

Li, Shi; Luo, Chuliang; Sicular, Terry

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## Overview: Income inequality and poverty in China, 2002 - 2007

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

by

**LI Shi, LUO Chuliang and Terry Sicular**

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Department of Economics  
Social Science Centre  
The University of Western Ontario  
London, Ontario, N6A 5C2  
Canada

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## **TWO**

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

LI Shi, LUO Chuliang, and Terry Sicular

## 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 the annual growth of GDP averaged close to 10 percent and that 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 GDP growth was 11.6 percent, and 6.8 and 9.6 percent in rural and urban household income per capita, respectively.<sup>1</sup>

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 program, 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, thereby reducing regional disparities, narrowing income inequalities, and establishing a social protection network with full coverage for all people. This program included a series of pro-rural policies. The first and most widely trumpeted measure was the elimination of the agricultural taxes, which had been in place for almost sixty years. By the end of 2007 Chinese rural households were no longer paying agricultural taxes.

A second policy was to eliminate all school fees during the first nine years of schooling. Although this measure did not have a direct and immediate effect on household incomes, it reduced the costs of education and encouraged investment in education, which, in the long term, could enhance incomes. This policy was first

implemented in poor rural counties and later extended to all rural areas. A third policy was the establishment of the minimum income guarantee system (*zuidi shenghuo baozheng*, or *dibao*). Although the *dibao* program was introduced in the mid-1990s, in rural areas it began to play an important role only after 2005, at which point the number of rural people supported by *dibao* increased enormously, from 4 million in 2002 to 36 million in 2007. On average, in 2007 each individual received about 480 yuan, equivalent to 60 percent of the official poverty line in rural areas (Ministry of Civil Affairs 2007). A fourth policy benefiting rural households was a farm support program, in the form of “grain subsidies” (*liangshi butie*) and “agricultural production material subsidies” (*nongye ziliao butie*), mainly targeted at grain-producing households. These farm subsidies began in 2004 and in principle might have promoted the growth of rural incomes in the following years.<sup>2</sup>

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) reveals that it has played an important role in alleviating urban poverty, but it did not substantially reduce 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 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 share of the urban population in the total population was 45 percent. Rural-to-urban migration has been an important part of the urbanization process. According to the Second National Agricultural Census, in 2006 the number of rural-urban migrant workers who were employed in

urban areas for more than six months per year was about 132 million. Although rural migration can contribute to the growth of household income in rural areas, it can also create competition in urban labor markets that potentially affects urban incomes and inequality as well.

In China rural-urban and regional divisions in terms of economic and social development are substantial. These spatial divisions were significant during the planning period (Démurger et al. 2002) and have persisted into the reform era. Concerns about the urban-rural income gap prompted many of the rural support policies outlined above. Similarly, differential economic growth between coastal and inland regions led the Chinese government to adopt regional balancing policies. In 1999 the central government implemented the western development strategy (*xibu dakaiifa zhanlüe*) and increased investment in infrastructure and fiscal transfers to western provinces (Fang, Zhang, and Li 2007). This was followed by further programs supporting other 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 the central provinces in 2006 (Yao 2009; Chung, Lai, and Joo 2009). Such policies could have an impact on regional income disparities.

Using data from the 2002 and 2007 waves of the China Household Income Project (CHIP) survey, in this chapter we measure and analyze income inequality and poverty during the 2002-2007 period. Here we report overall, nationwide patterns and trends. The findings reported in this chapter establish the groundwork for the later chapters in this volume, which provide in-depth analyses of particular sectors, 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 and review the results from the

previous volume based on the 2002 CHIP survey (Gustafsson, Li, and Sicular 2008). In Section III we explain key features of our data. In Section IV we present our central findings regarding levels and trends in China's national income inequality, and we also examine the sources of income. 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 an upward trend. This conclusion is robust to choice of income definition, weights, and inequality index, and to the treatment of migrants.

A growing number of rural people have moved to the cities, but they are not fully captured in the official NBS household surveys. This leads to a potential bias in estimations of income growth and inequality among Chinese households. Other chapters in this volume examine the income and inequality of the rural and formal urban populations, but not of rural-urban migrants. Therefore, in this chapter we include a separate section on income and inequality among migrants. Because short-term, temporary migrants are included in the rural survey, our discussion on migrants is limited to those individuals of rural origin who have long-term and stable residences in the cities (see Appendix II). Our analysis shows that between 2002 and 2007 the incomes of long-term, stable migrants grew rapidly and inequality among these migrants declined. Due to the relatively low population share of this group of migrants, however, including them in our calculations does not substantially alter the national levels of inequality and poverty. Temporary and short-term migration, however, contributed to income growth of rural households and thus likely moderated the income gap between the urban and rural areas (see also Chapter 6 in this volume, 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, as discussed in Sections VI and VII. The continued widening of the urban-rural income gap is of particular concern because 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 nationwide trends in poverty (later chapters in this volume will examine rural and urban poverty separately). Between 2002 and 2007 national poverty, as measured using an absolute poverty line, continued an 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-1990s through the early 2000s. Estimates by Ravallion and Chen (2007) and the World Bank (2009a) show income inequality rising from the late 1980s through 1994, dipping a bit in the late 1990s, and then edging upward thereafter, so that by the early 2000s inequality was only slightly higher than it was in the mid-1990s. Analyses based on the 1995 and 2002 CHIP surveys similarly report that inequality remained more or less unchanged between 1995 and 2002 (Gustafsson, Li, and Sicular 2008a; Khan and Riskin 2008).



