Overview: Income Inequality and Poverty in China, 2002-2007

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I. Introduction

It has been more than three decades since China started to transform its economy institutionally and structurally. The economic transformation has stimulated rapid economic growth in both GDP and personal incomes. From 1978 to 2007 annual growth of GDP averaged close to 10 percent and of household per capita income more than 7 percent. The rate of economic growth was even more impressive in later years, including the period under study in this chapter. From 2002 to 2007 annual growth in GDP was 11.6 percent, and in rural and urban household income per capita 6.8 and 9.6 percent, respectively.[1]

Although the reforms were successful in promoting GDP growth, by the early 2000s concerns about rising disparities and sustainability prompted the government to announce a new development strategy emphasizing sustainable, harmonious growth. A new policy programme, referred to as "the Vision of Scientific Development (kexue fazhan guan)" or "the Hu-Wen New Policies (Hu-Wen xin zheng)," aimed to promote development between urban and rural areas, reducing regional disparities, narrowing income inequalities, and establishing a social protection network with full coverage of all Chinese people. This programme included a series of pro-rural policies. The first and widely trumpeted measure was the elimination of agricultural taxes, which had been in place for almost 60 years. By the end of 2007 Chinese rural households had completely stopped paying agricultural taxes.

A second policy was to eliminate all school fees for students in the first nine years of schooling. Although this measure did not have a direct and immediate effect on household incomes, it reduced the cost of education for households and encouraged investment in education, which could enhance incomes in the long term. This policy was first implemented in poor counties in rural areas, then spread to all rural areas and then to the whole country. A third policy was the establishment of the Minimum Income Guarantee System (zuidi shenghuo baozheng, or in short dibao). Although the dibao program was introduced in the mid 1990s, in rural areas it only began to play an important role after 2005, at which point the number of rural people supported by dibao increased enormously, reaching to 36 million in 2007 compared with 4 million in 2002. On average each individual received around 480 yuan in 2007, equivalent to 60% of the official poverty line in rural areas.[2] A fourth policy benefiting rural households was a farm support program, mainly targeted at households producing grain in the form of "grain subsidies (liangshi butie)" and "agricultural production

[1] Household income per capita in real terms increased 7.34 times for rural households and 7.53 times for urban households during 1978-2007 (See China Statistical Abstract 2008).

[2] See Statistical Report of China Civil Affairs Development in 2007, Ministry of Civil Affairs, http://cws.mca.gov.cn/article/tjbg/200805/20080500015411.shtml.

material subsidies (nongye ziliao butie)." These farm subsidies started in 2004 and in principle could have promoted growth of rural incomes in ensuing years.[3]

During this period the Chinese government also introduced policies benefiting low-income urban households. Among these policies was the urban dibao program. Analysis of this program by Li and Yang (2009) finds that it has played an important role in alleviating urban poverty, but has not substantially reduced urban income inequality, partly due to its targeting errors. Moreover, the number of urban households benefiting from the program did not increase significantly during the period under our study.

China's economic growth is closely related to urbanization. The share of the urban population in China's total population has increased almost one percentage point each year since 1990. By the end of 2007, the urban population reached to 45 percent of the national population. Rural-to-urban migration has been part of the urbanization process. According to the Second National Census of Agriculture, the number of rural-urban migrant workers who were employed in urban areas for more than 6 months of the year was around 132 million in 2006. While rural migration can contribute to growth of household income in rural areas, it can also create competition in urban labor markets that can potentially affect urban incomes and inequality.

China is a nation with substantial rural-urban and regional divisions in terms of economic and social development. These spatial divisions were significant in the planning period (Démurger et al, 2002) and have persisted into the reform era. Concerns about the urban-rural income differential have prompted many of the rural support policies outlined above. Similarly, differential economic growth between coastal and inland regions has led the Chinese government to adopt regional balancing policies. In 1999 the central government implemented the Western Development Strategy (xibu dakaifa zhanlue) and increased investment in infrastructure and fiscal transfers to western provinces (Fang et al. 2007). This was followed by further programs supporting lagging regions such as the Reviving the Northeast Strategy (zhenxing dongbei) in 2003 and the Rise of the Central Region (zhongbu jueqi) scheme aimed at central provinces in 2006 (Yao 2009, Chung et al. 2009). Such policies could have an impact on regional income disparities.

Using data from the 2007 wave of the CHIP survey, in this chapter we measure and analyze income inequality and poverty during the period 2002 to 2007. Here we report overall, nationwide patterns and trends. The findings reported in this chapter lay the groundwork for later chapters, which provide in-depth analyses by sector and of particular programs and policies.

We begin in the next section with a brief review of the main findings in the recent literature on changes in China's income inequality, with emphasis on the results from the previous book coming out of the CHIP project.[4] In section III we explain key features of the data. In section IV we present our central findings regarding levels of and trends in China's national income inequality, and also examine sources of income.

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[3] The total amount of agricultural subsidy funds including grain subsidy reached to 52.6 billion yuan in 2007. http://www.china.com.cn/news/2007-09/13/content_8869413.htm.

[4] See Gustafsson, Li and Sicular, 2008.

Despite substantial growth in mean incomes between 2002 and 2007, and despite the various policies adopted to promote harmonious growth, during this period nationwide inequality continued its upward trend. This conclusion is robust to choice of income definition, weights, inequality index, and treatment of migrants.

More and more rural people have moved into cities, but they are not fully captured in the official NBS household surveys. This leads to potential bias in estimation of income growth and inequality of Chinese households. Other chapters in this book examine incomes and inequality the rural and formal urban populations, but not of urban-rural migrants. In this chapter, therefore we include a separate section on income and inequality among migrants. As short-term, temporary migrants are included in the rural survey, our discussion migrants is limited to those individuals of rural origin who have long-term, stable residence in the cities (see Appendix II). Our analysis shows that between 2002 and 2007 incomes of long-term, stable migrants grew rapidly and that inequality among migrants declined. Due to the relatively low population share of this group of migrants, however, including them in our calculations does not substantially alter levels of national inequality and poverty. Temporary and short-term migration, however, contributed to income growth of rural households and thus likely moderated the income gap between urban and rural areas (see also chapter 6 by Luo and Sicular).

The increase in China's national inequality between 2002 and 2007 reflects changes in the spatial structure of China's income distribution, discussed in sections VI and VII. The continued widening of the urban-rural income gap is of particular concern; as a consequence the urban-rural divide remains a major source of inequality. Analysis of inequality among geographic regions reveals that regional income differentials in fact contribute a relatively small share of national inequality. The overwhelming majority of national inequality is associated with inequality within regions, including urban-rural gaps within regions.

Finally, in section VIII we examine trends in poverty nationwide (later chapters examine rural and urban poverty separately). Between 2002 and 2007 national poverty as measured using an absolute poverty line continued its ongoing decline and reached historically low levels. Relative poverty, however, remained unchanged. We comment on these and other findings in a concluding section.

II. Main findings of previous studies

The rise in income inequality in China during the reform era has been widely documented. Past studies have found that nationwide inequality rose rapidly between the late 1980s and the mid-1990s but then tapered off from the mid-90s through the early 2000s. Estimates from Ravallion and Chen (2007) and the World Bank (2009) show income inequality rising from the late 1980s through 1994, dipping a bit in the late 1990s, and then edging upward again, so that by the early 2000s inequality was only slightly higher than in the mid-90s. Analyses based on the 1995 and 2002 CHIP surveys similarly report that inequality was more or less unchanged between 1995 and 2002 (Gustafsson, Li and Sicular 2008; Khan and Riskin 2008).

Gustafsson, Li and Sicular (2008) identify several equalizing processes that emerged in the late 1990s that could explain these trends. They include the spread of wage

employment in rural areas, catch up between lower and higher income provinces in some regions, shared macroeconomic growth, and, within urban areas, the widened implementation of the urban housing reforms.

The Kuznets hypothesis proposes that inequality follows an "inverted U" pattern, i.e., that it first increases and then decreases during the course of development. The emergence of equalizing processes in the late 1990s/early 2000s raises the possibility that China's may have been turning the corner of the Kuznets' "inverted U." Findings based on the CHIP 2007 data reported below, however, show that inequality in China has resumed its upward trajectory. The analysis in this and later chapters finds evidence that some equalizing processes continued to operate during this period, but that they were insufficient to offset stronger disequalizing forces.

Spatial income differentials have figured large in the literature on inequality in China. The widening gap between urban and rural incomes has been consistently cited as an important factor underlying national inequality (e.g., Sicular et al. 2010, Ravallion and Chen 2007, World Bank 2009, Kanbur and Zhang 2009). This finding is robust across numerous studies using different measures of income and inequality. Regional income differences between the East, Center and West have also received attention, although several recent studies have concluded that regional differences are not as important as within-region and rural-urban inequality (Yao 2009; Fan, Kanbur and Zhang 2010; Wan 2007). Below we explore rural-urban and regional income differentials using the CHIP 2007 data; our findings are generally consistent with these other studies.

China has had an enviable record of poverty reduction (World Bank 2009, Ravallion and Chen 2007, Chen and Ravallion 2008). While different studies employ different poverty measures and poverty lines, they agree on broad trends over time. During the early and mid-1990s poverty in China declined substantially, and then in the late 1990s/early 2000s the downward trend stalled (World Bank 2009, Ravallion and Chen 2007, Miniou and Reddy 2008). Some recent studies suggest that after 2001 poverty reduction accelerated again (World Bank 2009). Our estimates of absolute poverty also show progress in poverty reduction from 2002 through 2007.

