

Growth and Happiness in China, 1990-2015

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...Can't get no satisfaction!

Rolling Stones, 1965

In the past quarter century China's real GDP per capita has multiplied over five times, an unprecedented feat.¹ By 2012 virtually every urban household had, on average, a color TV, air conditioner, washing machine, and refrigerator. Almost nine in ten had a personal computer, and one in five, an automobile. Rural households lagged somewhat behind urban, but these same symptoms of affluence, which were virtually nonexistent in the countryside in 1990, had become quite common by 2012.² In the face of such new-found plenitude, one would suppose that the population's feelings of well-being would have enjoyed a similar multiplication. Yet, as will be seen, it is doubtful that well-being is any better now than in 1990.

This article, which builds on a prior study³, describes the evolution of China's well-being in the quarter century since 1990, and suggests the likely reasons for the disparate trajectories of subjective well-being (SWB) and GDP per capita (hereafter, simply GDP). The terms subjective well-being, life satisfaction, and happiness are used here interchangeably. The article also describes important differences in well-being among various groups in the population, and notes some possible reasons for these differences.

As in any historical study of a developing country, quantitative data are in short supply – though typically expanding and improving with time. The task of empirical study is to assemble and evaluate the quantitative evidence available, and assess its fit with the broader historical context, as is attempted here. Although the available measures of China's SWB in the period under study tend to be biased toward the urban sector, the same is true of economic growth.⁴ Hence the present data should provide a reasonable perspective on the course of well-being in an area experiencing an unparalleled improvement in the per capita output and consumption of goods and services.

Long term movement

Since 1990 China's SWB has been U-shaped over time, falling to a 2000-2005 trough and then recovering (Fig. 1).⁵ This pattern is found in four different series that reach back into the 1990s. The series come from three different survey organizations, two American and one Chinese. Although the series differ in their origin, measure of SWB, and sample size (Technical Box 1), in every one pre- and post-trough values are higher than those in 2000-2005. The consistency of the results from these different series strengthens the finding on the overall movement. Lack of annual data prevents more precise dating of the trough in SWB.

The 1990 WVS value of 7.29 for SWB seems high for what was then a poor country, but several considerations point to its plausibility.⁶ China's urban labor market at that time has been described as a "mini-welfare state", its workers, as having an "iron rice bowl."⁷ Concerns about one's current and future job and family security were virtually non-existent. Those employed by public enterprises (which accounted for the bulk of urban employment) were essentially guaranteed life-time jobs, and had benefits that included subsidized food, housing, health care, child care, and pensions, as well as assurance of jobs for their grown children. Russia's labor and wage policies served as the model for communist China, and China's value of 7.29 is almost identical to the 7.26 found in the fragmentary data for pre-transition Russia.⁸ In 1990 life satisfaction differences by socio-economic status in China were very small, as was true also of former Soviet Union countries prior to transition.⁹ In the 1990 survey data for China, levels exceeding 7.0 are found across the distributions by education, occupation, and income; hence the high average cannot be attributed to a disproportionate representation in the 1990 survey of those with high life satisfaction.

It is doubtful that the recovery in SWB by the end of the period reaches a value exceeding that in 1990. In the WVS series, the one covering the longest time span, the terminal value of 6.89 at the end of 2012 is somewhat short of the 1990 value of 7.29 and about equal to the 1995 value of 6.83. There is also

a slight decline in SWB in the Gallup1 series, but this series is short, spanning only the years 1997-2006. The Horizon and Gallup2 series are longer, starting in the late 1990s and ending in 2015. Although there is an increase in SWB over the full time span covered by these series, this increase is consistent with the likely pattern of the WVS series if it too started in the late 1990s. If WVS values for the late 1990s are estimated by linear interpolation between the 1995 and 2001 survey observations, one also finds an increase in SWB by the end of the period. A conservative reading of the data would seem to be that it is uncertain whether mean SWB in 2015 equals that in 1990, and unlikely that it is higher.

The SWB pattern for China calls into question the relevance of point-of-time (cross section) relationships as a basis for predicting actual change over time. A positive cross section relationship between SWB and GDP is typically found in the happiness literature, and has often been the basis for claiming that economic growth increases subjective well-being.¹⁰ Based on the regression results of such cross section studies, China's striking five-fold multiplication of GDP would be expected to increase SWB by anywhere from six-tenths to a full point or more on a 1-10 life satisfaction scale.¹¹ It is noteworthy that four different surveys fail to give evidence of an increase approaching this magnitude.

The positive cross section relation of SWB to GDP implies that when the growth rate of GDP is highest, SWB will also grow most rapidly. Contrary to this expectation, China's growth rate of GDP was highest in 2000-2005 when SWB was bottoming out (Figure 2, left panel). Also noteworthy is the disparate course of the rate of inflation, which has typically been found to have an inverse relation to SWB.¹² In China in 2000-2005, when SWB was at its lowest, the rate of inflation was also low --lower than in any other years between 1994 and 2015 (Figure 2, right panel).

Although China's subjective well-being does not have the expected relation to GDP or inflation, its overall trajectory is the same as the SWB pattern in European countries transitioning from socialism to capitalism from the late 1980s onward. For those countries whose SWB data extend back into the socialist period, SWB invariably follows a U- or V-shaped pattern.¹³ Unlike China, however, where GDP grows at

an unprecedented rate, in the European countries GDP collapses and recovers in a pattern much like that of SWB, a difference between China and Europe to be discussed subsequently.

Determinants of the SWB trajectory

Two factors have been of critical importance in forming the U-shaped course of subjective well-being in China – unemployment and the social safety net. In the 1990s severe unemployment emerged and the social safety net broke down. The “iron rice bowl” was smashed, giving rise to urgent new concerns about jobs, income security, family, and health. Although incomes rose markedly for most of those who retained jobs, the positive effect on well-being of income growth was offset by a concurrent rise in material aspirations.¹⁴

In its report of findings on subjective well-being, the high profile Stiglitz-Sen-Fitoussi Commission states: “One aspect where all research on subjective well-being does agree concerns the high human costs associated with unemployment.”¹⁵ The reason why unemployment has a major adverse effect on well-being is straightforward – jobs are of critical importance for sustaining people’s livelihood, family, and health.¹⁶ Nowhere are the human costs of unemployment better demonstrated than in China. Unemployment rose sharply from near-zero in 1990 to double-digit levels in 2000-2005, and then declined moderately. Although the unemployment estimates are somewhat rudimentary¹⁷, this pattern appears consistently in unemployment data from several different sources (Fig. 3).

Subjective well-being largely mirrors inversely the path of the unemployment rate. As the rate rises, SWB declines; as the rate falls, SWB increases. The 2000-2005 trough in SWB occurs when the unemployment rate reaches its peak.