Gustafsson, Li, and Sicular (2008a) identify several equalizing processes that emerged in the late 1990s that might explain these trends. They include the spread of wage employment in the rural areas, the catching up of lower-income provinces with higher-income provinces in some regions, shared macroeconomic growth, and, within urban areas, the broader implementation of the urban housing reforms.

The Kuznets hypothesis proposes that inequality follows an inverted “U” pattern, i.e., during the course of development inequality first increases and then decreases. The emergence of equalizing processes from the late 1990s to the early 2000s raises the possibility that China may have been turning the corner of the Kuznets inverted “U.” Findings based on the 2007 CHIP data reported below, however, show that after 2002 inequality in China resumed its upward trajectory. The analysis in this and later chapters finds evidence that some equalizing processes continued to operate during this period, but they were insufficient to offset the stronger dis-equalizing forces.

Spatial income differentials figure large in the literature on inequality in China. The widening gap between urban and rural incomes is consistently cited as an important factor underlying national inequality (e.g., Sicular et al. 2010; Ravallion and Chen 2007; World Bank 2009a; Kanbur and Zhang 2009). This finding is robust across numerous studies using different measures of income and inequality. Regional income differences between the eastern, central, and western regions have also received attention, although several recent studies conclude 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 2007 CHIP data; our findings are generally consistent with these other studies.

China has an enviable record of poverty reduction (World Bank 2009a; Ravallion and Chen 2007; Chen and Ravallion 2008). Although various studies differ in their choices of 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 to the early 2000s the downward trend stalled (World Bank 2009a; Ravallion and Chen 2007; Minoiu and Reddy 2008). Some recent studies suggest that after 2001 poverty reduction again accelerated (World Bank 2009a). Our estimates of absolute poverty also show progress in terms of 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 with absolute living standards. In view of China's transformation from a low- to a middle-income country, we extend the analysis of poverty and 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 its incidence is higher in western China than elsewhere (World Bank 2009a; Ravallion and Chen 2007). As the overall level of poverty has declined, however, the remaining poor have become increasingly dispersed. The spatial pattern of poverty is important in terms of the design of poverty alleviation programs, which in China have relied heavily on geographic targeting (World Bank 2009a). Therefore, in the analysis below we also investigate the regional aspects of poverty.

### **III. Data and Sample Weights**

The data used in this chapter come from the last two waves of the CHIP household

surveys, in 2002 and 2007. The surveys cover three types of households: urban households, rural households, and rural-urban migrant households. The samples of urban households and rural households are subsamples of the large National Bureau of Statistics (NBS) urban and rural household survey samples. In 2002 the NBS samples included 40,000 and 680,000 households in urban and rural areas, respectively.<sup>3</sup> In 2007, the urban sample increased to 59,000 households but remained more or less unchanged in the rural survey.<sup>4</sup>

The 2002 wave of the CHIP rural survey selected 9,200 households from the NBS rural household survey. These households contain 37,969 individuals from 120 counties of twenty-two provinces. It was expected that Beijing would represent the three large metropolitan cities (the other two being Shanghai and Tianjin); Hebei, Liaoning, Jiangsu, Zhejiang, Shandong, and Guangdong would represent 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 in the CHIP subsample, but they were required to select counties and villages representative of different income levels. The 2002 urban survey selected 6,835 households. These households contain 20,632 individuals surveyed in seventy cities in eleven of the twenty-two provinces of the rural survey, including, Liaoning, Jiangsu, Guangdong, Shanxi, Anhui, Henan, Hubei, Sichuan, Yunnan, and Gansu. These households are largely formal urban residents with local household registrations (*hukou*). A detailed description of the 2002 survey can be found in Li et al. (2008).

The 2002 rural and urban household questionnaires were designed for the purpose of deriving household income that could be comparable internationally. The

households were asked questions regarding wage income and other income components for each of their working members, and regarding income from family businesses. In order to estimate the imputed rent of owner-occupied private housing, several housing-related questions were included, such as the self-estimated market value of housing.

The 2002 survey also included a separate, add-on sample of 2,000 rural-urban migrant households, which were selected from the capital city plus one middle-sized city in each province. The principle for the distribution of the sample among the provinces was that 200 households were allocated to each of the provinces in the eastern and central regions and 150 households to each of the provinces in the western regions. Within each province, 100 households were allocated to the capital city and the remainder to other cities. Within the cities, rural-urban migrant households were selected from residential communities, hence the migrant workers living in construction sites and factories were excluded from the sample. Since in our analyses we classify short-term migrants as rural and only classify as rural-urban migrants 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, and job characteristics of individual members and households.

The 2007 surveys of rural and urban households were conducted in sixteen provinces, including Beijing, Hebei, Shanxi, Liaoning, Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Henan, Hubei, Guangdong, Chongqing, Sichuan, Yunnan, and Gansu. The survey of rural-urban migrant households covered nine of the above sixteen provinces. The surveys include 13,000 rural households, 10,000 urban local households, and 5,000 rural-urban migrant households. As in the 2002 surveys, the

2007 surveys of rural households and urban local households took subsamples from the large NBS sample, whereas the rural-urban migrant survey was conducted separately. Detailed information about the 2007 survey is provided in Appendix I of this volume.

The questionnaires for the 2007 surveys include many of the same questions as the 2002 surveys. However, new questions regarding migration status and behavior were added for the purpose of migration analysis.

The CHIP survey samples have several characteristics that may lead to an 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). The 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),<sup>5</sup> (b) not all provinces are included in the samples, and provincial coverage changed 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, when subsamples are combined among groups and regions, and for comparison over time, population weights are needed to make the samples 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, 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 the estimation results using the two weighting methods, we present results using both sets of weights

in Section IV on national incomes and inequality.

