The long-term evolution of income inequality and poverty in China

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Abstract: By using the five waves of the China Household Income Project surveys conducted during 1988–2013, this paper investigates long-term changes in income inequality and poverty in China. Income inequality rose before 2007 and then fell by a small amount. The main reason for the rise in income inequality was that high-income percentiles had faster income growth than lower percentiles; the fall in income inequality implies faster income growth among low-income percentiles. The paper also indicates a considerable poverty reduction during China's economic transition, mainly because of the growth effect of poverty decomposition.

Keywords: income inequality, poverty, Gini decomposition, GE decomposition, poverty decomposition

JEL classification: D31, D63, I32, O15

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1   Introduction

China started economic reform at the end of the 1970s and has experienced dramatic changes in all aspects of economic and social development since then. China became the world's second-largest economic entity in 2010, and its gross domestic product stood at 20 per cent of world output in 2017. China's achievements in poverty reduction during the last four decades have been highly appreciated by the international community. With the new poverty line adopted by the Chinese government in 2010, more than 700 million rural Chinese have been lifted out of poverty since the early 1980s. However, China's economic transition has been accompanied by a long-term rising tendency in income and wealth inequalities. Although official data indicates a slight fall in income inequality during the last eight to 10 years, other studies provide different results, suggesting that the fall is either not robust or not significant. It is still debatable whether income inequality has declined in recent years. Given this background, this paper attempts to provide more consistent and robust evidence to understand the long-term dynamic changes in income inequality in China since the end of the 1970s. Data from the China Household Income Project (CHIP) surveys enable us to do this work. One of the major challenges for estimating long-term changes in income inequality in a country is how to make household income measurements consistent across surveys. Since the official definition of household income has changed from one survey to another, and the sample size is different in different household surveys, it takes an enormous amount of time to analyse the data.

The main findings of the paper are as follows. First, income inequality rose before 2007 and then fell by a small amount. Estimates based on CHIP data indicate that the Gini of income inequality in China as a whole increased from 0.39 in 1988 to 0.43 in 1995, and then to 0.45 in 2002 and 0.47 in 2007. The estimates also indicate that the Gini of income inequality decreased by nearly two percentage points between 2007 and 2013.

Second, the income growth curve of the percentiles indicates that the rise in income inequality is mainly because higher-income percentiles have had faster income growth than lower percentiles, and the fall in income inequality implies faster income growth among the lower-income percentiles. This pattern explains why China has seen a large reduction in the number of poor people alongside rising income inequality.

Third, one of the major driving forces behind rising income inequality before 2007 is changes in the household income structure in China. The share of farming income has continuously declined, even having an equalizing effect, while wages as a share of household income have increased over time, particularly in rural areas. Moreover, property income was a negligible component of household income in the 1980s and even the 1990s, but it has grown increasingly and unequally since 2000. However, the decline in income inequality is largely due to the more equal distribution of income components, such as transfer income and wage income.

Fourth, the paper provides strong evidence that poverty reduction has progressed considerably in China. Since the Chinese poor are concentrated in rural areas, the paper focuses on changes in poverty incidence among rural households in the period 1988–2013. The magnitude of rural poverty reduction varies when alternative poverty thresholds are used in the estimations. Using the poverty line adopted in 2010, the paper estimates that the incidence of rural poverty decreased from 75 per cent in 1988 to 10 per cent in 2013.

Fifth, the paper attempts to explain poverty reduction by decomposing the overall poverty reduction into a growth effect and an inequality effect. The results show the two effects vary in

different periods. The growth effect and inequality effect are both large in the period 1988–95, but in opposite directions. The two effects become much smaller in the period 1995–2002, but they both show the same positive signs, showing pro-poor effects. In the following two periods, 2002–07 and 2007–13, it is not surprising that growth had a positive effect on poverty reduction, while inequality had a negative effect. The difference between the two periods is that the growth effect was weaker and the inequality effect stronger in 2007–13 than in 2002–07.

Sixth, as the urban-rural income gap has been a big issue in China, the paper re-estimates dynamic changes in the gap since 1988 using CHIP data. The finding is the same as in previous studies, which indicates that the gap continued to widen during the first three decades of economic transition and showed signs of declining during the last decade.

The paper is structured as follows. The second section provides a background for the study. The third section first discusses the data and income definition, and then presents a general profile of income inequality in China as a whole and of poverty in rural China. Section four focuses on a decomposition analysis of income inequality by looking at household income components. In the fifth section, the effect of income components on poverty incidence in rural areas is estimated. Sections six and seven present analyses of inequality and poverty decomposition by sub-population groups. The last section concludes the paper.