The term “massive” is used repeatedly by analysts in describing the precipitous upsurge in unemployment that began in the 1990s.¹⁸ In little more than a decade (1992-93 to 2004) 50 out of 78

million lost their jobs in state-owned enterprises (SOEs), and another 20 million were laid off in urban collectives.¹⁹ Knight and Song aptly describe this period as one of “draconian ... labor shedding.”²⁰

The impact of unemployment on SWB was not confined to those who lost their jobs. As has been demonstrated in the SWB literature²¹ increased unemployment also reduces the well-being of those who remain employed, because they fear for their own jobs as layoffs increase. An indication of the anxiety associated with a high level of unemployment in China is the answer to a survey question that asked, “Now thinking about our economic situation, how would you describe the current economic situation in China: is it very good, somewhat good, somewhat bad or very bad?” In 2002 when unemployment was at two-digit levels, almost half of respondents (48 per cent) answered somewhat or very bad; by 2014, when the unemployment rate had considerably improved, only six per cent fell in these two categories.²²

Along with the upsurge in unemployment, the social safety net, whose benefits were employer-provided, broke down, aggravating the decline in SWB. As workers lost jobs, their benefits disappeared, though for a modest fraction temporary support was provided through an urban layoff program. Those who found jobs in private firms no longer enjoyed the benefits that they previously had in the public sector. Even for those who retained public jobs, new government policies abolished guaranteed employment and life time benefits. Survey data on pension and health care coverage provide rough quantitative evidence of the decline in safety net benefits in the 1990s (Figure 4). Note that the trough in coverage occurs in 2000-2005 when unemployment peaks and SWB reaches its lowest point.

The emergence of extensive unemployment and dissolution of the social safety net were due to the initiation by the government of a comprehensive policy of restructuring SOEs, many of which were inefficient, unprofitable, and a drag on the economy. Although the new policy was successful in stimulating economic growth, it marked an abrupt end to the era of “reform without losers”. As Naughton points out, urban SOE workers “bore the brunt of reform-related costs.”²³ According to a World Bank report, “by all measures, SOE restructuring had a profound effect on ... the welfare of millions of urban

workers.”²⁴ The unemployment, safety net, and SWB patterns here demonstrate concretely these assertions.

Faced with massive and rising urban unemployment, government policy shifted gears. Beginning in 2004 the rate at which SOEs were down-sized diminished sharply. Between 1995 and 2003, reduced employment in SOEs far exceeded increased employment elsewhere in the urban sector; thereafter, the situation was reversed, and the unemployment rate improved (Figure 3).²⁵ The safety net, as indexed by healthcare and pension coverage, also started to get better (Figure 4). The result was a turnaround and gradual recovery of SWB.

In 2000-2005 the growth rate of GDP reached its highest level at the same time that unemployment was soaring. How could output be growing, and so rapidly, when employment was falling? The answer is that China’s restructuring policy involved greatly expanded support for a relatively small number of large, capital-intensive, and high productivity SOEs at the expense of numerous small, labor-intensive, and low productivity SOEs, a policy officially labeled “Grasping the big and letting go of the small.” As described by Huang:²⁶

“Grasping the big” meant restructuring, consolidating, and strengthening China’s largest SOEs.... “Letting go of the small” meant that the government supported privatization of individually small but numerically numerous SOEs. These are labor-intensive firms and singling them out for privatization, with no established social protection in place, led to massive unemployment, social instability, and wrenching human costs.... Instead of managing tens of thousands of small firms scattered around the country, the Chinese state could now focus on only a few thousand firms [which benefitted from] a massive reallocation of financial, human, and managerial resources away from the small SOEs to a handful of the largest SOEs.

This redistribution of resources from low productivity small SOEs to high productivity large SOEs resulted in a strong upsurge in output at the same time that small SOEs shed labor, creating a large pool of

unemployed. As Huang (2008, p. 273) points out, "...GDP growth in the 1990s increasingly was disconnected from the welfare of Chinese citizens."

It is the special nature of the restructuring of the publicly owned sector that chiefly accounts for the difference, in the face of rising unemployment, between China's GDP trajectory and that of the European transition countries. In both cases restructuring led to massive unemployment. But China, instead of abandoning the entire public sector to privatization, invested heavily in the most promising segment and was rewarded with output growth.

Differences by socio-economic status and age

Although China's average well-being declined and then recovered somewhat, there were significant differences among various parts of the population. Perhaps most striking is the severe impact of restructuring on those of lower socio-economic status (SES). In 1990 the difference in life satisfaction between the the third of the population with the lowest incomes and that with the highest was quite small (Figure 5). Subsequently, however, life satisfaction of the lowest third plunged markedly, while that of the highest actually improved somewhat. The result was the emergence of a marked disparity in life satisfaction between the more and less affluent. Although life satisfaction of the lowest segment eventually turned upward, it was still lower at the end of the period than in 1990 and a substantial disparity by level of income persisted.²⁷

The marked increase in the life satisfaction difference by socio-economic status demonstrates the critical importance of full employment and safety net policies for the well-being of the most disadvantaged segment of the population. As these policies were abandoned in the 1990s, the lowest socio-economic segment was the one that suffered severely. Data by level of education are indicative of the differential employment and safety net impact. The unemployment rate of those with a primary education or less soared to almost 20 per cent in 2000-2005, while that of the college-educated group

remained at less than 5 per cent (Figure 6). Similarly, pension and healthcare coverage of the less-educated declined much more than that of the more-educated (Figure 7). Consistent with these differences, satisfaction with finances and self-rated health increased for the highest income stratum and decreased for the lowest (Figures 8 and 9). Although income increased throughout the income distribution, those at the lower end lagged behind, and income inequality rose markedly.²⁸ Knight and Song point out that “in adopting its reform policies ... [China’s] leadership espoused output objectives above all else. Where there was a conflict between efficiency objectives and equality objectives, egalitarianism was played down.”²⁹ The differential course of life satisfaction by socio-economic status illustrates the unequal impact of these policies on the more and less disadvantaged. Eventually, as economic policy reversed and brought unemployment down, and substantial efforts were initiated to repair the social safety net,³⁰ life satisfaction improved. For the lowest stratum, however, life satisfaction was still less than in 1990.

Those age 30 and over experienced large declines in life satisfaction over the quarter century studied here; men and women were about equally affected. At the beginning of the period life satisfaction varied positively with age; by 2012 there was little difference among age groups (Figure 10). In contrast to the experience of those 30 and older, life satisfaction of younger adults changed hardly at all between the beginning and end of the period.

The course of life satisfaction by age is largely a reflection of the same forces that shaped the widening difference by SES. In 1990 those aged 30 and over were already well-embarked on a life course set under “iron rice bowl” conditions. The collapse of the traditional environment severely disrupted their working and family lives, and substantially reduced their well-being, with the oldest suffering most. In contrast, those under age 30 were less wedded to traditional ways and in a better position to adapt to the new “free market” conditions. Among those under age 30 the proportion with a college education or better rose dramatically – by 2012 around 60 percent fell in this higher SES category. Young adults enjoyed a substantial labor market advantage over their older counterparts, whose college-educated proportion was less than 30 per cent (Figure 11). An accompaniment of more prolonged schooling was a

noticeable rise in age at marriage of young adults,³¹ and, along with it, postponement of the burden of family support. At the same time the economic and family pressures being felt by older persons led to a noticeable rise in the proportion divorced.³²

As has been seen, China's U-shaped life satisfaction trajectory is much like that of Europe's transition countries. This similarity is also true of the life satisfaction differences that emerged. For both China and the European countries, small SES differences at the start of the transition were replaced by large disparities.³³ The lowest SES group experienced a severe decline in life satisfaction, while the upper tier enjoyed a mild improvement. Those under age 30 fared better than their older counterparts.³⁴ In both areas adaptation to the new environment was greatly facilitated by a college education.