With respect to income, our preferred measure is net disposable household per capita income. The NBS calculates an estimate of net disposable household income that is published in the official sources and is provided in the CHIP datasets. As discussed elsewhere (Gustafsson, Li, and Sicular 2008a; 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 outlined in Khan et al. (1992) and Khan and Riskin (1998), but adapted in light of recent shifts in the structure of income and 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.<sup>6</sup> Below we refer to this alternative, broader measure of income as “CHIP income.”

For purposes of comparison over time, we deflate the 2007 incomes using the consumer price indexes published by the NBS to obtain values in constant 2002 prices. For national calculations, we use the average national consumer price index. For separate analyses of the urban and rural areas, we use the separate urban and rural consumer price indexes (the urban consumer price index is used for the long-term stable migrants). Between 2002 and 2007 the consumer price indexes show that on average nationwide consumer prices rose by 13.9 percent; in the urban areas prices rose by 12.3 percent and in rural areas by 16.4 percent.<sup>7</sup>

Several studies note that differences in costs of living among regions and provinces can lead to an overstatement of real inequality (Brandt and Holz 2006; Sicular et al. 2010). To obtain income that is 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 in living costs between urban and rural areas and among provinces. Brandt and Holz (2006) provide the PPP deflators for 2002 that we apply to the 2002 CHIP data. For 2007 we update the Brandt and Holz PPP deflators using the official consumer price indexes for urban and rural areas by province, as published by the NBS.

#### **IV. National Household Income Inequality: Main Findings**

Table 2.1 shows mean national 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).

Table 2.1 about here

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

levels or growth.

On balance, growth in mean income should reduce inequality: if mean income 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, and so forth. 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 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 income distribution that underlies the increases in these inequality indices. Figure 2.1 shows the Lorenz curves for 2002 and 2007. The Lorenz curve for 2007 is everywhere lower than that for 2002, which is consistent with an increase in inequality as measured by the inequality indices in Table 2.1.

Figure 2.1 about here

Figure 2.2 shows the distribution of income across income decile groups, ordered from the poorest 10 percent to the richest 10 percent. 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 by decile in 2007 (in constant 2002 prices). The black line shows the percentage increase in income (in constant prices) for each decile between 2002 and 2007.



Figure 2.2 about there

It is clear from Figure 2.2 that income increased for all decile groups, but the increase was smaller for the poorer deciles than for the richer deciles. The income of the bottom decile increased by 406 yuan, or 46 percent (in constant 2002 prices). This is a substantial increase, but in both absolute and relative terms it lags far behind that of the higher income groups. The income of the top decile, for example, increased by nearly 16,000 yuan, or 94 percent (in 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 2.2, which shows the income shares, Gini concentration ratios, and contributions to overall inequality of each component of per capita income. The contributions to inequality are calculated using the standard inequality decomposition by factor components (Shorrocks 1982).

Table 2.2 about here

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 on balance the income of this group had a dis-equalizing effect on total inequality. Urban wages, pensions, and imputed rents on owner-occupied housing were the most dis-equalizing. 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 are indicative of the emergence of private assets as a new and increasingly important source of inequality. Nationally, including both rural and migrant households, the contribution of assets 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 transfers) is also noteworthy, especially in 2007 when they 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, by Deng and Gustafsson, in this volume) and income taxes (see Chapters 8 and 11, by Deng and Gustafsson and by Xu and Yue, in this volume).

The concentration coefficient of migrant income was similar to that of urban income, but owing to the small population and the income share of migrants, the overall impact on national inequality remained small, although increasing over time. In Section V we discuss the income and inequality of 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 to total income continued to shrink. Income from short-term migrant work by rural household members was also equalizing, and became more equalizing from 2002 to 2007. In-depth analysis of rural incomes and inequality can be found in Chapter 6 in this volume (by 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, therefore measured inequality will be overstated as it reflects price differentials as well as real differences in purchasing power. Table 2.3 presents a comparison of inequality estimates calculated with and without adjustments for 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 0.492 to 0.433.

Table 2.3 about here

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 greater for the PPP estimates than for our original estimates, 9.6 percent versus 6.0 percent.

#### **V. Household Income Growth and Inequality of Rural-Urban Migrants**

Because other chapters in this volume do not fully explore incomes and inequality among rural-urban migrants, here we include an additional discussion about 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 whose origins are in rural areas, who have lived in cities for more than six months, and who are either single or living with a spouse. A detailed explanation of these classification criteria and also of weights can be found in Appendix II to this volume.

We note that limiting our analysis to long-term, stable migrants reduces the potential bias due to differences in the sampling methods used for the 2002 and 2007 migrant surveys. As noted 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 2.4 gives information about the per capita household income of long-term, stable rural-urban migrants. The income of the migrants falls between that of rural and urban households. On average, in 2002 migrant income was 2.6 times the rural per capita income and 77 percent of the urban per capita income. In 2007 migrant per capita income was 3.6 times the rural per capita income and 88 percent of the 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 percent, exceeding the growth rates of both rural and urban incomes. Thus, between 2002 and 2007 migrant income moved closer to that of urban income. To some extent, the higher migrant income growth rate may be due to a self-selection process. It is more likely that low-income migrants choose to return to their original homes, whereas higher-income migrants choose to remain in the cities on a more stable, long-term basis.