2   Background

The economic transition that was initiated at the end of the 1970s in China dramatically speeded up income growth among Chinese households. The averaged real annual income growth in rural and urban China reached 7.6 per cent and 7.4 per cent respectively during the period between 1978 and 2015. The rapid growth of household income per capita among urban and rural residents is depicted in Figure 1.

Alongside this rapid growth in household income, income inequality also expanded dramatically in China. Figure 1 already shows the increasing urban-rural income gap. In the dual economy with urban-rural segmentation, the household income earned by urban residents was always much higher than that of rural people. It is well documented that the nationwide income inequality was mainly dominated by the urban-rural income disparity. Figure 2 depicts the urban-rural income ratio (measured by per capita household income in urban areas and per capita household income in rural areas). Both nominal and real ratios are reported. At the very beginning of the economic transition (before the mid-1980s), the urban-rural income ratio declined temporarily. After that, the ratio increased persistently until 2009. The increasing trend of the urban-rural income ratio has become less dramatic since 2003, but it has hovered at a very unequal level. Per capita household income in urban areas was two times that of rural households. Since 2009, the urban-rural income disparity has shrunk to some extent, but the ratio still remains rather high.

Figure 1: Per capita household income, urban and rural
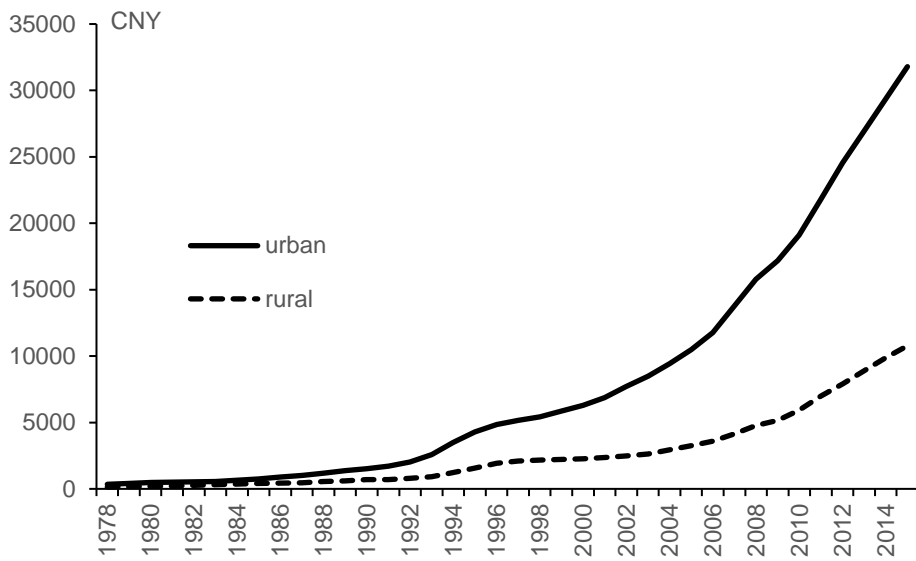
Source: authors' illustration based on data from NBS (2017: 211, 221).

Figure 2: Urban-rural income ratio
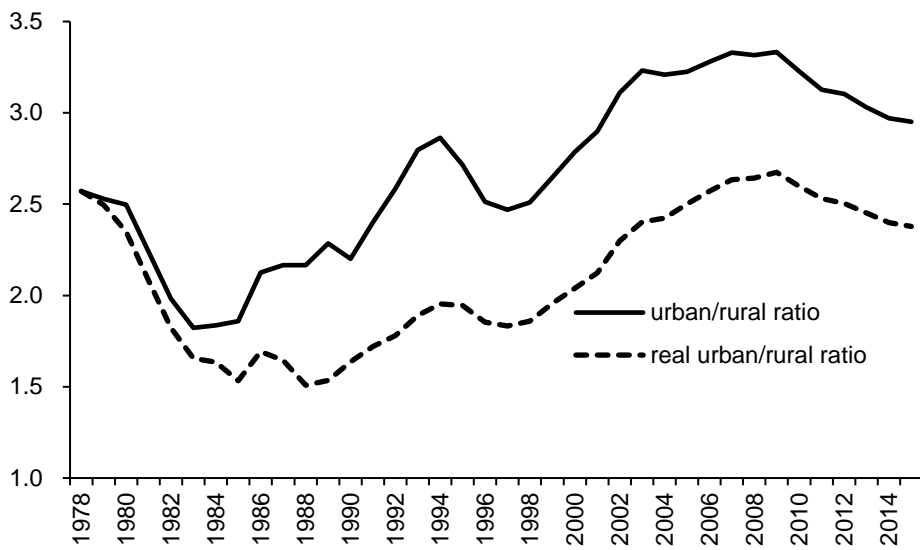
Source: authors' calculations based on data from NBS (2017: 211, 221).