Differences by residence and migration status

The focus to this point has been largely on urban areas, but rural life satisfaction appears to have largely paralleled urban. Two different SWB series display similar trends in rural and urban areas, with the urban sector being somewhat higher throughout (Figure 12). The series start in the new millennium, because prior to that, no reasonably consistent rural-urban breakdown is available.

The 1990s saw the onset of substantial movement from rural to urban areas, as government restrictions on migration were increasingly relaxed. According to census data, between 1990 and 2010 the proportion of people in cities that had a rural *hukou* (identifying the holder as a resident of a rural place) rose from 17 to 36 per cent.

Rural *hukou* holders in urban areas were initially treated as second-class citizens, but have since been increasingly assimilated.³⁵ The few life satisfaction surveys in the early 2000s that classified the urban population by *hukou* status uniformly found urban *hukou* holders with higher SWB than rural migrants.³⁶ While the upward trend in life satisfaction since then has been fairly similar for the two groups (Figure 12, bottom panel), the evidence is mixed on whether or not the gap has closed. In several

surveys the gap persists, but in others it has disappeared.³⁷ A comparison between rural migrants and those remaining in rural areas is less ambiguous – initially the migrant group was higher, but in recent years there is no difference.³⁸

Conclusion

China's soaring GDP growth over the past quarter century is viewed by many analysts as the hallmark of a successful transition, and a sharp contrast to the experience of the European transition countries. But if the welfare of the "common man" is taken as a criterion of success, then the picture is less favorable and more like that in Europe. To understand the course of well-being in the two areas, labor market conditions, much more than GDP, are what matters. In the first part of the transition, as economic restructuring is undertaken, jobs and safety net benefits shrink markedly for the disadvantaged members of the population, and families are greatly disrupted. Although the well-being of those who are younger or in the highest economic stratum tends to improve somewhat, that of those who are older or in the lowest economic stratum suffers severely. Eventually, as economic recovery takes hold and efforts made to improve the social safety net, life satisfaction, on average, turns upward. In China, however, life satisfaction of the disadvantaged has yet to recover to the level that prevailed a quarter of a century ago.

In policy circles subjective well-being is receiving increasing attention as an alternative or complement to GDP as a measure of well-being.³⁹ There could hardly be a better test case than China for comparing the two measures. As indexed by GDP, well-being in China has multiplied over five-fold; based on SWB, well-being is, on average, no better and probably less than a quarter of a century ago. The difference reflects the different scope of the two measures. GDP relates to the economic side of life, and to just one dimension—the output of goods and services. SWB, in contrast, is a comprehensive measure of individual well-being, taking account of the variety of economic and noneconomic concerns and

aspirations that determine people's well-being. If the objective of policy is to make people feel better off, SWB is a more meaningful measure of well-being than GDP, as China's experience testifies.

Technical Box 1. Surveys and Measures of Subjective Well-Being

World Values Survey (Sample Size: ~1,000–2,000). Life satisfaction: All things considered, how satisfied are you with your life as a whole these days? Please use this card to help with your answer. 1 (dissatisfied) 2 3 4 5 6 7 8 9 10 (satisfied)

Gallup1 (Sample Size: ~3,500). Life satisfaction: Overall, how satisfied or dissatisfied are you with the way things are going in your life today? Would you say you are 4, very satisfied; 3, somewhat satisfied; 2, somewhat dissatisfied; or 1, very dissatisfied?

Gallup2 1999, 2004 (Sample Size: ~4,000). Ladder of life: Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top. Suppose we say that the top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally stand at this time?

Gallup2: Gallup World Poll 2006-2015 (Sample Size: ~4,000, except 2012 ~9,000) Ladder of life: Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. Suppose we say that the top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally stand at this time, assuming that the higher the step the better you feel about your life, and the lower the step the worse you feel about it? Which step comes closest to the way you feel?

Horizon 1997–1999, 2001 (Sample Size: ~5,000). (In Chinese) In general, are you satisfied with your current life: very satisfied, fairly satisfied, fairly dissatisfied, or very dissatisfied? (single answer). Coded 5, 4, 2, or 1.

Horizon 2000, 2002–2010 (Sample Size: ~2,500–5,500). (In Chinese) In general, are you satisfied with your current life: very satisfied, fairly satisfied, average, fairly dissatisfied, or very dissatisfied? (single answer). Coded 5, 4, 3, 2, or 1.

Chinese General Social Survey (CGSS) 2003, 2005, 2006, 2008, 2010-2013 (Sample Size: ~5,500-12,000). (In Chinese) On the whole, do you feel happy with your life: very unhappy, unhappy, so-so, happy, or very happy? (single answer). Coded 1, 2, 3, 4, or 5.

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- ¹ Penn World Table (2016).
- ² National Bureau of Statistics of China (2013).
- ³ Easterlin et al (2012). Happiness research by Chinese scholars, especially empirical studies, remain fairly rare. What is called a “happiness index” in some recent work actually omits or minimizes measures of subjective well-being; cf. Li (2008), Qui (2010), Wang and Chen (2008), and Zhou and Zhang (2008).
- ⁴ Knight and Song (2005), Xu (2011). Speaking of the period of policy reforms initiated in 1993, Cai et al (2008), p. 181, observe that “a large amount of resources have been extracted from the agricultural and rural sector to support urban industrialization.”
- ⁵ Here and in subsequent figures, vertical broken lines delimit the period when SWB troughs. Also, in order to highlight the longer-term movement, a three-year moving average is plotted for series with annual data.
- ⁶ Data and sources for the charts and numbers cited in this article are presented in the Online Appendix.
- ⁷ Knight and Song (2005), p. 19.
- ⁸ Easterlin (2014).
- ⁹ Easterlin (2012).
- ¹⁰ Arrow and Dasgupta (2009), Deaton (2008), Diener et al (2010), Frey and Stutzer (2002), Guriev and Zhuravskaya (2009), Inglehart (2002), Stevenson and Wolfers (2008), Veenhoven (1991).
- ¹¹ Easterlin et al (2012).
- ¹² Di Tella et al (2001).
- ¹³ Easterlin (2009).
- ¹⁴ Fan, Kanbur, Wei, and Zhang (2014), p. 10: “Happiness draws from relative comparisons. As income increases, people’s aspirations aim for a new target.” See also Chen (2014), pp. 406-410.
- ¹⁵ Stiglitz, Sen and Fitoussi (2008), p.149.
- ¹⁶ Cf. Radcliff (2013).
- ¹⁷ Feng, Hu, and Moffitt (2015); Gustafson and Ding (2011); Knight and Xue (2006).
- ¹⁸ Cf. Cai, Park, and Zhao (2008), p.182; Naughton (2008), pp.121-122; and Huang (2014), p. 294.
- ¹⁹ Naughton (2008), p. 121.
- ²⁰ Knight and Song (2005), p. 22.
- ²¹ DiTella, MacCulloch, and Oswald (2001).
- ²² Pew Research Center (2014).
- ²³ Naughton (2008), p. 121.
- ²⁴ World Bank (2007). See Giles, Park, and Cai (2006) for a comprehensive study of the impact of economic restructuring on urban workers.
- ²⁵ OECD 2010, Gustafsson and Ding (2011).
- ²⁶ Huang (2014), p. 294. Cf. also Huang (2008), pp. 169 ff.
- ²⁷ In this and subsequent figures depicting differences by SES based on WVS data, the 2001 WVS observations are omitted, because the highest and lowest education groups were not covered in the 2001 survey. Due to this omission, SES differences in 2001 are much smaller than in the two adjacent surveys. A test indicates that the 2001 life satisfaction mean is not affected by this omission. If the same groups that were not covered in 2001 are omitted from the 1995 and 2007 surveys, one finds that the overall mean in each survey is the same as when the groups are included.
- ²⁸ Gustafsson et al (2008), Knight and Song (2000), and Cai et al (2010).
- ²⁹ Knight and Song (2005), p. 23.
- ³⁰ For a comprehensive overview of China’s new social protection system, see Cai and Du (2015; cf. also Ravallion (2014).
- ³¹ Lu and Wang (2014).
- ³² Lu and Wang (2014).
- ³³ Easterlin (2012).
- ³⁴ Easterlin (2009).
- ³⁵ Henderson (2014).