Most of the literature on poverty in China measures poverty using an absolute poverty line based on the cost of basic food and non-food consumption needs. As countries develop, deprivation is associated more with relative than absolute living standards. In view of China's transformation from a low to a middle-income country, we extend the analysis of poverty and also measure relative poverty. By such a measure, China's poverty record in recent years is less encouraging.

Poverty, like inequality, has spatial dimensions: it is primarily rural, and poverty incidence is higher in western China (World Bank 2009, Ravallion and Chen 2007). Moreover, as the overall level of poverty has declined, the remaining poor have become increasingly dispersed. The spatial pattern of poverty is important for the design of poverty alleviation programs, which in China have relied heavily on geographic targeting (World Bank 2009). In the analysis below we therefore also investigate regional aspects of poverty.

III. Data and sample weights

The data used in this chapter come from the last two waves of household surveys conducted by China Household Income Project (CHIP) for the years of 2002 and 2007. The surveys cover three types of households: urban households, rural households and rural-urban migrant households. The sample of urban households and rural households is a subsample of the large sample of National Bureau of Statistics (NBS). The sample size of the NBS's sample is 40000 and 680000 households in urban and rural areas in 2002[5]. The sample size increased to 59000 households in the urban survey and remained the same in the rural survey in 2007[6].

The 2002 wave of CHIP rural survey selected 9200 households and 37969 individuals from 120 counties of 22 provinces. It was expected that Beijing represented three large metropolitan cities (the other two being Shanghai and Tianjin); Hebei, Liaoning, Jiangsu, Zhejiang, Shandong and Guangdong the eastern region; Shanxi, Jilin, Anhui, Jiangxi, Henan, Hubei, and Hunan the central region; and Sichuan, Guizhou, Yunnan, Guangxi, Shaanxi, Xinjiang and Gansu the western region. The provincial statistical bureaus were given autonomy to decide the number of counties and were required to select counties and villages to represent counties and villages with different income level. The data from the urban survey include 6835 households and 20632 individuals surveyed in 70 cities within 11 of the 22 provinces above, which are Beijing, Liaoning, Jiangsu, Guangdong, Shanxi, Anhui, Henan, Hubei, Sichuan, Yunnan and Gansu. These households are largely formal urban residents with local household registration (hukou). A detailed description of the 2002 survey can be found in Li et al (2008).

The questionnaires were designed for the purpose of deriving household income internationally comparable. Therefore many detailed income questions were asked in the questionnaires to rural and urban households. The households were required to answer questions regarding wage income and other income components for each of working members, and income from family business. In order to estimate imputed rent of private housing, several housing related questions were asked to households such as self-estimated market value of housing.

The 2002 survey also included a separate, add-on sample of 2000 rural-urban migrant households, which were selected from the capital city plus one middle-size city in each province. The principle for sample distribution among the provinces is that 200 households were allocated to the provinces in the coastal and central regions and 150 households to the provinces in the western regions. Within each province, 100 households were given to capital city and 50 households to other city. Within cities, it was required to select rural-urban migrant households from residential communities and the migrant workers living in construction sites and factories were outside of the sampling frame. Since in our analyses we classify short-term migrants as rural and classify as rural-urban migrants only the subset of migrants who are longer-term, stable urban residents, this aspect of the 2002 sample selection is not overly problematic. The migrant questionnaires include questions regarding wage, business income, consumption, job characteristics of individual members and households.

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[5] See the introduction to sampling procedure of NBS's household survey in 2002 (http://www.stats.gov.cn/tjsj/ndsj/yearbook2003_c.pdf).

[6] See the introduction to sampling procedure of NBS's household survey in 2007 (http://www.stats.gov.cn/tjsj/ndsj/2008/indexch.htm).

The 2007 surveys for rural and urban households were conducted in the 16 provinces, which are Beijing Hebei, Shanxi, Liaoning, Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Henan, Hubei, Guangdong, Chongqing, Sichuan, Yunnan, and Gansu. The survey for rural-urban migrant households covered 9 of the 16 provinces above. The surveys include 13000 rural households, 10000 urban local households and 5000 urban-rural migrant households. As in the 2002 surveys, the 2007 surveys for rural households and urban local households took sub-samples from the large sample of NBS, while the rural-urban migrant survey was conducted separately. Detailed information about the 2007 surveys is provided in Appendix 1 of this volume.

The questionnaires for the 2007 surveys include the same questions as many in the 2002 surveys as possible. New questions regarding migration status and behavior were added into the questionnaires for the purpose of migration analysis.

The CHIP survey samples have several characteristics that lead to estimation bias if the samples are used without population-based sample weights. A detailed discussion of weights can be found in Appendix II of this volume and in Li, et al. (2008). Key issues are (a) the CHIP sample was designed to be representative of four distinct regions (large municipalities with provincial status, eastern China, central China and western China), [7] (b) not all provinces are included in the samples, and provincial coverage changes between 2002 and 2007, (c) provincial sample sizes are not proportional to their populations, and (d) the urban, rural and migrant sample sizes are not proportional to their populations. In view of these features of the CHIP samples, when subsamples are combined among groups and regions, and for comparison over time, population weights are needed to make the CHIP sample representative.

As discussed in Appendix II, two alternative approaches are recommended for sample weights. The first is to use two-level weights based on the population shares of each group (urban and rural, and where relevant migrant) within each region. The second is to use three-level weights based on the population shares of each group (urban, rural and where relevant migrant) within each province and region. In general we use the second approach, but to show the sensitivity of estimation results using the two weighting methods, we present central results in the section on national incomes and inequality using both sets of weights.

With respect to income, our preferred measure is net disposable household income per capita. The NBS calculates an estimate of net disposable household income that is published in official sources and is provided in the CHIP datasets. As discussed elsewhere (Gustafsson, Li and Sicular 2008; Khan and Riskin 1998), the NBS calculation of net disposable income omits certain components of income. For this reason we prefer an alternative calculation of income based on that proposed by Khan and Riskin (1992), but adapted in light of recent shifts in the structure of incomes and

[7] The geographic areas used to construct the CHIP sample frame were (1) large municipalities with provincial status (Beijing, Tianjin and Shanghai, treated together as a separate geographic area; Chongqing is treated as part of Sichuan in western China for consistency with earlier rounds of the survey), (2) eastern China (Hebei, Liaoning, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, Hainan); central China (Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, Hunan); and western China (Inner Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang).

data availability. Specifically, we calculate income as NBS income plus imputed subsidies on subsidized rental housing, plus the imputed value of rental income on owner-occupied housing. The CHIP surveys contain information on estimated market rents and market housing values that are used to calculate these additional income components.[8] Below we refer to this alternative, broader measure of income as CHIP income.

For purposes of comparison over time, we deflate 2007 incomes using consumer price indexes published by the NBS to obtain their values in constant 2002 prices. For national calculations we use the national average consumer price index. For separate analyses of urban and rural areas we use the separate urban and rural consumer price indexes (the urban consumer price index is used for long-term stable migrants). Between 2002 and 2007 the consumer price indexes show that on average nationally consumer prices rose by 13.9 percent; in urban areas prices increased by 12.3 percent and in rural areas by 16.4 percent.[9]

Several studies have noted that differences in costs of living among regions and provinces can cause overstatement of real inequality (Brandt and Holz 2006; Sicular, Yue, Gustafsson and Li 2010). To obtain income comparable among regions in terms of purchasing power parity (PPP), we use the PPP-adjusted deflator from Brandt and Holz (2006) to correct for differences of living costs between urban and rural areas and among provinces. Brandt and Holz (2006) provides PPP deflators for 2002 that we apply to the 2002 CHIP data. For 2007 we update the Brandt and Holz PPP deflators using official consumer price indexes for urban and rural areas by province published by the NBS.

IV. National household income inequality: main findings

Table 1 shows national mean household per capita income and income inequality calculated using three commonly used inequality indices, the Gini coefficient and two Theil indices. Our preferred estimates are calculated using the CHIP definition of income, including migrants, and with three-level population weights (urban/rural/migrant group x region x province). As our preferences may not be universally shared, and for ease of comparison with other studies, we also present estimates calculated using the NBS definition of income, excluding migrants, and with two-level weights (urban/rural/migrant group x region).

On average, incomes increased markedly between 2002 and 2007. Regardless of the income definition, treatment of migrants, and choice of weights, mean income increased more than 70 percent over the five years (calculated using constant 2002 prices), implying average annual growth in excess of 11 percent. Income growth was even more rapid for the CHIP definition than for the NBS definition of income, reflecting growth in imputed rents due to increased housing values and the expansion of urban homeownership, as discussed in chapter 4 (Sato, Sicular and Yue). Including migrants does not substantially change mean income levels or growth.

On balance, growth in mean income should reduce inequality: if mean income

[8] The estimation of imputed rents from owner-occupied housing is based on the work of Sato, Sicular and Yue in chapter 4, which includes a detailed discussion on this topic.

[9] See China Statistical Yearbook 2008 (http://www.stats.gov.cn/tjsj/ndsj/2008/indexch.htm) .

increases while the distribution of income around the mean stays unchanged, then measured inequality will decline. Despite the substantial growth in national mean income, however, inequality in China increased. From 2002 to 2007 China's Gini coefficient rose by 5 to 7 percent, depending on the choice of weights, etc. For our preferred calculation, the Gini rose by 6 percent from 0.46 in 2002 to 0.49 in 2007. Increases in the Theil measures of inequality were larger, ranging from 9.5 percent for the G(1) to nearly 18 percent for G(0)/MLD. Differences in inequality trends among the three measures reflect that each measure emphasizes different sections of the income distribution. The Gini places more weight on income differences at the middle of the distribution, the GE(1) places more weight on the lower tail of the distribution, and the GE(0) places even more weight on the lower tail.