Table 2.4 about here

Looking at the growth of each income component, we find that the wage income of migrants grew at a very rapid annual rate of 29 percent, so that its share of total migrant income rose from 39 percent in 2002 to 68 percent in 2007. As shown in Table 2.4, almost 90 percent of the total income growth can be attributed to the growth of wage income. Growth of 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 of family business income shown here may be biased 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 or factory dormitories. This could lead to an underrepresentation of wage employees and an overrepresentation of self-employed migrants in 2002 as compared to 2007. Nevertheless, as discussed in Chapter 7 in this volume (by 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 the Lorenz curves in Figure 2.3 and the inequality indices and inequality decomposition reported in Tables 2.5 and 2.6. Again, changes between 2002 and 2007 may in part reflect differences in the sampling procedures.<sup>8</sup>

Figure 2.3 about here

Table 2.5 about here

Table 2.6 about here

How does the inclusion of long-term, stable migrants affect national inequality? As shown in Table 2.1, the inclusion of 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 national inequality because they tend to fall at the center of the income distribution, but the reduction is minimal because the population share of long-term, stable migrants is small, even though it is 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 in this volume).

Even if we limit our attention to the urban sector within which the migrants constitute a larger share of the population, the inclusion of long-term, stable migrants when estimating inequality still has a fairly small impact (Table 2.7). In 2002 urban inequality with migrants included was slightly higher than with migrants excluded; in 2007, it was slightly lower with migrants than without.

Table 2.7 about here

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 a different influence on income in the urban and rural areas, and in the richer and poorer areas. Fully analyzing the impact of migration would require estimating the counterfactual income levels that would have prevailed had migration not taken place. Our calculations use only the 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, find that the urban-rural income gap has widened over time and that it has contributed to the 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 the urban and rural areas, the correction of which 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 2.8). The widening gap is not due to slow growth in rural incomes—rural incomes in fact grew rapidly during this period (see Chapter 6 in this volume, by Luo and Sicular)—but reflects even faster growth in urban incomes. Calculated using the CHIP income and including migrants, the gap widens by more than 20 percent from 3.3 to 4.1.

Table 2.8 about here

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 households than it did for rural households. If we exclude household income from imputed rents on owner-occupied housing 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, p. 138; see also World Bank 2009b).

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 it does not change the trend. Due to higher imputed rents and rental housing subsidies in urban areas, the income gap is larger for the CHIP income than for the NBS income; in both cases, 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 the CHIP

PPP-adjusted incomes and including migrants, from 2002 to 2007 the urban-rural income ratio widened by nearly 30 percent.

The widening urban-rural gap was a factor underlying rising national inequality. Table 2.9 presents summary results of a standard inequality decomposition by population subgroup using the Theil inequality measures (Shorrocks 1980).<sup>9</sup> 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 is the component associated with the urban-rural income gap.

Table 2.9 about here

We report the results for different measures of inequality, for both the NBS and CHIP income definitions, and without and with migrants.<sup>10</sup> In all cases, the share of national inequality contributed by between-group inequality increased from 2002 to 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 was associated with roughly half of the national inequality in China.

PPP adjustments reduce the contribution of the urban-rural gap to inequality, but exacerbate the increase in the contribution of the urban-rural gap to inequality over time (Table 2.10). For the CHIP measure of income, in 2002 the urban-rural gap contributed about 30 percent of PPP inequality, and by 2007 it had risen to about 40 percent .

Table 2.10 about here



## VII. The Structure of Inequality: Regional Income Differences

Previous studies note large regional disparities in household incomes in China.

Analysis of the 2002 CHIP data identified large regional gaps, but with some evidence of a regional catch up (Gustafsson, Li, and Sicular 2008). To investigate regional income inequalities between 2002 and 2007, we conduct several computations.

Following the CHIP sampling approach as well as the official classification of regions, in these computations we divide China as a whole into four large regions: large, provincial-level metropolitan cities; the eastern region; the central region; and the western region.<sup>11</sup>

Table 2.11 shows the relative incomes of the four regions, calculated as a ratio using the mean income of the western region as the denominator. All calculations use the CHIP income definition (see Appendix Table 2A.2 for mean incomes per capita by region).

Table 2.11 about here

We present alternative estimates using unadjusted prices (current year prices, no adjustments for regional cost of living differences) and PPP prices (current year prices, adjusted for regional cost of living differences). Costs of living are generally higher in more developed regions, so that using the PPP prices reduces the income differences between the richer and poorer regions. As shown in Table 2.11, PPP adjustments markedly reduce regional income ratios between the large municipalities and the 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 the PPP estimates, we find the largest income ratio to be between the large municipalities and the western region. In 2002 per capita incomes in the large municipalities were 2.34 times those in the western region; in 2007 they had widened

to 2.44. The ratio between the eastern and western regions was smaller but also substantial, and that between the central and western regions was fairly small. All ratios increased 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 subpopulations. Regional income differences are largest for rural residents, but in most cases the regional income differences narrowed between 2002 and 2007. The income ratio decreased by 22 percentage points between the eastern and western regions, and by 8 percentage points between the central and western regions. These changes might reflect the equalizing effects of migration, or the effects of increased returns to farming (see Chapter 6 in this volume, by Luo and Sicular), which could narrow the gap between areas with more and less nonagricultural development.

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

Regional income differences among urban-based migrant households are small and declining. Even between the large metropolitan cities and the western region the income gap is less than 5 percent, 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 as migrants move in response to real differentials in their wages.

Overall, then, it appears that the widening of regional income gaps in China

between 2002 and 2007 was largely driven by differences among urban areas, and between the 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 the groups narrowed.