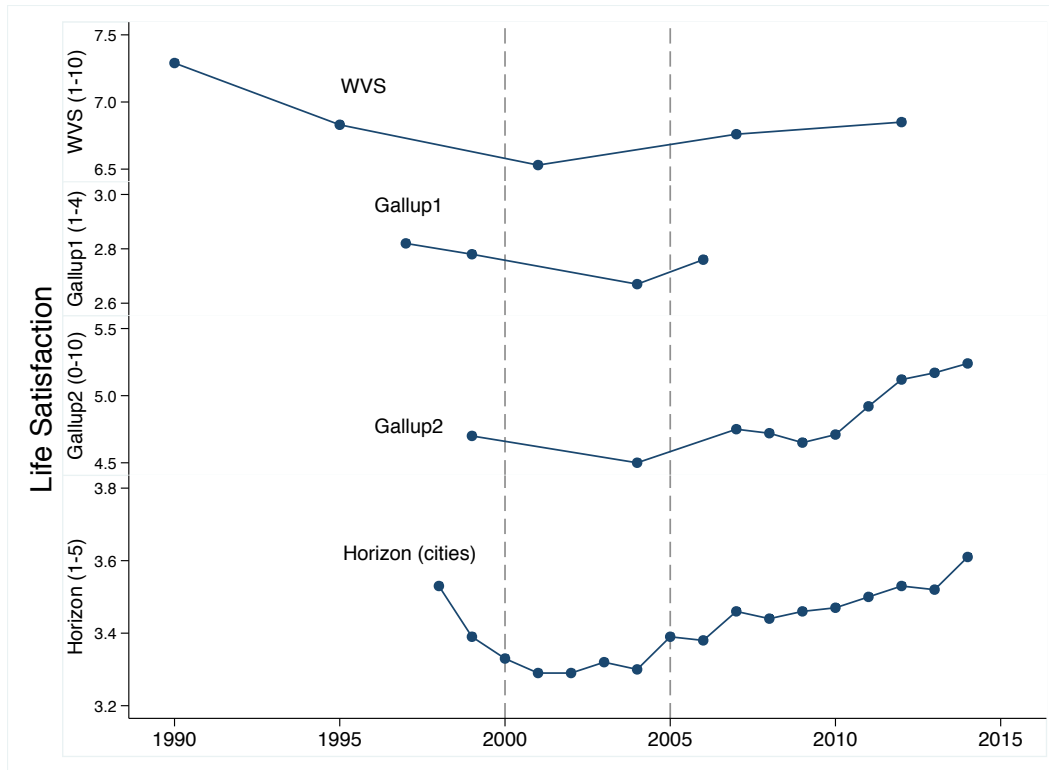
³⁶ See CGSS (2003), CHIP (2002), and Horizon (2003).

³⁷ Surveys showing the persistence of the gap are the CGSS (2010-2013), CFPS (2012), and CHIP (2013); those showing no gap are CFPS (2010) and (2014), and CHFS (2011).

³⁸ See CGSS (2005-2013) and CFPS (2010-2014).

³⁹ See OECD (2013) and Layard and O'Donnell (2015).

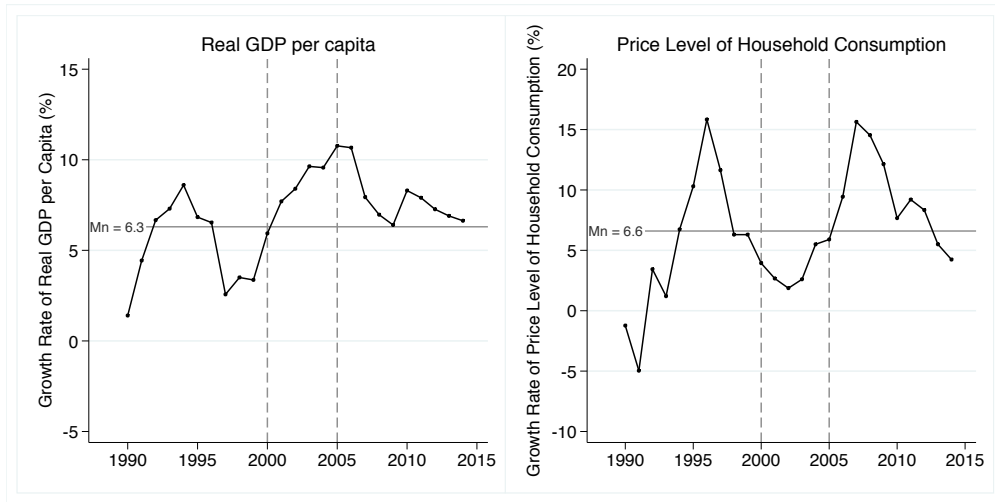
Fig. 1. Mean Subjective Well-Being, Four Series, 1990–2015



Source: Online Appendix, Table A1.