Graphs reveal more clearly the pattern of change in the income distribution that underlies the increases in these inequality indices. Figure 1 shows the Lorenz curves for 2002 and 2007. The Lorenz curve for 2007 is everywhere lower than for 2002, which is consistent with increase in inequality measured by the inequality indices in Table 1.

Figure 2 shows the distribution of income across income decile groups, ordered from the poorest 10 percent to the richest 10 percent income group. The height of the light grey bars gives mean income by decile in 2002, and the height of the dark grey bars gives mean income, expressed in constant 2002 prices, by decile in 2007. The black line shows the percentage increase in income (constant prices) for each decile between 2002 and 2007.

It is clear from Figure 2 that income increased for all decile groups, but the increase was smaller for poorer deciles than for richer deciles. Income of the bottom decile increased by 406 yuan or 46 percent (constant 2002 prices). This is a substantial increase, but in both absolute and relative terms it lagged far behind that of higher income groups. Income of the top decile, for example, increased by nearly 16000 yuan or 94 percent (constant prices).

Do these patterns of inequality reflect changes in the composition of income? Clues about the role of different income sources can be found in Table 2, which shows the income shares, Gini concentration ratios, and contributions to overall inequality of each component of per capita income. Contributions to inequality are calculated using standard inequality decomposition of by factor components (Shorrocks 1982).

Looking first at urban incomes, one can see that the concentration ratio of urban household incomes is much higher than the Gini of the total income distribution, implying that income of this group on balance had a disequalizing effect on total inequality. Most disequalizing were urban wages, pensions and imputed rents on owner-occupied housing. Notably, the contribution to inequality of imputed rents for urban households rose substantially, from 8 percent of total inequality in 2002 to 17 percent in 2007. These numbers reveal the emergence of private assets as a new and increasingly important source of inequality. Nationally, including rural and migrant households, the total contribution of asset and imputed rent to total inequality rose from 9 percent in 2002 to 20 percent in 2007.

The negative contribution of urban net transfers (including both government and

private) is also notable, especially in 2007 when it reduced total inequality by 5 percent. The increasingly equalizing role of urban net transfers likely reflects the expansion of government urban welfare programs such as the urban minimum living guarantee program (see chapter 8, Deng and Gustafsson) and of income taxes (see chapters 8 and 11 by Deng and Gustafsson and by Xu and Yue).

The concentration coefficient of migrant income was similar to that of urban income, but owing to the small population and income shares of migrants, the overall impact on national inequality remained small although increasing over time. Below we discuss incomes and inequality for migrants in more detail.

In contrast, the concentration ratio of rural household income was close to zero in 2002 and became negative in 2007, implying that rural household income had an increasingly equalizing effect on total inequality. Income from farming was the most equalizing source of rural income, but its importance to overall inequality declined because the share of farm income in total income continued to shrink. Income from short-term migrant work by rural household members was also equalizing and became more equalizing between 2002 and 2007. In-depth analysis or rural incomes and inequality can be found in chapter 6 (Luo and Sicular).

Most analyses of inequality in China do not adjust for differences in the cost of living among regions. The cost of living is typically higher in wealthier areas, and so measured inequality will be overstated as it reflects price differentials as well as real differences in purchasing power. Table 3 gives a comparison of inequality estimates calculated with and without adjustments for purchasing power parity (PPP). In all cases PPP adjustments reduce the measured level of inequality. For example, adjusting for PPP reduces the 2007 Gini coefficient by 13 percent from 0.497 to 0.433.

Although the measured level of inequality is lower with the PPP adjustment, it remains moderately high compared to inequality in other countries (which typically is not adjusted for domestic price differentials). The 2007 Gini coefficient, for example, remains well above 0.40. Moreover, PPP adjustments do not alter the conclusion that inequality rose substantially between 2002 and 2007. In fact, the increase in inequality is larger for PPP estimates than for our original estimates: 9.6 percent versus 6.0 percent in our original estimates.

V. Household income growth and inequality for rural-urban migrants

As other chapters in this volume do not fully explore incomes and inequality among rural-urban migrants, here we include additional discussion of this group. Our analysis draws on data from the separate CHIP migrant surveys carried out in 2002 and 2007. In order to avoid double counting short-term and temporary migrants who are included in the rural survey as well as the migrant survey, we only include long-term, stable rural-urban migrants in our analysis. In view of the criteria used to classify individuals in the NBS household surveys (on which the CHIP surveys are based), we define long-term, stable rural-urban migrants as individuals who originate in a rural area, have lived in the city for more than six months, and are either single or living with a spouse. A detailed explanation of the classification and weights used for migrants can be found in Appendix II.

We note that limiting our analysis to long-term stable migrants reduces potential bias due to differences in sampling methods used for the 2002 and 2007 migrant surveys. As mentioned above, the 2002 survey does not capture migrants who live in temporary or employer-provided housing. This group is largely composed of short-term, temporary migrants, whom we exclude from our long-term, stable migrant sample (but who are represented in the rural sample).

Table 4 gives information about the per capita household income of long-term, stable urban-rural migrants. Income of the migrants falls between that of rural and urban households. On average, in 2002 migrant income was 2.6 times rural per capita income and 77 percent of urban per capita income. In 2007 migrant per capita income was 3.6 times rural and 88 percent of urban per capita income. Migrants enjoyed rapid income growth between 2002 and 2007. On average, migrant per capita income in real terms grew at an annual rate of 15.8%, exceeding the growth rates of both rural and urban incomes. Thus migrant income moved closer to that of urban income between 2002 and 2007. To some extent, however, the higher growth rate for migrants may be due to a self-selection process. It is more likely that low-income migrants choose to return their origin place while higher-income migrants remain in the city on a more stable, long-term basis.

Looking at growth of each income component, we find that wage income of migrants grew at a very rapid annual rate of 29%, so that its share of total migrant income rose from 39 percent in 2002 to 68 percent in 2007. As shown in Table 4, almost 90% of total income growth was attributed to growth of wage income. Growth in income from household businesses was slow, less than 2 percent annually. Despite the exclusion of short-term and temporary migrants from the analysis, the rapid growth of wage income and slow growth in family business income shown here may partly biases due to differences in the migrant survey sampling procedure in the two years. In 2002 the survey was conducted in neighborhood communities (shequ) and did not include any migrant workers living in construction sites and factory dormitories. This could lead to under-representation of wage employees and over-representation of self-employed migrants in 2002 versus 2007. Nevertheless, as discussed in chapter 7 (Knight, Deng and Li), rapid growth in migrant wage income has been associated with real economic factors, in particular, growth in labor demand and increased reservation wages associated with higher farm earnings.

Due to the increase in wage share and given the nearly unchanged and relatively equal distribution of wage income, income inequality for migrants declined from 2002 to 2007, as shown by Lorenz Curves in Figure 3 and the inequality indices and inequality decomposition reported in Tables 5 and 6. Again, changes between 2002 and 2007 may in part reflect differences in the sampling procedures.[10]

How does including long-term, stable migrants affect national inequality? As shown

[10] If the share of each income component had remained the same in 2002 and 2007, inequality of total migrant income would have increased by 4%. The analysis in chapter 7 (Knight, Deng and Li), however, suggests that some of the change in structure of migrant income was likely due to real economic factors, not just sample bias.

in Table 1, including these migrants reduces national inequality only slightly, by less than 1 percent in 2002 and by 1 to 2 percent in 2007. Including migrants reduces inequality because they tend to fall in the center of the income distribution, but the reduction is minimal because the population share of long-term, stable migrants is still small, although increasing. According to data from the 2000 census this group constituted 2.5 percent of the national population and 7.4 percent of the urban population. According to data from the 2005 mini-census, this group constituted 3.2 percent of the national population and 7.6 percent of the urban population (see Appendix II).

Even if we limit our attention to the urban sector, within which the migrants constitute a larger share of the population, including long-term, stable migrants when estimating inequality still has a fairly small impact (Table 7). In 2002 urban inequality with migrants is slightly higher than without; in 2007, it is slightly lower than without.

We note that the difference between inequality calculated with and without migrants is not the same as measuring the effect of migration on inequality. Migration likely has different influences on incomes in urban and rural areas, and in richer and poorer areas. Fully analyzing the impact of migration would require estimating the counterfactual income levels that would have prevailed if migration had not taken place. Our calculations use actual income levels.

VI. The structure of inequality: the urban-rural income gap

Analyses of inequality in China typically highlight the widening gap between urban and rural household incomes. Most studies, including those based on earlier rounds of the CHIP survey, have found that the urban-rural income gap has widened over time and that it has contributed to rising overall inequality.

Here we examine changes in the urban-rural income gap between 2002 and 2007. In our analysis we use the NBS and CHIP definitions of income. We note that these measures of income do not fully capture implicit subsidies that are disproportionately enjoyed by urban residents, and which if included would widen the urban-rural differential (Li and Luo 2010). We do, however, show estimates adjusted for cost of living differences between urban and rural areas, which correction should reduce the urban-rural gap (Sicular et al. 2010).