How important is interregional inequality to overall inequality in China? We address this question using conventional inequality decomposition analysis by group using the Theil inequality indices. Here the relevant groups are the four regions. The contribution of between-group inequality captures the importance of regional income differences to overall inequality in China.

Table 2.12 about here

Table 2.12 shows estimates of the contribution of between-group (region) shares of inequality for China as a whole (“all”) and separately for the 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 are 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, and 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 over time 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 to rural inequality likely reflects the spread of nonagricultural employment opportunities from the eastern areas to the central and western areas, as well as the increased migration by rural workers in the western

region.

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

Regional inequality is unimportant among migrant households. As shown in Table 2.12, between-region income inequality as a percentage of total inequality among migrants was only about 1 percent in both years.

The findings in Table 2.12 show that national inequality is driven more by inequality within regions than by inequality between regions. Table 2.13, which shows the 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.

Table 2.13 about here

Inequality within regions is in part a reflection of the large urban-rural income gap discussed in the previous section. In both 2002 and 2007 the urban-rural income gap was largest in the western region, about 3 with the PPP adjustments (4 without the PPP adjustments) (Table 2.14). In the eastern and western regions the urban-rural gap was moderate in 2002 but it increased substantially between 2002 and 2007.

Table 2.14 about here

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

rural districts in the large metropolitan cities and their increased urban integration.

Based on the above regional analysis, we conclude that income differences between the eastern, central, and western regions are not a major source of nationwide inequality. Within-region income differences are much more important, although less so in the large metropolitan cities than in the eastern, central, and western regions. Urban-rural inequality appears to be a contributing factor to the rising inequality in the 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 the remaining poverty was geographically dispersed and transient, and also because poverty had become less responsive to macroeconomic growth (World Bank 2009a). Policies adopted after 2002, such as the minimum living guarantee program, cooperative rural healthcare, and rural pension programs, address 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. We exclude imputed rents 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 that the Chinese official poverty line is 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. We set the urban absolute poverty lines equal to the rural poverty lines adjusted by the urban-rural cost of living differential (taken from Brandt and Holz [2006], and for 2007 updated using the NBS consumer prices 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 has become increasingly relevant. Following common practice in the literature, we use a relative poverty line equal to 50 percent of the median income. The relative poverty lines are set equal at 50 percent of the median income in each of the rural and urban sectors, with long-term, stable migrants included in the urban sector. Table 2.15 shows our poverty lines expressed in current prices for each year.

Table 2.15 about here

We note that Chapters 6 (by Luo and Sicular) and 8 (by Deng and Gustafsson) in this volume provide more 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 these chapters may differ from those reported here; however, the overall

trends between 2002 and 2007 are similar.

Our estimates of poverty incidence appear on the top half of Table 2.16. 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 fell 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.

Table 2.16 about here

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

For all poverty lines, the overwhelming majority of the poor were rural (at the bottom of Table 2.16). Using absolute poverty measures, more than 95 percent of the poor were rural. Using relative poverty measures, the share of the rural poor is lower, although still high at 60+ percent. Since the urban relative poverty lines are higher and equal to 50 percent of median urban income, it is not surprising that by this measure a greater proportion of the relative poor than the absolute poor are located in the cities. Moreover, the share of the relative poor located in the cities increased substantially between 2002 and 2007.

Poverty rates differed greatly among regions. As shown in Table 2.17, the

incidence of absolute poverty in the large municipalities was extremely low and in the eastern region it was relatively low, especially in 2007. The incidence of absolute poverty 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 western region the rate of absolute poverty, measured using PPP\$1.25 per day, declined from 32 percent to 15 percent.

Table 2.17 about here

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

By all measures, China's poor are concentrated in the western region. As shown on the bottom half of Table 2.17, more than one-half of China's absolute poor and well over 40 percent of the relative poor live in the western region. Moreover, from 2002 to 2007 the western region's share of the poor increased. Less than 1 percent of China's poor live in the large municipalities; 15 to 20 percent live in the eastern region; and about a one-third live in the central region. 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 western region, 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 the large municipalities the rate of rural poverty was also below 1 percent. In contrast, in the eastern, central, and western regions 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 emphasizing shared growth during the Hu Jintao-Wen Jiabao period, 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 South and Central America such as Mexico (0.51), Nicaragua (0.52), and Peru (0.48), although the level of inequality was still below that of the high-inequality countries such as Brazil and Honduras (0.56-0.57).<sup>12</sup>

Our analysis reveals some old and some new factors that have contributed to this increase in inequality. An old factor is 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 the 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 urban housing privatization and the development of urban residential real estate markets, expansion of stock and capital markets, growth of private enterprises, and other property rights reforms, income from assets was more important. We find that in 2007 asset and property income contributed to 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.

We find evidence that some equalizing factors have also been at work. Although they did not offset the dis-equalizing factors, they nevertheless moderated the upward trend. In 2007 urban net transfers began to have a modestly equalizing impact. This category of income includes public transfers, thereby suggesting that the expansion of urban social welfare programs has 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 incomes from farming and short-term migration was especially important. Some dimensions of regional inequality narrowed, for example, between-region rural inequality and regional differences among long-term migrants. These findings suggest that farm support and regional development programs may have moderated income disparities, especially in rural China.

We note that our estimates likely understate the real trends in inequality because high-income urban households are increasingly underrepresented 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 in general, but researchers have developed techniques to at least partially correct for the resulting bias. The problem is relatively recent in China, and future sampling methods and analytical approaches will need to adapt. A preliminary study by Li and Luo (2011) indicates that adjustments to correct for the 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 continued 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 at the middle or the 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 although 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 2A.1. *Income and inequality with various weights, 2002 and 2007*

	2002					2007				
	urban	rural	national (excluding migrants)	migrant	national (including migrants)	urban	rural	national (excluding migrants)	migrant	national (including migrants)
<b>No weights</b>										
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
<b>Weight I (urban/rural)</b>										
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
<b>Weight II (urban/rural x region)</b>										
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
<b>Weight III (urban/rural x province x region)</b>										
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 the 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 the 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).