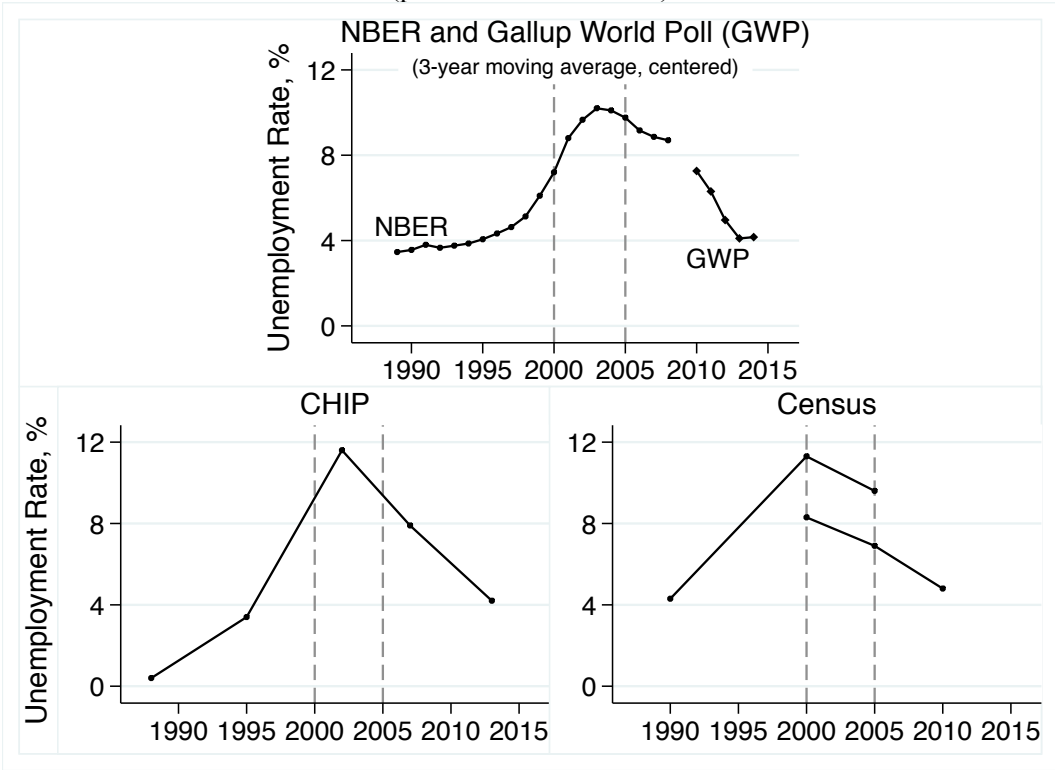
Notes: Horizon series is 3-year moving average, centered, of annual data for 1997-2015; Gallup 2, after 2004, is three-year moving average, centered, of annual data for 2006-2015. Series with response options of 1-4 or 1-5 are plotted to twice the scale of series with response options of 1-10 and 0-10. For survey questions and response options, see Technical Box 1.

Fig. 2. Growth Rate of Real GDP per Capita and Price Level, 1988-2015
(3-year moving average, centered)



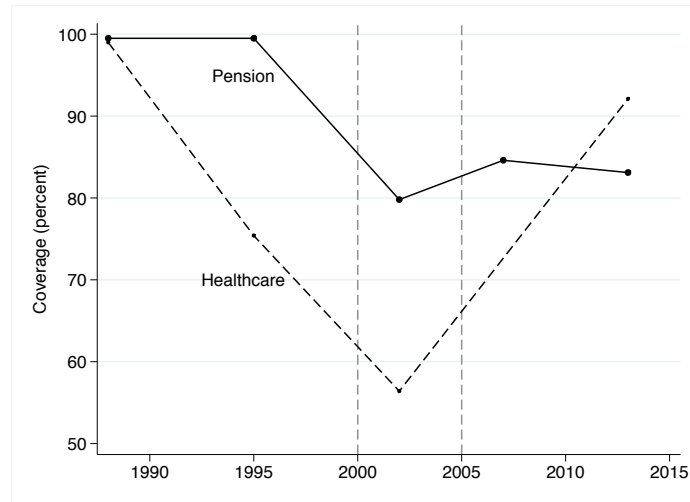
Source: Online Appendix, Table A2, cols. 3 and 6.

Fig. 3. Urban Unemployment Rate, Four Series, 1988-2015
(per cent of labor force)



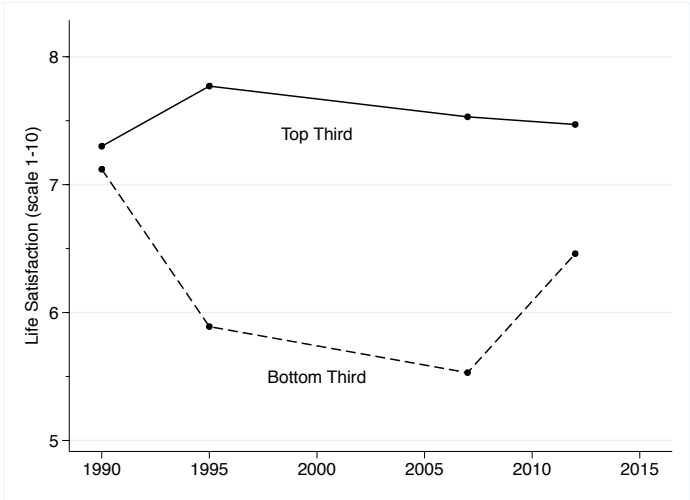
Source: Online Appendix, Table A3.

Figure 4. Safety Net Indicators: Pension and Healthcare Coverage, 1988-2013
(urban households)



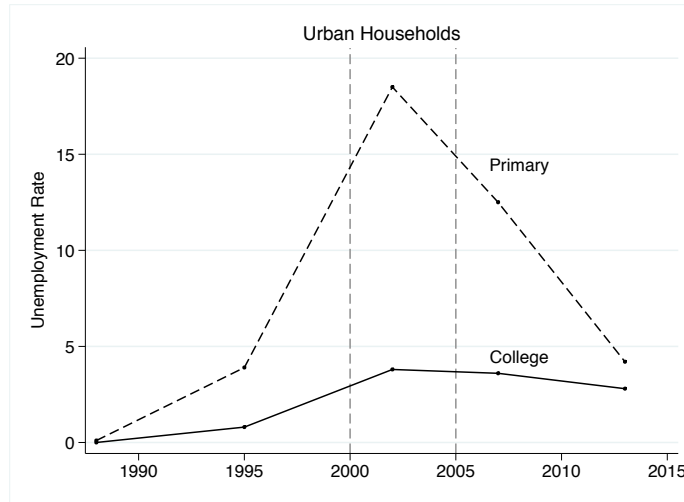
Source: Online Appendix, Table A4.

Figure 5. Mean Life Satisfaction, Top and Bottom Income Terciles, 1990 – 2012



Source: Online Appendix, Table A5.

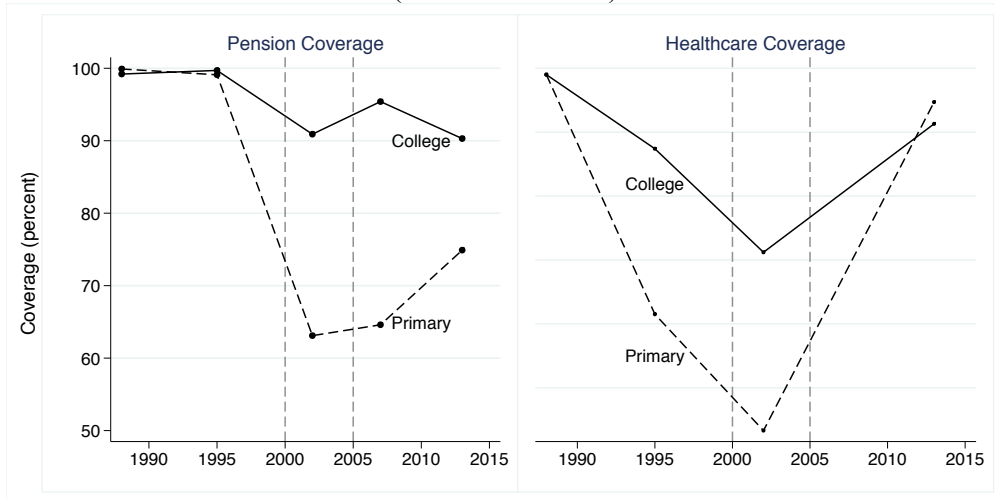
Fig. 6. Unemployment Rate by Level of Education,^a 1988-2013
(percent of labor force)



Source: Online Appendix, Table A6.

a. Persons with college education or more and primary school education or less.

