analysed, their results were very similar, and they are likely also to hold true today. The answers that we provide may well bear a general truth beyond the data sets on which they are based.

There are seven main findings:

1. Higher reported fairness scores are strongly associated with greater happiness in both rural and urban China. Perceptions of fairness ameliorate the effect of perceived relative income position on happiness, and this effect is strongest for people in the poorest urban income quarter.
2. High reported trust scores are strongly associated with greater happiness in both rural and urban China, with trust in relatives and friends, rather than in others, particularly important in the villages. Average trust scores in the locality are also associated with greater happiness, suggesting that the general level of trustworthiness in the community is valued.
3. The strength of community at the village level in rural China – as measured by cooperative practices, perceived village harmony, and social network – is strongly associated with greater happiness. The originality of our research for China and the paucity of other studies on the effects of community on happiness warrant a case for further research on this topic, both in China and elsewhere.

Table 9 Estimates of the coefficient on the trust score, the fairness score, and the harmony score in the happiness function, OLS and internal IV

		OLS	IV
Combined trust 2013			
Urban	Coefficient	0.1197***	0.2967
	Standard error	(0.0132)	(0.2570)
	Heteroskedasticity test (p)		0.000
	Weak instruments test (F)		1.115
Rural	Coefficient	0.0964***	0.0821
	Standard error	(0.0000)	(0.0931)
	Heteroskedasticity test (p)		0.000
	Weak instruments test (F)		6.102
Combined fairness 2002			
Urban	Coefficient	0.1789***	-0.0643
	Standard error	(0.0218)	(0.1786)
	Heteroskedasticity test (p)		0.000
	Weak instruments test (F)		2.632
Rural	Coefficient	0.0616***	0.0784*
	Standard error	(0.0000)	(0.0445)
	Heteroskedasticity test (p)		0.000
	Weak instruments test (F)		6.054
Village harmony 2002			
Rural	Coefficient	0.2086***	0.2357*
	Standard error	(0.0000)	(0.0965)
	Heteroskedasticity test (p)		0.0013
	Weak instruments test (F)		2.785

Notes: Either all explanatory variables (except the constant term) or all continuous explanatory variables are used to create the internal instrument in each case. The White-Koenker p-test of heteroskedasticity of the errors and the Cragg-Donald-Wald test of weak instruments are employed

4. When the unit of analysis is city or village and not the individual, the coefficients of the test variables remain significantly positive: individual personality does not explain the association between the test variables and happiness.
5. Instrumenting the test variables by means of internal instruments creates coefficients that are positive and similar to the corresponding OLS coefficients, but the estimates might not be reliable.
6. Reported perceptions of our test variables are not high, particularly the values of fairness and societal trust.
7. Whereas most studies of the effects of societal characteristics on happiness examine just one characteristic, our contribution is to analyse three characteristics, each falling under the rubric 'the quality of society'.

It is arguable that the selfish individualism that is sometimes observed in Chinese society erodes fairness, trust and sense of community. Correction would involve institutional and

other policies to improve social relations. These might include policies to reduce inequalities that people perceive to be unfair, institutional changes that promote trust by strengthening penalties for dishonesty, and subsidies that promote community projects or services. A particular intervention that has the potential to improve attitudes and behaviour is China's recently introduced 'social credit system'. As yet it is neither in general use nor in standard form, but essentially it accords individuals positive points for prosocial behaviour and negative points for antisocial behaviour, e.g. bad debt, public nuisance, untrustworthiness. Such a scheme would not be appropriate if society valued individual freedoms highly, or if it were used as a method of political control. Nevertheless, accompanied by proportionate rewards and penalties, it has the potential to improve and strengthen moral sentiments.

Economic analysis is generally conducted on the assumption that individuals (or households) maximise their welfare subject to constraints. These constraints are generally assumed to be economic, such as the availability of resources to the individual (or household). The economic approach is therefore individualistic, taking as given the social or community environment in which economic decisions are made. Economists tend to ignore such variables or to accept them without scrutiny. It might be argued in support that they are correct to play down socioeconomic variables which cannot be rigorously analysed or reliably quantified. The counterargument might be that such neglect prevents a full understanding of variables about which economists are indeed concerned, such as well-being. The wider social context can be directly or indirectly important if it is a determinant of well-being. Institutions, culture, norms, and policies can help to promote fairness, trust and sense of community, and these can improve the 'quality' of society, and so can raise subjective well-being.

In their recent insightful books, both Carney (2021) and Shafik (2021) argue that society relies on social norms and conventions – including perceptions of fairness, trust and community - for maintaining socioeconomic stability and economic efficiency. Stemming from self-interested mutual sympathy among people, society has engendered a sense of community and a social contract restraining harmful selfish behaviour – which, both authors aver, is now endangered in some market-obsessed economies. Our evidence that variables representing fairness, trust and community can raise happiness scores in China adds a brush stroke to that bigger picture.