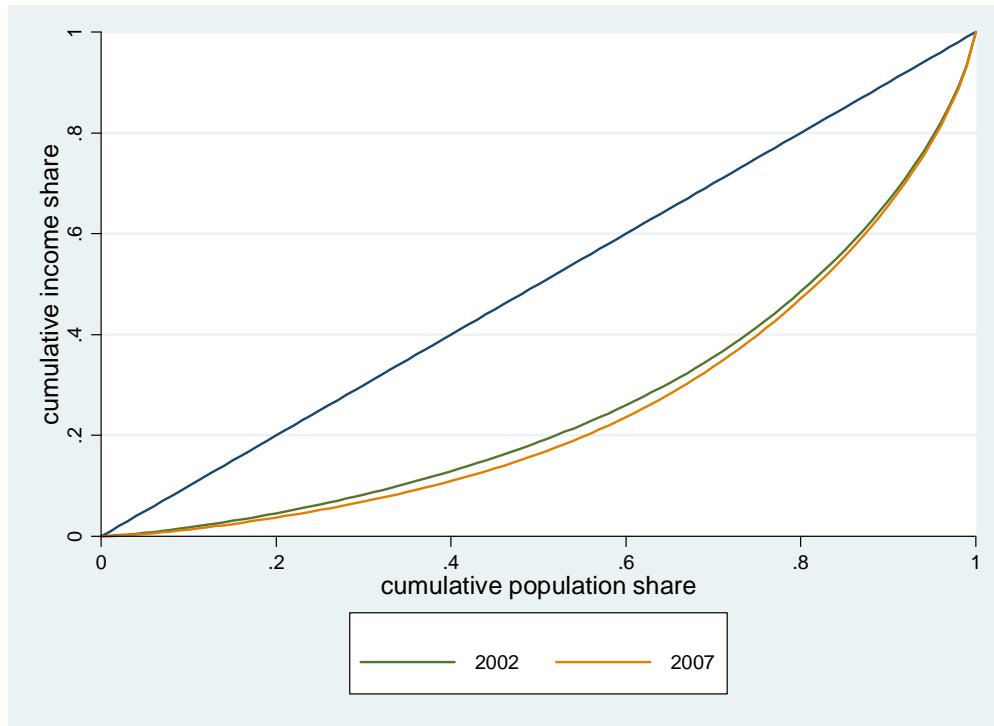


Table 2A.2. Mean income per capita by region, 2002 and 2007 (yuan)

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

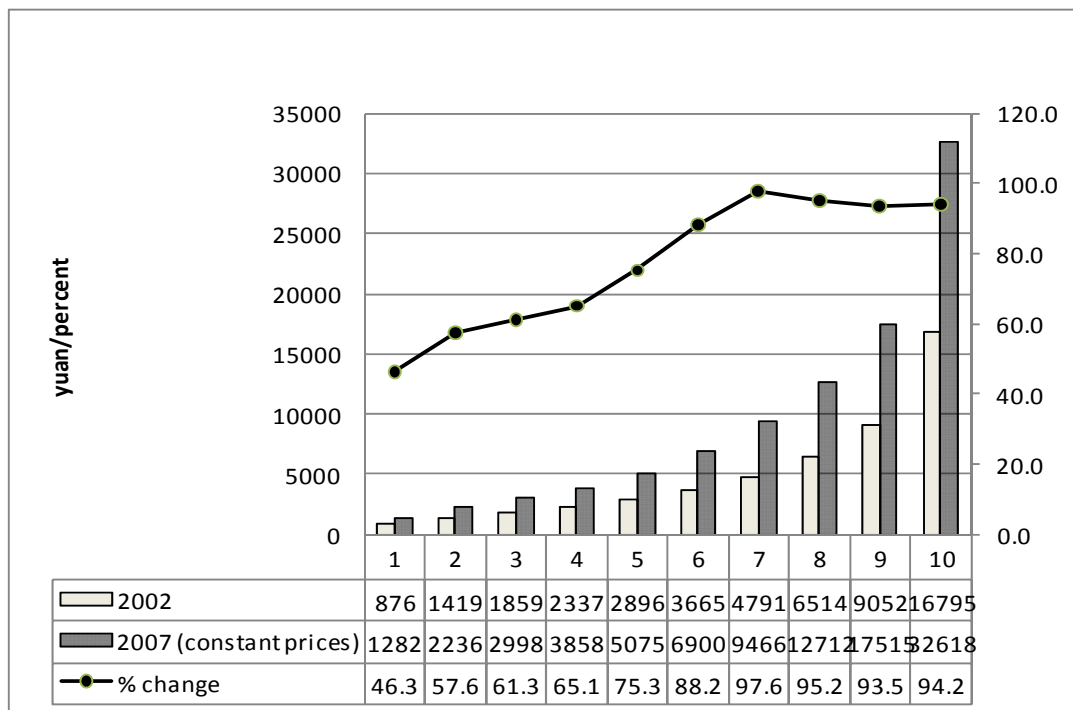
*Notes:* In this table long-term stable migrants are shown separately, and urban excludes migrants. CHIP income definition; calculated using weights (three-level weights for all, provincial and regional weights for urban, rural, and migrant); current-year prices. See notes to Table 2.3 regarding PPP adjustments.