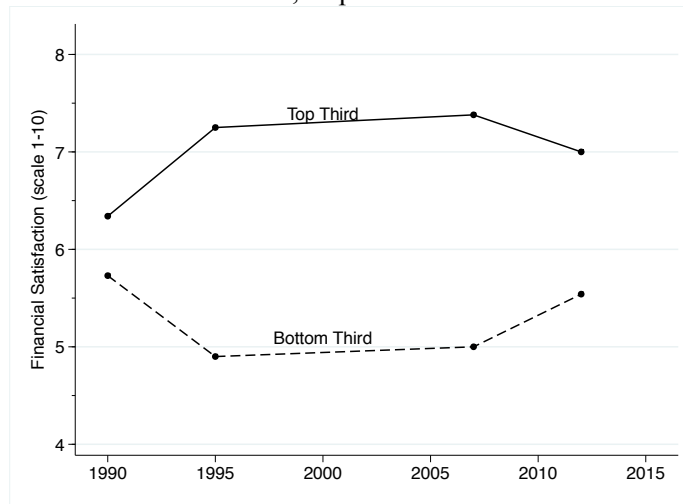
Fig. 7. Safety Net Indicators by Level of Education,^a 1988-2013
(urban households)



Source: Online Appendix, Table A4.

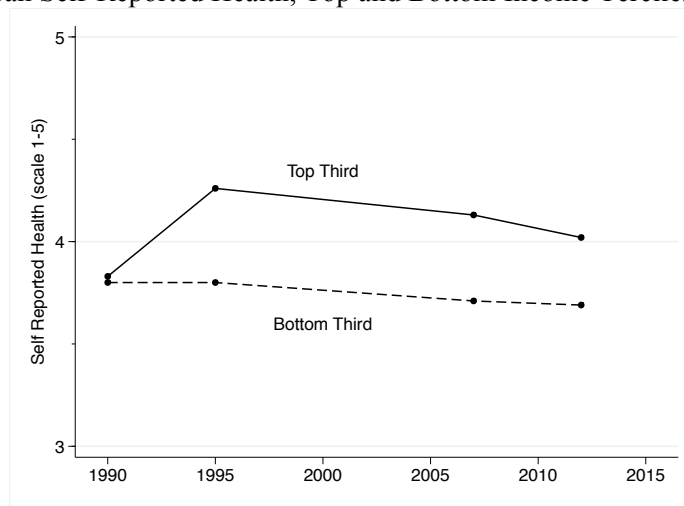
a. Persons with college education or more and primary school education or less.

Figure 8. Mean Financial Satisfaction, Top and Bottom Income Terciles, 1990 – 2012



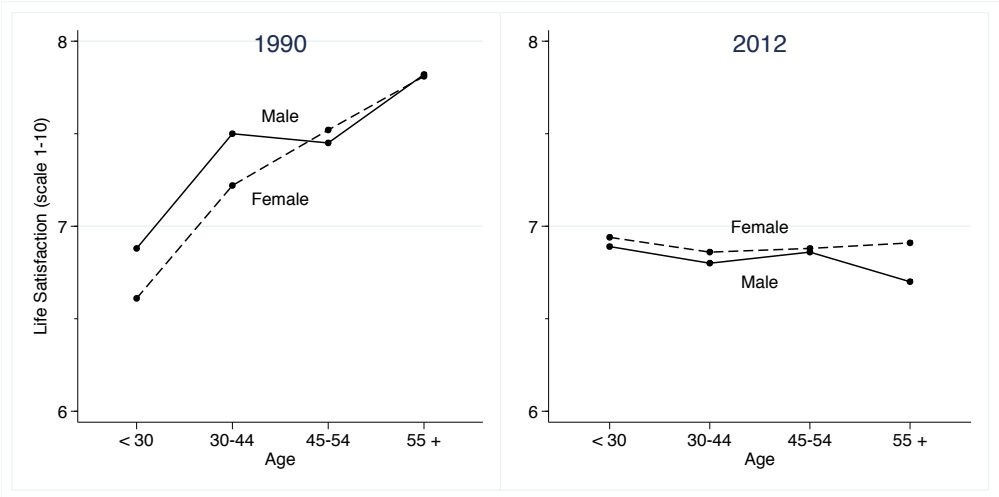
Source: Online Appendix, Table A7.

Figure 9. Mean Self-Reported Health, Top and Bottom Income Terciles, 1990 – 2012



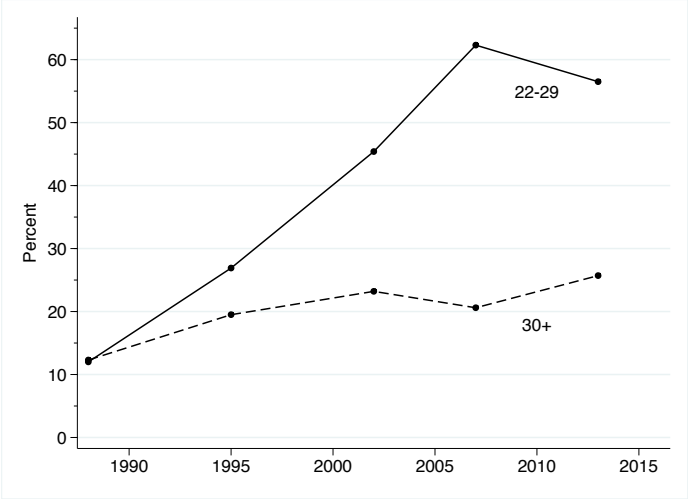
Source: Online Appendix, Table A8.