We find that the urban-rural income gap continued to widen between 2002 and 2007 (Table 8). The widening gap is not due to slow growth in rural incomes—rural incomes in fact grew rapidly during this period (chapter 6, Luo and Sicular)—but reflects even faster growth of urban incomes. Calculated using CHIP income and including migrants, the gap widens by more than 20 percent from 3.3 to 4.1.

We note that one reason for the widening urban-rural income gap is that income from assets and property grew much more rapidly for urban than for rural households. If we exclude household income from imputed rents and from other assets, then between 2002 and 2007 the urban-rural income gap rose from 3.4 to 3.8, or 12 percent.

Regardless, the urban-rural gap in China is high by international standards. Available estimates for other countries indicate that urban-rural income ratios above

3.0 are rare. For India, Bangladesh, Indonesia and Malaysia the ratio is less than 2.0; for Thailand and the Philippines the ratio is 2.2-2.3. Only for a few countries such as South Africa and Zimbabwe does the ratio exceed 3.0 (Knight and Song 1999, 138; see also World Bank 2009a).

Alternative calculations change the size of the gap, but in all cases the gap widens from 2002 to 2007. Including migrants reduces the size of the income gap somewhat but does not change the trend. Due to higher imputed rents and rental housing subsidies in urban areas, the income gap is larger for CHIP income than for NBS income; in both cases, however, the gap widens over time.

Adjusting for cost of living differences substantially reduces the magnitude of the urban-rural income gap, but again the trend is the same. Measured using CHIP PPP-adjusted incomes and including migrants, from 2002 to 2007 the urban-rural income ratio widens by nearly 30 percent.

The widening urban-rural gap was a factor underlying rising national inequality. Table 9 presents summary results of standard inequality decomposition by population subgroup using the Theil inequality measures (Shorrocks 1980).[11] This method disaggregates overall inequality into the contributions of inequality between groups and within groups. In our application the groups are urban and rural. Between-group inequality thus is the component associated with the urban-rural income gap.

We report results for different measures of inequality, for both the NBS and CHIP income definitions, and without and with migrants.[12] In all cases the share of national inequality contributed by between-group inequality increased between 2002 and 2007. In 2002 between-group inequality contributed 43 to 47 percent of overall inequality. In 2007 between-group inequality contributed 48 to 54 percent of overall inequality, an increase of about 5 percentage points over 2002. Thus by 2007 the urban-rural income gap is associated with roughly half of national inequality in China.

PPP adjustments reduce the contribution of the urban-rural gap to inequality, but exacerbate the increase in its contribution over time (Table 10). For the CHIP measure of income, in 2002 the urban-rural gap contributed about 30 percent of PPP inequality, rising to about 40 percent in 2007.

VII. The structure of inequality: regional income differences

Previous studies have noted large regional disparities in household incomes in China. Analysis of the 2002 CHIP data identified large regional gaps, but with some evidence of regional catch up (Gustafsson et al. 2008). To investigate regional income inequalities between 2002 and 2007, we conduct several computations. First, following the CHIP sampling approach as well as the official classification of regions, we divide China as a whole into four large regions: large, provincial-level

[11] The Gini coefficient is not decomposable by groups.

[12] We also carried out the decomposition using alternative weights. The results are similar, so we do not report them here.

metropolitan cities; the eastern region; the central region; and the western region.[13]

Table 11 shows relative incomes in the four regions, calculated as a ratio using mean income of the western region as the denominator. All calculations use the CHIP income definition (see appendix Table A2 for mean incomes per capita by region).

We present alternative estimates using unadjusted prices (current year prices, no adjustments for regional cost of living differences) and PPP prices (adjusted for geographic cost of living differences). Costs of living are generally higher in more developed regions, so that use of PPP prices reduces income differences between richer and poorer regions. As shown in Table 11, PPP adjustments markedly reduce regional income gaps between the large municipality and western regions and between the eastern and western regions, but they do not substantially change the income ratio between the central and western regions.

Looking at changes in the PPP estimates for all groups from 2002 to 2007, we find the largest income gap is between large municipalities and the West. In 2002 per capita incomes in large municipalities were 2.34 times those in the West, widening to 2.44 in 2007. The gap between the East and West was smaller but also substantial; that between the Center and West was fairly small. All the gaps widened between 2002 and 2007, but only by 3 to 5 percent.

The regional structure of PPP incomes differs somewhat for the urban, migrant and rural sub-populations. Regional income gaps are largest for rural residents, but except for that between large municipalities and the West, the gaps narrowed between 2002 and 2007. The income ratio decreased by 22 percentage points between East and West, and by 8 percentage points between the Center and West. This reduction in regional rural income differences could reflect the equalizing effect of migration or the effect of increased returns to farming (chapter 6 by Luo and Sicular), which could narrow the gap between areas with more and less non-agricultural development.

For urban areas regional income gaps all widened. The gap increased by 12 percentage points between large metropolitan areas and the western region, by 25 percentage points between the eastern and western regions, and changed from negative to positive between central and western regions. The income gap between urban households in the eastern and central regions also widened. These estimates indicate that income growth of urban households living the western provinces lagged behind that in other regions during the period under study.

Regional income differences among urban-based migrant households are small and declining. Even between large metropolitan cities and the West the income gap is

[13] The four regions are (1) large municipalities with provincial status (Beijing, Tianjin and Shanghai; Chongqing is treated as part of Sichuan in western China for consistency with earlier rounds of the survey and in light of its economic characteristics), (2) eastern China (Hebei, Liaoning, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, Hainan); central China (Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, Hunan); and western China (Inner Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang).

less than 5%, and there is almost no regional income gap between the eastern and western regions. The lack of substantial regional income differences for migrant households may reflect the equalizing effect of migration among regions in response to real differentials in migrant wages.

Overall, then, it appears that the widening of regional income gaps in China between 2002 and 2007 was largely driven by urban areas and large municipalities and the rest of China. Regional income gaps among urban areas and between large municipalities and other regions widened. Income gaps among other regions and groups narrowed.

How important is inter-regional inequality for inequality overall in China? We address this question using conventional inequality decomposition analysis by group using the Theil Indices and present the results in Table 12. Here the relevant groups are the four regions (in the column labeled "all"); we also carry out a more disaggregated decomposition that subdivides the regions into urban, rural and migrant subgroups. The contribution of between-group inequality captures the importance of regional income differences to overall inequality in China.

Table 12 shows estimates of the contribution of between-group (region) shares of inequality for China as a whole ("all") and separately for urban, rural and migrant populations. The table reports estimates calculated with and without PPP adjustments, but our discussion focuses on the PPP estimates, for which incomes more comparable among regions and between urban and rural areas.

For China as a whole, the share of between-region inequality is relatively low, contributing less than 12 percent of overall inequality, with a slight decrease between 2002 and 2007. In both years within-region inequality accounts for the overwhelming majority of national inequality. As one might expect, regional income differences are most important for rural inequality, although their contribution declined. In 2002 between-region inequality contributed 19 percent and in 2007 less than 14 percent of rural inequality. The declining contribution of regional income differentials for rural inequality likely reflects the spread of non-agricultural employment opportunities from the coastal areas to the central and western areas as well as a increased migration by rural workers in the West.

For the formal urban population, between-region differences contribute a smaller but increasing share of inequality. These results could reflect continuing or perhaps increasing segmentation of formal urban labor markets, as well as regional immobility caused by rapidly rising housing costs in large metropolitan cities.

Regional inequality is unimportant among migrant households. As shown in Table 12, between-region income inequality as a percentage of total inequality among migrants was only about 1 percent in both years.

The findings in Table 12 suggest that national inequality is driven more by inequality within regions than by inequality between regions. Table 13, which shows levels of inequality within regions, reveals that within-region inequality is particularly high in western China. Within-region inequality in all regions increased between 2002 and 2007, but the increase was most marked—more than 15 percent—in eastern China.

Inequality within regions is in part a reflection of the large urban-rural income gaps discussed in the previous section. In both 2002 and 2007 the urban-rural income gap was largest in the West, about 3 with PPP adjustments (4 without PPP adjustments) (Table 14). In the East and Center the urban-rural gap was moderate in 2002 but increased substantially between 2002 and 2007.

In large metropolitan cities the urban-rural income gap shrank between 2002 and 2007, so that by 2007 this region had the smallest urban-rural income ratio, although it still exceeded 2. This decline may reflect the development of rural districts in large metropolitan cities and their increased integration with urban.

Based on the above regional analysis, we conclude that income differences between the East, Center and West are not a major source of nationwide inequality. Within-region income differences are much more important, although less so in large metropolitan cities than in the East, Center and West. Urban-rural inequality appears to be a factor contributing to rising inequality in these latter three regions.

VIII. Poverty

During the reform era China has achieved dramatic and ongoing reductions in poverty. By 2002 the poverty rate was already quite low, and further poverty reduction became more challenging due to several factors, for example, the fact that a high proportion of remaining poverty was geographically dispersed and transient, and also that poverty had become less responsive to macroeconomic growth (World Bank 2009). Policies adopted after 2002 such as the minimum living guarantee program, cooperative rural healthcare, and rural pension programs addressed some of these factors.

Here we examine trends in poverty between 2002 and 2007 so as to understand the net effects of policies and growth on poverty. Studies of poverty have used different poverty lines and poverty measures. We present three alternative estimates of poverty, two using absolute poverty lines and one using a relative poverty line. For all estimates we use the NBS definition of income which does not include imputed rents on owner-occupied housing, because the poverty lines are set without reference to imputed rents.