Figure 2.1 China's National Lorenz Curves for Household Per Capita Income, 2002 and 2007 (three-level weights, including migrants, CHIP income definition)



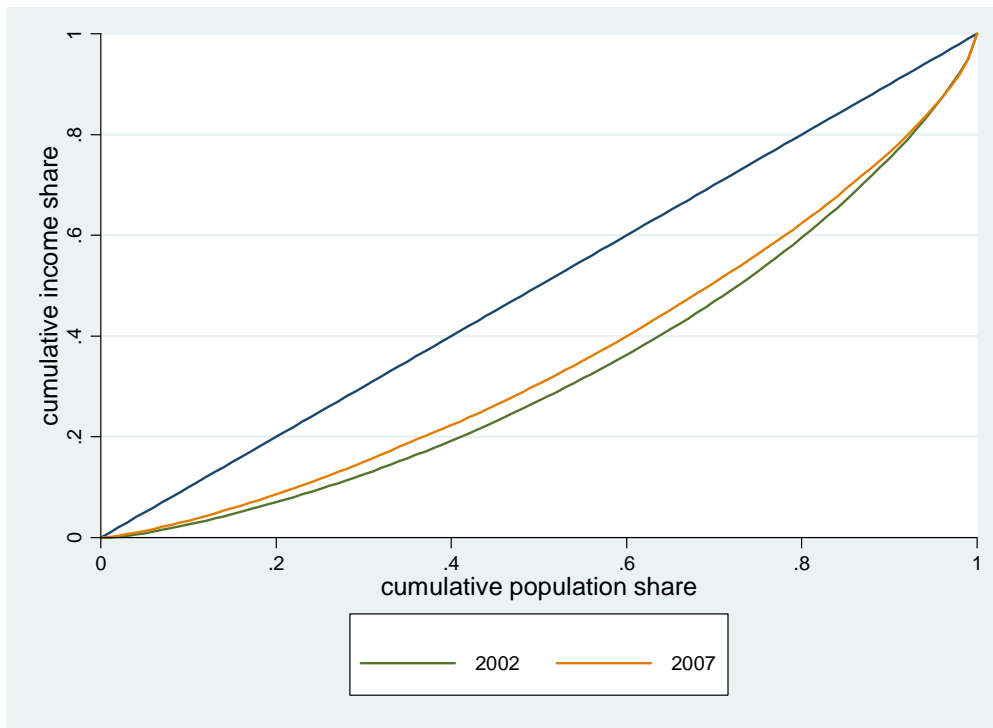
*Note:* Includes all provinces in both years, CHIP income definition, weighted by province, region, and urban/rural. Calculated using incomes in current-year prices.

Figure 2.2 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 2.3 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 in this volume). Calculated using incomes in current-year prices.

Table 2.1. *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
<b>NBS income, two-level weights</b>						
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%
<b>NBS income, three-level weights</b>						
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%
<b>CHIP income, two-level weights</b>						
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%
<b>CHIP income, three-level weights</b>						
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 weights use urban/rural x regional x provincial population shares.
2. Includes all provinces covered by the 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 the 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 2.2. *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 (%)
<b>Rural total</b>	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
Assets	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
<b>Urban total</b>	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
Assets	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
<b>Migrants total</b>	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
Assets	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
<b>National total</b>	<b>0.464</b>	100	100	<b>0.492</b>	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 the current year and constant prices if deflation is carried out using the national average consumer price index for all individuals.

Table 2.3. *Inequality estimates with and without PPP adjustments, 2002 and 2007*

	2002		2007		% change, 2002 to 2007	
	Without PPP	With PPP	Without PPP	With PPP	Without PPP	With PPP
<b>NBS income</b>						
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%
<b>CHIP income</b>						
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 the CHIP surveys.
2. Calculated using three-level weights and including migrants. Incomes are in current-year prices.
3. For PPP 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 the 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 2.1.

Table 2.4. *Level and growth of migrant household per capita income*

	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
<b>Total income</b>	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 to this volume). In current-year prices except for the real growth rates, which are deflated using the urban consumer price index.



Table 2.5. *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 to this volume). Calculated using current-year prices, but the level of inequality is the same for the current year and constant prices if deflation is carried out using the same consumer price index for all individuals.

Table 2.6. *Decomposition of migrant income inequality by income source, 2002 and 2007*

	2002			2007		
	Concentration ratio or Gini	Share (%)	Contribution to total inequality (%)	Concentration ratio or Gini	Share (%)	Contribution 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
<b>Total income</b>	<b>0.334</b>	<b>100</b>	<b>100</b>	<b>0.288</b>	<b>100</b>	<b>100</b>

*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 to this volume). Calculated using incomes in current-year prices; the level of inequality is the same for the current year and constant prices if deflation is carried out using the same consumer price index for all individuals.

Table 2.7. *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 the population shares of urban locals and long-term stable migrants (see Appendix II to this volume). Calculated using incomes in current-year prices.

Table 2.8. *The urban-rural income gap, 2002 and 2007*

	Mean income per capita (yuan)		Average annual income growth (constant 2002 prices)	Urban-rural income ratio		Urban-rural income ratio (PPP adjusted)	
	2002	2007		2002	2007	2002	2007
<b>NBS income</b>							
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%				
<b>CHIP income</b>							
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 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 the provincial rural and urban price indexes published by the NBS.

Table 2.9. *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 the rural areas in the urban sector. Three-level weights are used. Calculated using incomes measured in current-year prices. See Shorrocks (1980) for a discussion of the decomposition methodology.