Figure 10. Mean Life Satisfaction, by Gender and Age, 1990 and 2012



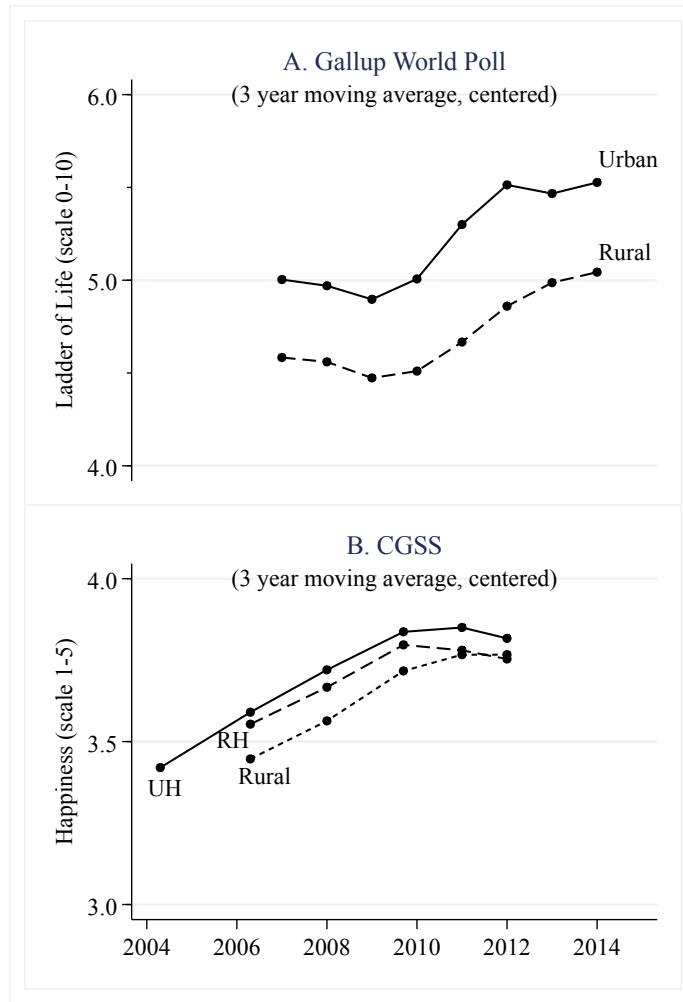
Source: Online Appendix, Table A9.

Figure 11: Percent College Educated or More, Both Sexes, Ages 22-29 and 30+, 1988-2013 (urban households)



Source: Online Appendix, Table A10.

Figure 12. Mean Life Satisfaction by Residence and Hukou Status, 2003-2015



Source: Table A II

Legend: UH = Urban hukou holders in urban areas
RH = Rural hukou holders in urban areas

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ONLINE APPENDIX

(Easterlin, Wang & Wang, Growth and Happiness in China, 1990-2015)

Table A1. Mean Subjective Well-Being, Four Series, Total Population, China, 1990-2015^a

	(1)	(2)	(3)	(4)	(5)	(6)
	WVS	Gallup1	Gallup2	Gallup2 (MA ^b)	Horizon (Cities)	Horizon (MA ^b)
	(1-10)	(1-4)	(0-10)	(0-10)	(1-5)	(1-5)
1990	7.29					
1995	6.83					
1997		2.82			3.69 ^d	
1998					3.48 ^d	3.54
1999		2.78	4.7 ^c		3.44 ^d	3.40
2000					3.27	3.33
2001	6.53				3.28 ^d	3.29
2002					3.33	3.29
2003					3.26	3.32
2004		2.67	4.5 ^c		3.38	3.31
2005					3.28	3.39
2006		2.76	4.56		3.52	3.38
2007	6.76		4.86	4.76	3.35	3.46
2008			4.85	4.72	3.51	3.44
2009			4.45	4.65	3.47	3.46
2010			4.65	4.71	3.41	3.47
2011			5.04	4.93	3.53	3.50
2012	6.85		5.09	5.12	3.57	3.53
2013			5.24	5.18	3.49	3.52
2014			5.20	5.25	3.51	3.61
2015			5.30		3.84	

Sources: WVS (World Values Survey: www.worldvaluessurvey.org); Gallup1 and Gallup2: (www.gallup.com); Horizon Research Consultancy Group, series for "cities" (www.agmr.com/members/horizon.html)

a. For specific questions and response options, see text, Technical Box 1. The scale for each survey is shown above in parentheses.

b. Three-year moving average, centered.

c. 1-10 scale

d. 1-4 scale, mean computed from 5,4,2,1 coding.

Table A2. Real GDP per Capita and Price Level of Household Consumption, 1988-2015

Year	(1)	(2)		(3)	(4)	(5)		(6)
	Real GDP per Capita (2011 US dollars)			Price Level (US 2005 = 100)				
		Rate of Change (%)				Rate of Change (%)		
		Annual	MA ^c			Annual	MA ^c	
1988	2408				13.3			
1989	2361	-1.94			15.6	17.45		
1990	2386	1.08	1.37		12.8	-18.05	-1.28	
1991	2505	4.98	4.43		12.4	-3.24	-5.00	
1992	2687	7.24	6.66		13.2	6.29	3.40	
1993	2896	7.78	7.31		14.1	7.16	1.19	
1994	3095	6.90	8.59		12.7	-9.87	6.74	
1995	3439	11.09	6.82		15.6	22.95	10.32	
1996	3523	2.45	6.52		18.4	17.89	15.86	
1997	3735	6.00	2.56		19.7	6.74	11.63	
1998	3706	-0.76	3.50		21.7	10.27	6.29	
1999	3901	5.26	3.35		22.1	1.86	6.27	
2000	4118	5.56	5.90		23.5	6.67	3.92	
2001	4401	6.87	7.66		24.3	3.23	2.67	
2002	4866	10.56	8.39		23.8	-1.90	1.87	
2003	5243	7.75	9.62		24.9	4.27	2.60	
2004	5796	10.56	9.58		26.2	5.41	5.51	
2005	6400	10.43	10.77		28.0	6.84	5.93	
2006	7126	11.33	10.68		29.6	5.54	9.47	
2007	7858	10.29	7.95		34.3	16.02	15.66	
2008	8034	2.23	6.97		43.0	25.43	14.54	
2009	8709	8.41	6.41		44.0	2.18	12.15	
2010	9456	8.58	8.30		47.8	8.85	7.68	
2011	10205	7.92	7.92		53.6	12.02	9.22	
2012	10945	7.25	7.27		57.2	6.81	8.35	
2013	11673	6.66	6.92		60.8	6.22	5.49	
2014	12473	6.85	6.63		62.9	3.45	4.23	
2015	13271 ^a	6.40			64.8 ^b	3.03		

Sources: Real GDP per capita 1988-2014 (Penn World Table 9.0, <http://www.rug.nl/research/ggdc/data/pwt/>), Real GDP per capita 2015 (NBS of China, <http://www.stats.gov.cn/>), Price level 1988-2014 (Penn World Table 9.0, <http://www.rug.nl/research/ggdc/data/pwt/>), Price level 2015 (NBS of China, <http://www.stats.gov.cn/>).

a. Extrapolated by the NBS series, assuming the 2015 growth rate is the same (6.4%) in both series.

b. Extrapolated by the NBS series, assuming the ratio of the NBS CPI (1978=100) to the PWT price level in 2015 is 9.5, following the decreasing trend of the ratio since 2011.

c. Three-year moving average, centered.