The first absolute poverty line is the international PPP poverty threshold of $1.25 per day per person, which we convert to yuan using the PPP exchange rate of 3.46 yuan to the US dollar in 2005 (Chen and Ravallion 2008). The second absolute poverty line is the Chinese government's official poverty line for rural areas. In view of past criticisms of the official poverty line being too low, we use the new, higher 2008 official poverty line of 1196 yuan. We treat both of these poverty lines as rural poverty lines and convert them to 2002 and 2007 prices using the NBS consumer price index for rural areas. The urban absolute poverty lines are equal to the rural poverty adjusted by the urban-rural cost of living differential (taken from Brandt and Holz, 2006, and for 2007 updated using NBS consumer price indexes).

Relative poverty lines are used fairly often, especially in higher income countries where few households experience absolute deprivation but where individuals at the lower end of the income distribution are nevertheless disadvantaged (Osberg 2000,

Ravallion 1992). In view of the substantial growth in personal incomes in China in recent decades, the concept of relative poverty is increasingly relevant. Following common practice in the literature, we use a relative poverty line equal to 50 percent of median income. The relative poverty lines are set equal to 50 percent of median income in each of the urban and rural sectors, with long-term, stable migrants included in urban. Table 15 shows our poverty lines expressed in current prices for each year.

We note that chapters 6 (Luo and Sicular) and 8 (Deng and Gustafsson) provide detailed, separate analyses of poverty in the rural and urban sectors. Due to differences in calculation, in some cases the levels of poverty reported in those chapters may differ from those reported here; however, the trends between 2002 and 2007 are similar. The analyses in those chapters provide additional insights into the findings reported here.

Our estimates of poverty incidence appear in the top half of Table 16. For China as a whole, absolute poverty declined quite substantially between 2002 and 2007. Using the PPP $1.25 poverty line, for example, the poverty rate declined from 19 percent to 8 percent. This reduction reflects the marked decline in rural poverty. Absolute poverty in the formal urban and migrant populations also declined, but was already low in 2002.

In contrast, relative poverty nationwide remained more or less unchanged at 13 percent. Relative poverty rates are fairly similar between rural and urban areas, except for long-term migrants within urban areas. For this group, relative poverty was relatively high in 2002, but by 2007 had declined to well below the relative poverty rates for the rural and formal urban populations. Stagnant relative poverty rates suggest that households in the lower tail of the income distribution were not catching up to the median, which is consistent with our finding of increased inequality discussed above.

For all poverty lines, the overwhelming majority of the poor were rural (bottom of Table 16). For absolute poverty measures, more than 95 percent of the poor were rural. For relative poverty the share of rural poor is lower, although still high at 60+ percent. Since the urban relative poverty lines higher and equal to 50 percent of median urban income, it is not surprising that by this measure a greater proportion of the poor are located in cities. The share of relative poor located in cities, moreover, increased substantially between 2002 and 2007.

Poverty rates differed greatly among regions. As shown in Table 17, absolute poverty incidence in large municipalities was extremely low and in the East was relatively low, especially in 2007. Absolute poverty incidence was higher in the central region and highest in the western region, although in both places it declined substantially between 2002 and 2007. In the West the rate of absolute poverty measured using PPP$1.25 per day declined from 32 percent to 15 percent.

Relative poverty was also very low in large municipalities, somewhat low in the East, moderate in the Center, and highest in the West, where more than 20 percent of the population fell below the relative poverty line. Relative poverty nationwide and in all regions relative poverty was fairly stable between 2002 and 2007.

By all measures, China's poor are concentrated in the West. As shown in the bottom half of Table 17, more than half of China's the absolute poor and over 40 percent of the relative poor live in the West. Moreover, from 2002 to 2007 the West's share of the poor increased. Less than one percent of China's poor lived in large municipalities; 15 to 20 percent lived in the East; and about a third lived in the Center. This regional structure suggests the need for ongoing attention to poverty alleviation especially in the western and central regions.

We note further that within all regions poverty was largely rural. For example, in 2007 in all regions, including the West, rates of absolute poverty measured using $1.25 per day for formal urban residents and for long-term migrants were all below 1 percent. In large municipalities the rate of rural poverty was also below 1 percent. In contrast, in the East, Center and West the rates of rural poverty were 7, 12 and 22 percent, respectively. Again, this pattern has implications for the design of poverty alleviation programs.

IX. Conclusions

Despite official policies during the Hu-Wen period emphasizing shared growth, between 2002 and 2007 income inequality in China resumed its upward trajectory. By 2007 the level of inequality in China was moderately high by international standards. With a Gini of approximately 0.5, China was in the same ballpark as countries in Latin and South America such as Mexico (0.51), Nicaragua (0.52), and Peru (0.48), although the level of inequality was still below that of high-inequality countries such as Brazil and Honduras (0.56-0.57).[14]

Our analysis sheds light on some old and new factors contributing to this increase in inequality. An old factor was China's already large urban-rural income gap. The urban-rural gap widened further between 2002 and 2007. Even after adjusting for differences in costs of living, the difference between urban and rural incomes was very high by international standards and contributed a substantial share of national inequality.

A new factor contributing to rising inequality was income from property and assets. At the time of the 2002 CHIP survey, income from assets was not an important source of inequality. By 2007, with the completion of the urban housing privatization and the development of urban residential real estate markets, expansion of stock and capital markets, the growth of private enterprise, and other property rights reforms, income from assets had become more important. We find that in 2007 asset and property income were factors underlying both the urban-rural income gap and overall inequality. In the future the importance of asset and property income is likely to grow and may continue to drive up inequality in China. Inequality in these sources of income is potentially a hot button issue, as in China the institutions that shape the distribution of assets are not yet transparent or equitable.

[14] Gini coefficients for other countries reported here are for 2005 and measured over household income per capita. They are from the UNU-WIDER WIID2c database http://www.wider.unu.edu/research/Database/en_GB/wiid/ , accessed August 12, 2011. Note that the Ginis for Brazil and Honduras are the highest among all countries listed for 2005-06 in this database.

We find evidence that some equalizing factors were also been at work. Although they did not offset the disequalizing factors, they nevertheless moderated the upward trend. In 2007 urban net transfers had begun to have a modestly equalizing impact. This category of income includes public transfers and so suggests that the expansion of urban social welfare programs played a positive role. Rapid growth in rural incomes, even if not as rapid as urban income growth, also moderated inequality. From the perspective of inequality, growth in rural income from farming and short-term migration was especially important. Some dimensions of regional inequality narrowed, for example, between-region rural inequality declined, and regional differences among long-term migrants remained very low. These findings suggest that farm supports and regional development programs may have moderated income disparities, especially in rural China.

We note that our estimates likely understate the real trend in inequality because high income urban households are increasingly under-represented in the NBS urban survey sample and also because the income of high-income households is likely understated. These are common problems in household surveys worldwide, and researchers have developed techniques to at least partially correct for the resulting bias. The problem is relatively recent in China, and future sampling methods as well as analytical approaches will need to adapt. A preliminary study by Li and Luo (2011) indicates that adjustments to correct for undercounting of income of high-income urban households would increase the Gini coefficient by 8 percentage points in urban areas and by 5 percentage points nationwide.

Between 2002 and 2007 China achieved major gains in poverty reduction. Despite new challenges in poverty alleviation, during this period absolute poverty resumed its downward trend. Relative poverty, however, did not decline, indicating that households at the bottom of the income distribution were not catching up with those in the middle and top. As China's economy matures and the number of absolute poor shrinks, relative poverty will become an increasingly important social indicator.

In summary, then, we find that while households in all income groups, sectors and regions continued to enjoy substantial income growth during this period, income growth was faster for richer households than for poorer households. The resulting increase in inequality reflected shifts in the structure of the income distribution and the emergence of some new underlying mechanisms. China thus faces ongoing challenges in its efforts to promote a harmonious society. In the future China's distributional policies will need to evolve accordingly.

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Appendix

Table A1: Income and inequality with various weights, 2002 and 2007

	2002					2007				
	urban	rural	national (exclude migrants)	migrant	national (include migrants)	urban	rural	national (exclude migrants)	migrant	national (include migrants)
No weights										
Mean income	8674	2756	4840	6154	4903	18696	5096	10002	15995	10368
Gini	0.320	0.364	0.457	0.348	0.453	0.339	0.377	0.491	0.307	0.483
GE(0)/MLD	0.172	0.225	0.366	0.213	0.360	0.193	0.239	0.427	0.162	0.418
GE(1)	0.174	0.238	0.358	0.210	0.351	0.197	0.250	0.415	0.172	0.400
Weight I (urban/rural)										
Mean income	8674	2756	4780	6154	4814	18695	5096	10792	15995	10954
Gini	0.320	0.364	0.458	0.348	0.456	0.339	0.377	0.486	0.307	0.481
GE(0)/MLD	0.172	0.225	0.366	0.213	0.363	0.193	0.239	0.424	0.162	0.419
GE(1)	0.174	0.238	0.359	0.210	0.356	0.197	0.250	0.403	0.172	0.395
Weight II (urban/rural x region)										
Mean income	9009	2797	4921	6656	4964	17924	4650	10210	16736	10413
Gini	0.321	0.365	0.462	0.341	0.460	0.336	0.367	0.489	0.294	0.485
GE(0)/MLD	0.173	0.227	0.373	0.205	0.371	0.190	0.227	0.432	0.148	0.427
GE(1)	0.175	0.239	0.366	0.201	0.362	0.196	0.236	0.411	0.158	0.404
Weight III (urban/rural x province x region)										
Mean income	9223	2754	4966	7118	5019	18875	4609	10585	16611	10772
Gini	0.327	0.354	0.466	0.334	0.464	0.337	0.358	0.497	0.288	0.492
GE(0)/MLD	0.179	0.213	0.378	0.197	0.375	0.190	0.217	0.445	0.143	0.439
GE(1)	0.182	0.226	0.376	0.190	0.371	0.197	0.226	0.425	0.152	0.416