Table 2.10. *Contributions of urban-rural (between-group) inequality to national inequality, with PPP adjustments (%)*

	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 2.9 apply. PPP adjustments for 2002 use the Brandt and Holz (2006) price deflators; for 2007 the Brandt and Holz (2006) deflators are updated using the NBS provincial urban and rural consumer price indexes.

Table 2.11. *Regional income gaps, 2002 and 2007*

PPP unadjusted								
Region	2002				2007			
	urban	rural	migrant	all	urban	rural	migrant	all
Large cities	2.10	2.68	1.39	3.74	2.07	3.33	1.39	3.54
Eastern	1.40	1.98	1.36	1.88	1.62	1.82	1.23	2.02
Central	0.92	1.22	0.88	1.10	1.05	1.21	0.85	1.17
Western	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PPP adjusted								
Region	2002				2007			
	urban	rural	migrant	all	urban	rural	migrant	all
Large cities	1.42	1.70	0.95	2.34	1.54	2.23	1.04	2.44
Eastern	1.14	1.99	1.02	1.65	1.39	1.77	1.00	1.74
Central	0.90	1.29	0.87	1.12	1.04	1.21	0.84	1.16
Western	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 western region. 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 the urban, rural, and migrant subgroups; current-year prices. See notes to previous tables regarding PPP adjustments.

Table 2.12. 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 contributions of the differences in mean incomes among the four regions to national inequality are shown in the column titled “all.” The other columns report the contributions of income differences between the four regions to inequality within the urban, rural, and migrant subgroups. CHIP income definition; calculated using three-level weights for all and regional x provincial weights for the urban, rural and migrant subgroups; current-year prices. See notes to previous tables regarding PPP adjustments.



Table 2.13. *Gini coefficients by region, 2002 and 2007*

PPP unadjusted		
	2002	2007
Large cities	0.314	0.320
Eastern	0.426	0.465
Central	0.404	0.443
Western	0.462	0.485
PPP adjusted		
	2002	2007
Large cities	0.304	0.312
Eastern	0.357	0.412
Central	0.352	0.396
Western	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 2.14. *The urban-rural income gap by region, 2002 and 2007*

PPP unadjusted		
	2002	2007
Large cities	3.04	2.59
Eastern	2.77	3.72
Central	2.93	3.63
Western	3.90	4.17
PPP adjusted		
	2002	2007
Large cities	2.59	2.22
Eastern	1.77	2.52
Central	2.17	2.76
Western	3.10	3.21

*Note:* See notes to Table 2.13 and notes to previous tables regarding PPP adjustments.

Table 2.15. *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 the 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 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 2.16. *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 2.17. *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						
Large cities	0.07	0.09	0.70	0.35	0.89	1.87
Eastern	3.77	1.59	8.80	3.74	7.73	7.78
Central	6.98	2.74	19.87	7.47	14.21	12.81
Western	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						
Large cities	0.03	0.09	0.12	0.14	0.21	0.44
Eastern	18.33	17.59	17.16	16.51	21.19	20.65
Central	30.42	28.41	34.71	30.94	34.91	31.94
Western	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.

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<sup>1</sup> Household per capita income in real terms increased 7.34 times for rural households and 7.53 times for urban households during the 1978-2007 period (National Bureau of Statistics 2008b).

<sup>2</sup> The total amount of agricultural subsidy funds, including grain subsidies, reached 52.6 billion yuan in 2007; see “Nongyebu: Guojia jiang baochi zhi nonghui nong zhengce de wendingxing lianxuxing” (Ministry of Agriculture: The State Will Maintain Stable and Continuous Policy Support for Agriculture), September 13, 2007, at [http://www.china.com.cn/news/2007-09/13/content\\_8869413.htm](http://www.china.com.cn/news/2007-09/13/content_8869413.htm) (accessed August 22, 2011).

<sup>3</sup> See the introduction to the sampling procedure for the NBS household survey in 2002, in National Bureau of Statistics (NBS) (2003, pp. 339-340).

<sup>4</sup> See the introduction to the sampling procedure for the NBS household survey in 2007, in National Bureau of Statistics (NBS) (2008a, pp. 313-314).

<sup>5</sup> The geographic areas used to construct the CHIP sample frame are (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, and Hainan); central China (Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, and Hunan); and western China (Inner Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, and Xinjiang).

<sup>6</sup> The estimation of the imputed value of rental income on owner-occupied housing is based on the detail discussion of this topic by Sato, Sicular, and Yue in Chapter 4 of this volume.

<sup>7</sup> See *China Statistical Yearbook 2008*, at <http://www.stats.gov.cn/tjsj/ndsj/2008/indexch.htm>, accessed August 22, 2011.

<sup>8</sup> If the share of each income component had remained the same in 2002 and 2007, the inequality of total migrant income would have increased by 4 percent. The analysis in Chapter 7 in this volume (by Knight, Deng and Li), however, suggests that some of the change in the structure of migrant income was likely due to real economic factors, not merely a sample bias.

<sup>9</sup> The Gini coefficient is not decomposable by group.

<sup>10</sup> We also carried out the decomposition using alternative weights. The results are similar, so we do not report them here.

<sup>11</sup> 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, and Hainan); central China (Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, and Hunan); and western China (Inner Mongolia,

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Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, and Xinjiang).

<sup>12</sup> The Gini coefficients for the other countries reported here are for 2005 and are measured over household income per capita. They are from the UNU-WIDER WIID2c database, at [http://www.wider.unu.edu/research/Database/en\\_GB/wiid/](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 in this database for 2005-2006.