Income inequality in China during economic transition has attracted much research attention. Previous studies have estimated the Gini coefficients of income for various years. Figure 3 reports income Gini coefficients estimates from four sources:

- the World Income Inequality Database compiled by UNU-WIDER (2008), which collects together Gini estimates that have appeared in published academic research papers and policy reports[1];
- the income Gini released by the World Bank (2015);
- Ravallion and Chen's (2007) income Gini estimates, based on household surveys in urban and rural China conducted by the National Bureau of Statistics of China (NBS) between 1981 and 2001;
- the income Gini released by NBS since 2003 (NBS 2017: 457)[2].

These different sources of the annual income Gini indicate a similar dynamic trend in income inequality. Income inequality generally increased during the economic transition. Before the mid-2000s, inequality increased more rapidly, while the expanding trend of inequality slowed around 2010. According to the data from UNU-WIDER, the income Gini was usually around 0.3 in the early 1980s, but increased to 0.469 in 2004, the last year of the data set. As reported by the World Bank, the income Gini increased from 0.2911 in 1981 to 0.4259 in 2002, and then stabilized at a highly unequal level. Ravallion and Chen (2007) found that the income Gini increased from 0.31 in 1981 to 0.45 in 2001. Although the estimated income Gini coefficients are somewhat different even for the same years, all of the different series show the same distinctly upwards trend.

The income Gini remained at a rather high level after the turn of the century, but the trend has been towards a lesser increase. According to the World Bank, the income Gini coefficients were a little higher than 0.42 in later years. The income Gini coefficients since 2003 reported by the NBS were higher than those reported by other sources, ranging from 0.46 to 0.49; this reached a maximum of 0.491 in 2008 and then declined to 0.465 in 2015. Since the mid-2000s, the income Gini has hovered at a highly unequal level.

Both Figure 1 and Figure 3 imply that economic growth has been accompanied by a rapid rise in income disparity during the economic transition. Increases in income growth and inequality usually have opposite effects on changes in poverty. Income growth tends to reduce poverty, while expanded inequality generally worsens poverty. However, the observed incidence of poverty and the size of the poor population have both dropped dramatically, which can be considered the net effect of income growth and increased inequality.[3]

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[1] UNU-WIDER has compiled and released several versions of the World Income Inequality Database (WIID). The second version of WIID, issued in 2012, is adopted in this paper. The WIID collects together not only the national Gini but also separate Gini for urban and rural China. In Figure 3, only the national Gini has been included.

[2] The database for the income Gini has two parts: a regular annual household survey conducted by NBS, and the personal income tax records of the rich. However, NBS has never released its methodology for the adjustments to the top tail of income distribution following tax recoding.

[3] Poverty research in China has mainly focused on rural residents. In this paper too, 'poverty' only refers to rural poverty.

Figure 3: Gini coefficients in China, 1978–2016
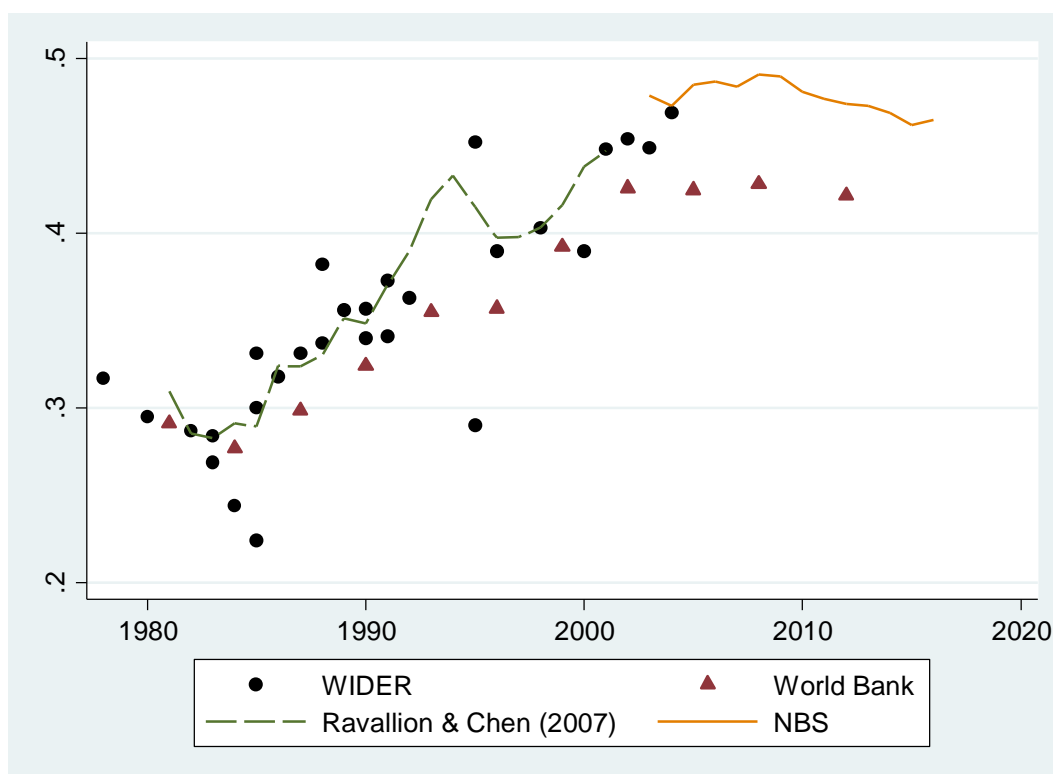
Source: authors' illustration based on data from Ravallion and Chen (2007), NBS (2017), UNU-WIDER (2008), and World Bank (2015).