Notes:

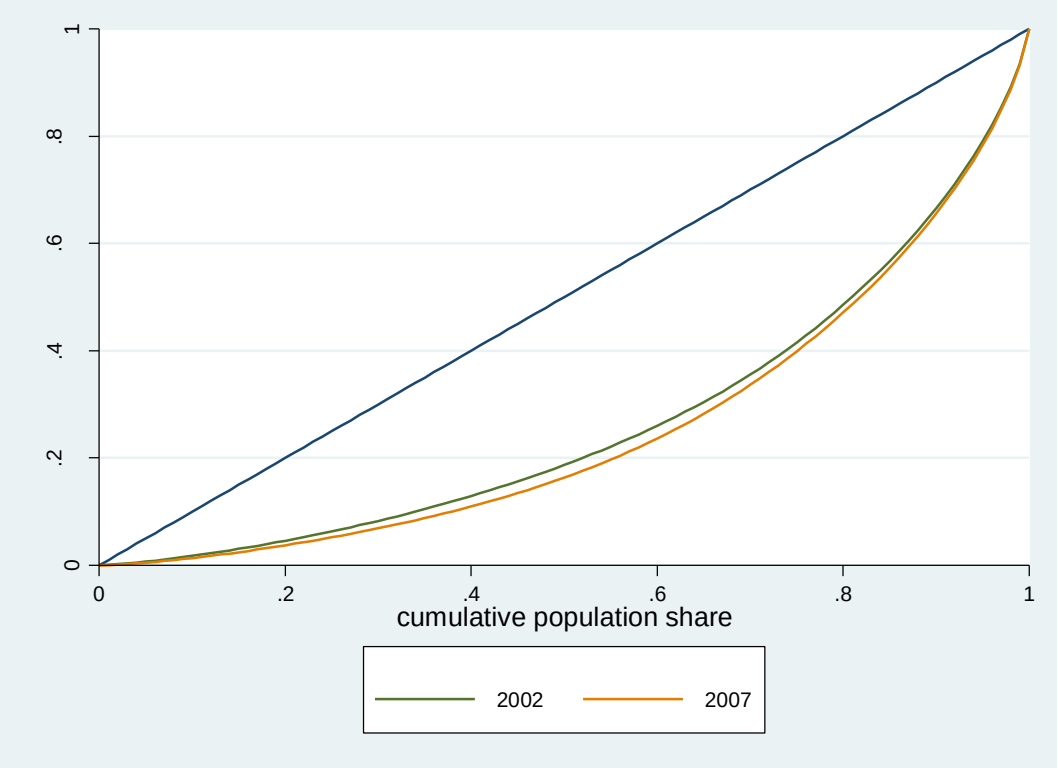
1. Includes all provinces covered by CHIP. Calculated using current year prices and CHIP income.
2. The inequality indexes shown in this table are all scale invariant. Consequently, the level of inequality is the same for both current year and constant prices (if deflation is carried out using the same price index for all individuals).
3. Incomes less than or equal to zero have been dropped for calculation of the GE(0)/MLD and GE(1) inequality indexes (fewer than 30 observations (individuals) were dropped in 2002 and fewer than 225 in 2007).

Table A2: Mean income per capita by region, 2002 and 2007 (yuan)

PPP unadjusted								
	2002				2007			
Region	urban	rural	migrant	all	urban	rural	migrant	all
Big cities	15883	5217	8168	13073	29557	11394	19887	25408
East	10645	3843	7976	6569	23128	6221	17582	14541
Center	6973	2377	5193	3828	15023	4134	12119	8442
West	7581	1945	5871	3492	14254	3421	14316	7186
PPP adjusted								
	2002				2007			
Region	urban	rural	migrant	all	urban	rural	migrant	all
Big cities	8936	3444	4596	7462	17955	8074	12135	15635
East	7167	4048	4940	5260	16171	6405	11658	11142
Center	5686	2625	4220	3588	12051	4373	9759	7408
West	6287	2029	4845	3196	11624	3625	11632	6405

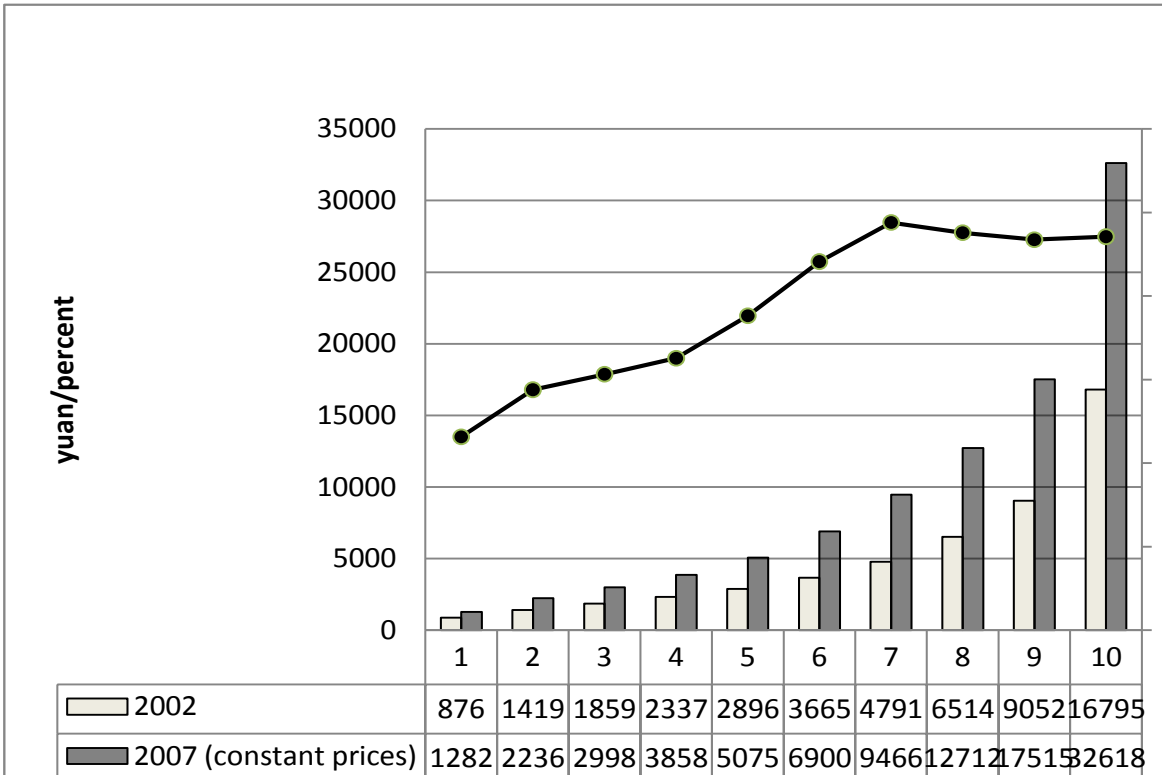
Notes: In this table long-term stable migrants are shown separately, and urban excludes migrants. CHIP income definition; calculated using weights (three-level weights for all, provincial and regional weights for urban, rural and migrant); current year prices. See notes to other Table 3 regarding PPP adjustments.

Figure 1: China's national Lorenz curves for household per capita income, 2002 and 2007 (three-level weights, including migrants, CHIP income definition)



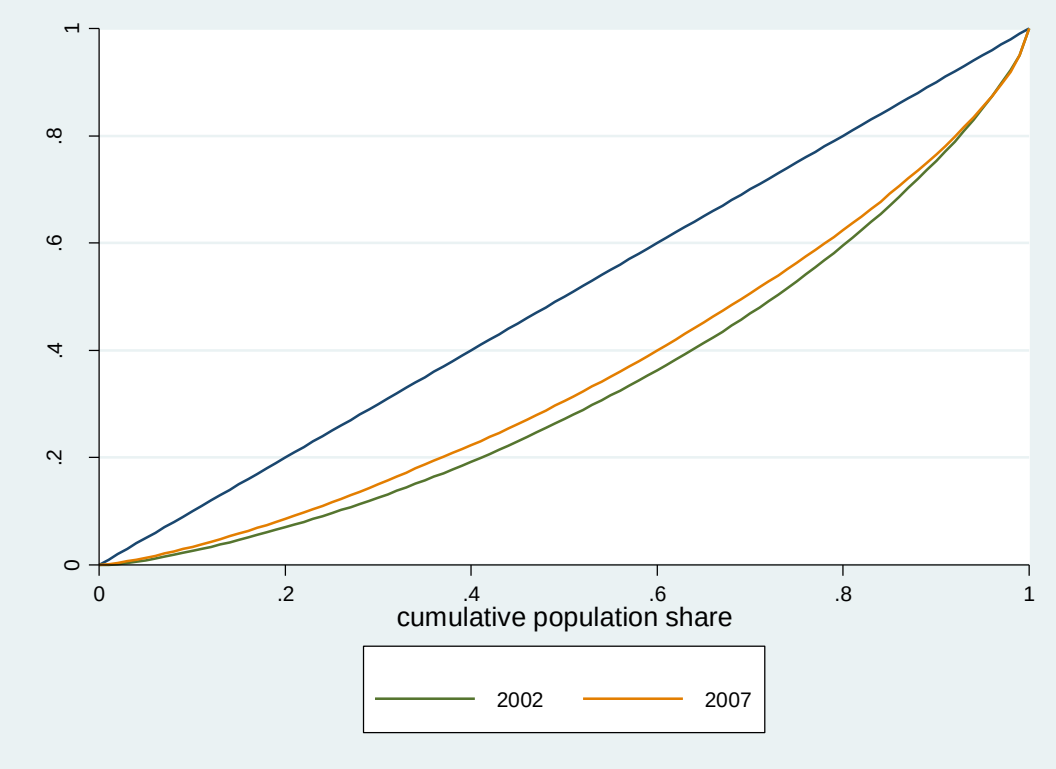
Note: Includes all provinces in both years, CHIP income definition, weighted by province, region and urban/rural. Calculated using incomes in current year prices.