Acknowledgements We are grateful to seminar participants at the Wellbeing Research Centre, Harris-Manchester College, Oxford, and at the China Research Meeting, Nottingham University, for helpful comments and suggestions. The analysis is based on two national household surveys of the China Household Income Project (CHIP): the rural and the urban samples for 2002 and 2013. These are available at http://112.134.46.92/chip/index.asp.

Declarations

Ethics Approval The submission complies with the ethical standards statement.

Conflict of Interest The authors have no conflict of interest.

Informed Consent The authors give their informed consent.

References

Baum, C. F., & Lewbel, A. (2019). Advice on using heteroskedasticity-based identification. *The Stata Journal*. 757 – 67.

Bjornskov, C., Drehar, A., Fischer, J., Schnellenbach, J., & Gehring, K. (2013). Inequality and happiness: When perceived social mobility and economic reality do not match. *Journal of Economic Behavior and Organization*, *91*, 75–92.

Cappelli, A. W. (2014). 'Equity theory and fair inequality: a neuroeconomic study', *Proceedings of the National Academy of Sciences*, 111, 43:15368-72.

Carattini, & Stefano and Mathias Roesti. (2020). 'Trust, happiness and pro-social behaviour', Centre for Climate Change Economics and Policy, Working Paper 376, London School of Economics.

Carney, M. (2020). *Reith lectures 2020, lecture 1*. BBC.

Carney, M. (2021). *Value(s): Building a Better World for all*. William Collins.

Churchill, S. A., Vinod, & Mishra (2017). Trust, social networks and social well-being in China. *Social Indicators Research*, *132*, 313–339.

Davidson, W. B., & Cotter, P. R. (1991). The relationship between sense of community and subjective well-being: A first look. *Journal of Community Psychology*, *19*, 3: 246–252.

Deaton, A. (2019). 'Inequality and the future of capitalism', speech given at the launch of the IFS Deaton Review, May, online.

Fukuyama, F. (1995). *Trust: The Social Virtues and the Creation of Prosperity*.

Helliwell, J. F. (2003). 'How's life? Combining individual and national variables to explain subjective well-being', *Economic Modelling*, 20, 2, March: 331 – 60.

Helliwell, J., & Wang, S. (2011). Trust and wellbeing. *International Journal of Wellbeing*, *1*, 1: 42–78.

Helliwell, J., Huang, H., Wang, S., & Norton, M. (2020). 'Social Environments for World Happiness', *World Happiness Report 2020*, ch. 2, online.

Huang, J. (2019). Income inequality, distributive justice beliefs, and happiness in China. *Social Indicators Research*, *142*, 83–10.

Hudson, J. (2006). 'Institutional trust and subjective well-being across the European Union', *Kyklos*, 59. 1, February: 43–62.

Knack, S., & Keefer, P. (1997). "Does social capital have an economic payoff? A cross-country investigation." *The Quarterly Journal of Economics, 112*(4), 1251–88. JSTOR, http://www.jstor.org/stable/2951271. Accessed 4 Aug. 2024.

Kramer, K., & Powsey, H. (2023). Happiness and sense of community belonging in the world value survey. *Current Research on Ecological and Social Psychology*, *4*, 100101.

Lewbel, A. (2012). Using heterskedasticity to identify and estimate mismeasured and endogenous regression models. *Journal of Business and Economic Statistics*, *30*(1), 67–80.

Manski, C. F. (1993). "Identification of endogenous social effects: The reflection problem." *The Review of Economic Studies, 60*(3), 531–542. JSTOR, https://doi.org/10.2307/2298123. Accessed 4 Aug. 2024.

Manski, C. (2000). Economic analysis of social interactions. *Journal of Economic Perspectives*, *14*, 115–136.

Oishi, S., Kesebir, S., & Diener, E. (2012). Income inequality and happiness. *Psychological Science*, *22*, 1095–1100.

Portela, M., Neira, I., & Salinas-Jiménez, M. M. (2013). "Social capital and subjective wellbeing in Europe: A new approach on social capital." *Social Indicators Research, 114*(2), 493–511. http://www.jstor.org/stable/24720260.

Putnam, R. D. (2000). *Bowling alone. The Collapse and Revival of American Community*. Simon and Schuster.

Sen, A. (2009). *The Idea of Justice*. Allen Lane.

Shafik, M. (2021). *What we owe to each other: A New Social Contract for a Better Society*. Princeton University Press.

Smith, A. (1759). [2002 edition]. *The Theory of Moral Sentiments*. Cambridge University Press.

Smith, A. (1776). [1836]. *An Inquiry into the Nature and Causes of the Wealth of Nations*. J.E. Dove.

Whyte, M. K. (2010). *Myth of a Social Volcano. Perceptions of Inequality and Distributive Injustice in Contemporary China*. Stanford University Press.
Yip, W., Subramanian, S. V., Mitchell, A. D., Lee, D. T., Wang, J., & Kawachi, I. (2007). Does social capital enhance health and wellbeing? *Social Science and Medicine*, *64*, 35–49.