Table A3. Urban Unemployment Rate, Four Series, 1988-2015
(percent of labor force)

Year	(1) NBER	(2) GWP	(3) NBER (MA ^a)	(4) GWP (MA ^a)	(5) CHIP	(6) Census
1988	3.5				0.4	
1989	3.0		3.5			
1990	3.9		3.6			4.3
1991	3.8		3.8			
1992	3.7		3.7			
1993	3.5		3.8			
1994	4.1		3.9			
1995	4.0		4.1		3.4	
1996	4.1		4.3			
1997	4.9		4.6			
1998	4.9		5.1			
1999	5.6		6.1			
2000	7.8		7.2			11.3/8.3 ^b
2001	8.2		8.8			
2002	10.4		9.7		11.6	
2003	10.4		10.2			
2004	9.9		10.1			
2005	10.0		9.8			9.6/6.9 ^b
2006	9.4		9.2			
2007	8.1		8.9		7.9	
2008	9.1		8.7			
2009	8.9	8.2				
2010		8.7		7.3		4.8 ^b
2011		4.9		6.3		
2012		5.3		5.0		
2013		4.7		4.1	4.2	
2014		2.3		4.2		
2015		5.5				

Sources: NBER (urban hukou population): Feng, Hu, and Moffitt 2015; GWP (www.gallup.com); CHIP (urban households, <http://www.ciidbnu.org/chip/index.asp>); Census (random samples of the Census data from the NBS of China, and statistics on <http://www.stats.gov.cn/>)

a. Three-year moving average, centered.

b. Urban (city + town) population; other census values are for urban hukou population.

Table A4. Safety Net Indicators by Level of Education, 1988-2013
(urban households)

		A. Pension coverage (percent of males ages 60+ and females ages 55+)				
		1988	1995	2002	2007	2013
1	All	99.5	99.5	79.8	84.6	83.1
2	College or more	99.2	99.7	90.9	95.4	90.3
3	Middle school or high school	99.8	99.7	88.7	90.6	86.8
4	Primary school or less	99.9	99.1	63.1	64.6	74.9
5	Row 2 - Row 4	-0.7	0.6	27.8	30.8	15.4
		B. Healthcare coverage (percent of population ages 15+)				
		1988	1995	2002	2007	2013
6	All	(99) ^a	75.4	56.4		92.1
7	College or more	(99)	87.4	71.2		91.3
8	Middle school or High School	(99)	74.6	52.8		91.9
9	Primary school or less	(99)	61.5	43.3		94.7
10	Row 7 - Row 9	(0)	25.9	27.9		-3.4

Source: CHIP (urban households, <http://www.ciidbnu.org/chip/index.asp>). Healthcare was not asked in 1988 and 2007.

a. Values for 1988 assume coverage was nearly universal, based on responses on self-rated health (SRH) by income and education in the 1990 WVS which are very close together. Cf. Inglehart et al 1998, V83.

Table A5: Mean Life Satisfaction, Top and Bottom Income Terciles, 1990-2012
(scale 1-10)

	(1) 1990	(2) 1995	(3) 2007	(4) 2012
All	7.29	6.83	6.77	6.86
Top third	7.30	7.77	7.53	7.47
Bottom third	7.12	5.89	5.53	6.46
Top minus bottom	0.18	1.88	2.00	1.01

Source: World Values Survey.

Table A6. Unemployment Rate, by Level of Education, 1988-2013
(per cent of labor force)

A. CHIP (urban households)					
	1988	1995	2002	2007	2013
All	0.4	3.4	11.6	7.9	4.2
College or more	0.0	0.8	3.8	3.6	2.8
Middle school or high school	0.5	3.7	13.8	8.8	5.2
Primary school or less	0.1	3.9	18.5	12.5	4.2
Primary minus college	0.1	3.1	14.7	8.9	1.5

B. Census						
	(urban hukou pop.)			(urban pop.)		
	1990	2000	2005	2000	2005	2010
All	4.3	11.3	9.6	8.3	6.9	4.8
College or more	0.5	3.5	4.1	3.7	4.2	4.8
Middle school or high school	5.0	13.5	11.8	10.2	8.1	5.2
Primary school or less	3.3	10.8	13.4	3.9	5.0	3.3
Primary minus college	2.8	7.3	9.3	0.2	0.8	-1.5

Source: See Table A3.

Table A7. Mean Financial Satisfaction, Top and Bottom Income Terciles, 1990-2012
(scale 1-10)

	(1) 1990	(2) 1995	(3) 2007	(4) 2012
All	6.10	6.11	6.06	6.18
Top third	6.34	7.25	7.38	7.00
Bottom third	5.73	4.90	5.00	5.54
Top minus bottom	0.61	2.35	2.38	1.46

Source: World Values Survey.

Table A8: Mean Self-Reported Health, Top and Bottom Income Terciles, 1990-2012
(scale 1-5)

	(1) 1990	(2) 1995	(3) 2007	(4) 2012
All	3.82	4.01	3.93	3.86
Top third	3.83	4.26	4.13	4.02
Bottom third	3.80	3.80	3.71	3.69
Top minus bottom	0.03	0.46	0.42	0.33

Source: World Values Survey.

Table A9. Mean Life Satisfaction, by Gender and Age, 1990 and 2012
(scale 1-10)

Age	(1)	(2)	(3)	(4)
	A. Male		B. Female	
	1990	2012	1990	2012
All	7.36	6.81	7.19	6.89
< 30	6.88	6.89	6.61	6.94
30 - 44	7.50	6.80	7.22	6.86
45 - 54	7.45	6.86	7.52	6.88
55 +	7.82	6.70	7.81	6.91

Source: World Values Survey.

Table A10. Percent College Educated or More, Both Sexes, Ages 22-29 and 30+, 1988-2013
(urban households)

Age	(1) 1988	(2) 1995	(3) 2002	(4) 2007	(5) 2013
All	12.3	20.5	25.6	24.1	29.6
22-29	12.0	26.9	45.4	62.3	56.5
30 and over	12.3	19.5	23.2	20.6	25.7

Source: CHIP

Table A 11. Mean Subjective Well-Being by Residence and Hukou Status, 2003-2015^a

	(1) Gallup (0-10)				(2)						(3)		(4) CGSS (1-5)				(5)	
	Urban		Rural		UH		RH		Rural									
	Y	MA	Y	MA	Y	MA	Y	MA	Y	MA	Y	MA	Y	MA	Y	MA		
2003					3.29				3.19									
2004																		
2005					3.45	3.42	3.44	3.35	3.36									
2006	4.80		4.41		3.52	3.59	3.43	3.55	3.40	3.45								
2007	5.12	5.00	4.70	4.58														
2008	5.09	4.97	4.64	4.56	3.80	3.72	3.79	3.67	3.58	3.56								
2009	4.70	4.90	4.34	4.47														
2010	4.90	5.01	4.44	4.51	3.84	3.84	3.78	3.80	3.71	3.72								
2011	5.42	5.30	4.75	4.67	3.87	3.85	3.82	3.78	3.86	3.77								
2012	5.58	5.51	4.81	4.86	3.84	3.82	3.74	3.75	3.73	3.77								
2013	5.54	5.47	5.02	4.99	3.74		3.70		3.71									
2014	5.28	5.53	5.13	5.04														
2015	5.76		4.98															

Legend: UH = Urban hukou holders in urban areas

RH = Rural hukou holders in urban areas

Y= yearly

MA = Three item moving average, centered

Sources: Gallup, See Table A1. CGSS (<http://www.chinagss.org/index.php?r=index/index&hl=en>).

a. For specific questions and response options, see Technical Box 1