Figure 2: Income levels and growth by deciles, 2002 to 2007



Note: Includes all provinces covered by the CHIP surveys, CHIP income definition, three-level weights (province, region and urban/rural). Calculated using incomes in current year prices.

Figure 3: Lorenz Curve of migrant per capita income, 2002 and 2007



Note: Includes all provinces covered by the migrant surveys, CHIP income definition, weighted by province and region using population shares of long-term stable migrants (see Appendix II). Calculated using incomes in current year prices.

Table 1: National mean income and inequality, 2002 and 2007

	2002		2007		% change, 2002 to 2007, constant 2002 prices	
	Excluding migrants	Including migrants	Excluding migrants	Including migrants	Excluding migrants	Including migrants
NBS income, two-level weights						
Mean income	4426	4479	8653	8899	71.65	74.44
Gini	0.452	0.450	0.474	0.473	4.9%	5.1%
GE(0)/MLD	0.359	0.357	0.403	0.403	12.3%	12.9%
GE(1)	0.351	0.348	0.385	0.381	9.7%	9.5%
NBS income, three-level weights						
Mean income	4467	4530	8932	9165	75.55	77.63
Gini	0.456	0.455	0.481	0.478	5.5%	5.1%
GE(0)/MLD	0.362	0.361	0.414	0.413	14.4%	14.4%
GE(1)	0.360	0.356	0.398	0.392	10.6%	10.1%
CHIP income, two-level weights						
Mean income	4921	4964	10210	10413	82.16	84.17
Gini	0.462	0.460	0.489	0.485	5.8%	5.4%
GE(0)/MLD	0.373	0.371	0.432	0.427	15.8%	15.1%
GE(1)	0.366	0.362	0.411	0.404	12.3%	11.6%
CHIP income, three-level weights						
Mean income	4966	5019	10584	10772	87.12	88.43
Gini	0.466	0.464	0.497	0.492	6.7%	6.0%
GE(0)/MLD	0.378	0.375	0.445	0.439	17.7%	17.1%
GE(1)	0.376	0.371	0.425	0.416	13.0%	12.1%

Notes:

1. Two-level weights use urban/rural x regional population shares. Three-level weight use urban/rural x regional x provincial population shares.
2. Includes all provinces covered by CHIP surveys.
3. Mean incomes for each year are calculated using current year prices, and the change between 2002 and 2007 is calculated using constant 2002 prices (deflated using the national average consumer price index).
4. The inequality indexes shown in this table are all scale invariant. Consequently, the level of inequality is the same for both current year and constant prices (if deflation is carried out using the same price index for all individuals).
5. Incomes less than or equal to zero have been dropped for calculation of the GE(0)/MLD and GE(1) inequality indexes. In all fewer than 30 observations (individuals) were dropped in 2002 and fewer than 225 in 2007.

Table 2: Decomposition of inequality by income sources, 2002 and 2007

	2002			2007		
	Concentration ratio or Gini	Share (%)	Contribution to total inequality (%)	Concentration ratio or Gini	Share (%)	Contribution to total inequality (%)
Rural total	0.005	35.21	0.36	-0.116	24.09	-5.67
Wages from migration	-0.072	4.02	-0.63	-0.197	4.27	-1.71
Other wages	0.147	8.67	2.74	-0.035	4.86	-0.34
Net farm	-0.133	14.05	-4.04	-0.203	8.81	-3.63
Net from non-farm activities	0.197	4.64	1.97	0.106	2.46	0.53
Asset	0.063	1.50	0.20	0.164	0.63	0.21
Net transfers	0.399	0.24	0.21	-0.104	1.03	-0.22
Imputed rent on owner-occupied housing	-0.023	2.10	-0.10	-0.124	2.03	-0.51
Urban total	0.720	61.29	95.07	0.689	71.11	99.59
Wages	0.722	41.68	64.88	0.684	43.68	60.75
Pensions	0.722	9.77	15.20	0.674	12.00	16.45
Net from individual businesses	0.588	1.99	2.52	0.688	5.14	7.20
Asset	0.793	0.71	1.22	0.876	1.04	1.86
Net transfers	0.718	-0.38	-0.59	0.697	-3.58	-5.07
In-kind subsidies on public rental housing	0.735	1.66	2.62	0.618	0.39	0.49
Imputed rent on owner-occupied housing	0.718	5.18	8.02	0.707	11.99	17.23
Other in-kind income	0.813	0.69	1.20	0.774	0.44	0.69
Migrants total	0.606	3.50	4.57	0.622	4.80	6.07
Wages	0.543	1.36	1.59	0.594	3.27	3.94
Net from individual businesses	0.644	1.99	2.76	0.673	1.43	1.96
Asset	0.404	0.01	0.01	0.874	0.03	0.05
Net transfers	0.711	0.09	0.13	0.870	0.02	0.04
Imputed rent on owner-occupied housing	0.685	0.05	0.08	0.722	0.06	0.08
National total	**0.464**	100	100	**0.492**	100	100

Note: CHIP income definition, including migrants, using three-level weights. Includes all provinces covered by the CHIP surveys. Calculated using incomes measured in current year prices; these inequality indexes are all scale invariant, i.e., the level of inequality is the same for both current year and constant prices if deflation is carried out using the national average consumer price index for all individuals.

Table 3: Inequality estimates without and with PPP adjustment, 2002 and 2007

	2002		2007		% change, 2002 to 2007	
	Without PPP	With PPP	Without PPP	With PPP	Without PPP	With PPP
NBS income						
Gini	0.455	0.389	0.478	0.421	5.1%	8.2%
GE(0)/MLD	0.361	0.265	0.413	0.315	14.4%	18.9%
GE(1)	0.356	0.258	0.392	0.302	10.1%	17.1%
CHIP income						
Gini	0.464	0.395	0.492	0.433	6.0%	9.6%
GE(0)/MLD	0.375	0.271	0.439	0.333	17.1%	22.9%
GE(1)	0.371	0.264	0.416	0.320	12.1%	21.2%

Notes:

1. Includes all provinces covered by CHIP surveys.
2. Calculated using three-level weights and including migrants. Incomes are in current-year prices.
3. For PPP (purchasing power parity) estimates, incomes have been adjusted for differences in cost of living between urban and rural areas and among provinces using the Brandt and Holz (2006) geographic price indexes for 2002 and updated to 2007 using provincial rural and urban price indexes published by the NBS.
4. Incomes less than or equal to zero have been dropped for calculation of the GE(0)/MLD and GE(1) inequality indexes. See notes to Table 1.

Table 4: Level and growth of migrant household income per capita

	Income level (yuan)		Income growth			
	2002	2007	yuan	% in Increment	Nominal growth rate (%)	Real growth rate (%)
Wage income	2768	11294	8526	89.8	32.5	29.4
Family business income	4050	4953	903	9.5	4.1	1.7
Property income	13	99	86	0.9	50.8	47.3
Net transfer income	177	75	-102	-1.1	-15.8	-17.7
Imputed rent of private housing	110	191	80	0.9	11.6	9.0
Total income	7118	16611	9494	100.0	18.5	15.8

Note: Includes all provinces covered by the migrant surveys, CHIP income definition, weighted by province and region using population shares of long-term stable migrants (see Appendix II). In current year prices except for the real growth rates, which are deflated using the urban consumer price index.

Table 5: Migrant inequality, 2002 and 2007

	2002	2007	% change, 2002 to 2007
Gini	.334	.288	-13.8%
GE(0)/MLD	.197	.143	-27.4%
GE(1)	.190	.152	-20.0%

Note: Includes all provinces covered by the migrant surveys, CHIP income definition, weighted by province and region using population shares of long-term stable migrants (see Appendix II). Calculated using current year prices, but the level of inequality is the same for current year and constant prices if deflation is carried out using the same consumer price index for all individuals.

Table 6: Decomposition of migrant income inequality by income source, 2002 and 2007

	2002			2007		
	Concentra-tion ratio or Gini	Share (%)	Contribu-tion to total inequality (%)	Concentra-tion ratio or Gini	Share (%)	Contribu-tion to total inequality (%)
Wage income	0.219	38.89	25.58	0.226	67.99	53.30
Family business income	0.400	56.89	68.18	0.404	29.82	41.80
Property income	0.017	0.18	0.01	0.799	0.59	1.65
Net transfer income	0.539	2.49	4.02	0.806	0.45	1.26
Imputed rent of private housing	0.476	1.55	2.21	0.501	1.15	2.00
Total income	0.334	100	100	0.288	100	100

Note: Includes all provinces covered by the migrant surveys, CHIP income definition, weighted by province and region using population shares of long-term stable migrants (see Appendix II). Calculated using incomes in current year prices; the level of inequality is the same for current year and constant prices if deflation is carried out using the same consumer price index for all individuals.

Table 7: Urban inequality with and without migrants, 2002 and 2007

	2002		2007	
	Without	With	Without	With
Gini	0.327	0.329	0.337	0.334
GE(0)/MLD	0.179	0.182	0.190	0.187
GE(1)	0.182	0.184	0.197	0.194

Note: Includes all provinces covered by the surveys in both years, CHIP income definition, weighted by province and region using population shares of urban natives and long-term stable migrants (see Appendix II). Calculated using incomes in current year prices.

Table 8: The urban-rural income gap, 2002 and 2007

	Mean income per capita		Average annual income growth (constant 2002 prices)	Urban-rural income ratio		Urban-rural income ratio (PPP adjusted)	
	2002	2007		2002	2007	2002	2007
NBS income							
Urban, without migrants	8078	15469	11.26%	3.16	3.66	2.13	2.61
Urban, with migrants	8005	15537	11.56%	3.13	3.68	2.10	2.60
Rural	2560	4221	7.21%				
CHIP income							
Urban, without migrants	9223	18875	12.75%	3.35	4.10	2.28	2.91
Urban, with migrants	9078	18714	12.92%	3.30	4.06	2.24	2.87
Rural	2754	4609	7.53%				

Note: Unadjusted current year prices unless noted otherwise. Includes all provinces covered in the CHIP surveys; calculated using regional and provincial population weights. PPP (purchasing power parity) estimates are calculated using incomes that have been adjusted for differences in cost of living between urban and rural areas and among provinces using the Brandt and Holz (2006) geographic price indexes for 2002, and updated to 2007 using provincial rural and urban price indexes published by the NBS.

Table 9: Contribution of urban-rural (between group) inequality to national inequality (%)

	NBS income definition		CHIP income definition	
	2002	2007	2002	2007
Without migrants				
GE(0)	43.1	49.3	46.7	53.9
GE(1)	44.0	48.0	47.3	52.0
With migrants				
GE(0)	42.9	49.6	46.1	53.6
GE(1)	43.5	48.1	46.5	51.4

Notes: Calculations with migrants include in the urban sector long-term, stable migrants from rural areas. Three-level weights are used. Calculated using incomes measured in current year prices. See Shorrocks (1980) for a discussion of the decomposition methodology.

Table 10: Contribution of urban-rural (between group) inequality to national inequality, with PPP adjustment (%)

	NBS income definition		CHIP income definition	
	2002	2007	2002	2007
Without migrants				
GE(0)	25.7	35.4	29.8	41.3
GE(1)	27.2	35.9	31.5	41.4
With migrants				
GE(0)	25.2	35.6	28.9	40.8
GE(1)	26.6	35.8	30.4	40.6

Note: The notes to Table 9 apply. PPP adjustments for 2002 use the Brandt and Holz (2006) price deflators; for 2007 the Brandt and Holz (2006) deflators are updated using NBS provincial urban and rural consumer price indexes.

Table 11: Regional income gaps, 2002 and 2007

PPP unadjusted								
	2002				2007			
Region	urban	rural	migrant	all	urban	rural	migrant	all
Big cities	2.10	2.68	1.39	3.74	2.07	3.33	1.39	3.54
East	1.40	1.98	1.36	1.88	1.62	1.82	1.23	2.02
Center	0.92	1.22	0.88	1.10	1.05	1.21	0.85	1.17
West	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PPP adjusted								
	2002				2007			
Region	urban	rural	migrant	all	urban	rural	migrant	all
Big cities	1.42	1.70	0.95	2.34	1.54	2.23	1.04	2.44
East	1.14	1.99	1.02	1.65	1.39	1.77	1.00	1.74
Center	0.90	1.29	0.87	1.12	1.04	1.21	0.84	1.16
West	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Notes: Income gaps are equal to the ratio of each region's income per capita to that in the West. In this table long-term stable migrants are shown separately, and urban excludes migrants. CHIP income definition; calculated using three-level weights for all and regional x provincial weights for urban, rural and migrant; current year prices. See notes to previous tables regarding PPP adjustments.

Table 12: Contributions of between-region inequality to overall inequality (%)

PPP unadjusted								
	2002				2007			
	urban	rural	migrant	all	urban	rural	migrant	all
GE(0)/MLD	17.5	20.5	7.6	16.6	16.5	16.9	7.4	14.4
GE(1)	18.0	19.8	7.5	18.4	16.1	17.1	6.6	16.1
PPP adjusted								
	2002				2007			
	urban	rural	migrant	all	urban	rural	migrant	all
GE(0)/MLD	5.5	18.9	0.9	11.0	7.9	13.5	1.4	10.4
GE(1)	5.6	18.4	0.9	11.7	7.7	13.6	1.2	11.2

Note: The contribution of differences in mean incomes among the four regions to national inequality is shown in the column titled "all." The other columns report the contribution of income differences between the four regions to inequality within urban, rural and migrant subgroups. CHIP income definition; calculated using three-level weights for all and regional x provincial weights for urban, rural and migrant; current year prices. See notes to previous tables regarding PPP adjustments.

Table 13: Gini coefficients by region, 2002 and 2007

PPP unadjusted		
	2002	2007
Big cities	0.314	0.320
East	0.426	0.465
Center	0.404	0.443
West	0.462	0.485
PPP adjusted		
	2002	2007
Big cities	0.304	0.312
East	0.357	0.412
Center	0.352	0.396
West	0.428	0.444

Note: CHIP income definition; incomes are in current year prices. Calculated using provincial and rural/urban weights. Long-term, stable migrants are included in these calculations.

Table 14: The urban-rural income gap by region, 2002 and 2007

PPP unadjusted		
	2002	2007
Big cities	3.04	2.59
East	2.77	3.72
Center	2.93	3.63
West	3.90	4.17
PPP adjusted		
	2002	2007
Big cities	2.59	2.22
East	1.77	2.52
Center	2.17	2.76
West	3.10	3.21

Note: See notes to Table 13 and notes to previous tables regarding PPP adjustments.

Table 15: Poverty lines

	official		PPP$1.25/day		50% of median income	
	2002	2007	2002	2007	2002	2007
Rural	964	1123	1451	1689	1051	1714
urban & migrants	1338	1503	2013	2260	3379	6412

Notes:

1. The international PPP poverty threshold of $1.25 per day per person is converted to yuan using the PPP exchange rate of 3.46 yuan to the US dollar in 2005 (Chen and Ravallion 2008).
2. We treat both the official poverty line and PPP $1.25/day poverty line as rural poverty lines and convert them to 2002 and 2007 prices using the NBS rural consumer price index. Urban absolute poverty lines are equal to the rural poverty lines adjusted by the urban-rural cost of living differential of 1.3876 in 2002 and 1.3382 in 2007 (taken from Brandt and Holz, 2006, and for 2007 updated using NBS consumer price indexes).
3. The relative poverty lines are calculated separately for urban and rural. Median incomes for each of rural and urban (including migrants) are calculated using regional x provincial weights and the NBS income definition.
4. All poverty lines are in current year prices.

Table 16: Poverty incidence and composition, 2002 and 2007 (%)

	Official poverty line		PPP$1.25/day		50% of median income	
	2002	2007	2002	2007	2002	2007
Poverty incidence						
Rural	11.22	5.59	27.49	13.88	13.69	14.32
Urban	0.55	0.12	2.34	0.44	11.88	12.37
Migrants	2.43	0.08	5.80	0.17	18.57	7.00
urban+migrants	0.68	0.12	2.58	0.42	12.34	11.98
Total	7.44	3.20	18.57	8.00	13.21	13.30
Poverty composition						
Rural	96.72	98.35	95.02	97.70	66.52	60.63
Urban	2.48	1.57	4.21	2.23	30.01	37.73
Migrants	0.80	0.08	0.77	0.07	3.47	1.64
urban+migrants	3.28	1.65	4.98	2.30	33.48	39.37
Total	100	100	100	100	100	100

Note: Calculated using three-level weights for total and regional x provincial weights for subgroups. NBS income definition; current year prices.

Table 17: The structure of poverty by region (%)

	Official poverty line		PPP$1.25/day		50% of median income	
	2002	2007	2002	2007	2002	2007
Poverty incidences						
Big cities	0.07	0.09	0.70	0.35	0.89	1.87
East	3.77	1.59	8.80	3.74	7.73	7.78
Middle	6.98	2.74	19.87	7.47	14.21	12.81
West	13.53	6.07	31.64	14.77	20.49	21.99
Total	7.44	3.20	18.57	8.00	13.21	13.30
Poverty composition						
Big cities	0.03	0.09	0.12	0.14	0.21	0.44
East	18.33	17.59	17.16	16.51	21.19	20.65
Middle	30.42	28.41	34.71	30.94	34.91	31.94
West	51.22	53.91	48.00	52.40	43.69	46.96
Total	100	100	100	100	100	100

Note: Calculated using three-level weights for total and regional x provincial weights for subgroups. NBS income definition; current year prices.