Using the poverty lines used by the Chinese government,[4] Figure 4 reports the poor population and poverty incidence. Using the official poverty line from 1978, the incidence of poverty in rural China fell from 26.8 per cent in 1978 to 1.6 per cent in 2007. The government raised the official poverty line in 2007 and 2010. Higher poverty lines led to a higher poverty incidence for each year, but the declining trend of poverty incidence remained. According to the official poverty line issued in 2010, poverty incidence in 1978 was as high as 97.5 per cent, but it fell by 22.7 percentage points to 73.5 per cent during the following 10 years, and by 24.7 percentage points to 49.8 per cent during the next 10 years. After 2000, the poverty reduction was more considerable: the poverty incidence fell by 32.6 percentage points during the period 2000–2010.

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[4] For the purposes of international comparison, US$1.25 or US$2 per day are treated as the international poverty line. Adjusted for purchasing power parity between the Chinese yuan renminbi and the US dollar, the official poverty line in 2010 was equivalent to US$1.65 per day (NBS 2015: 100).

Figure 4: Poor population and poverty incidence in rural China
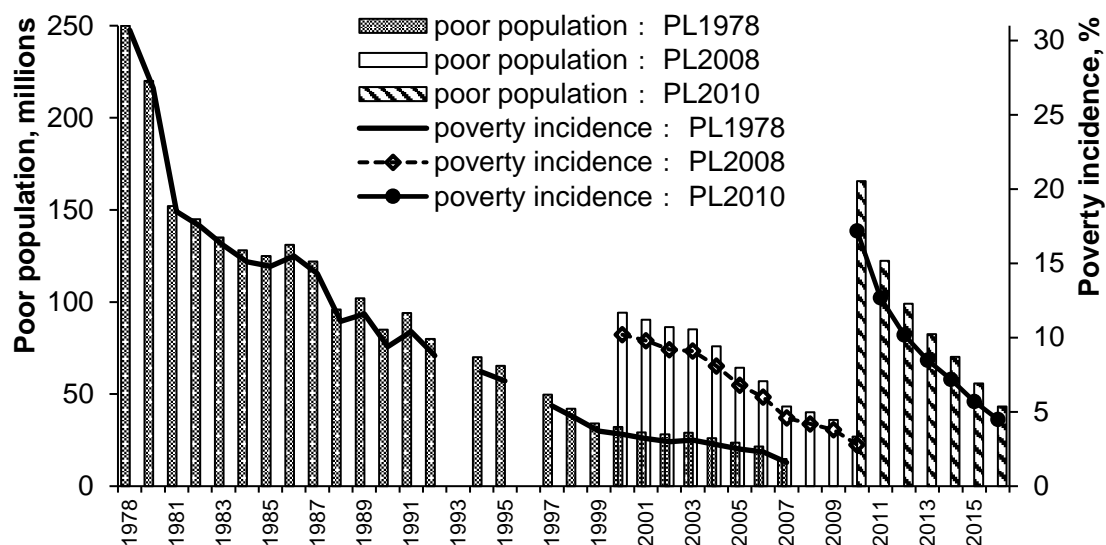
PL: poverty line.

Source: authors' illustration based on data from NBS (2017: 458).

The Chinese government has introduced a number of preferential policies in rural areas since the turn of the century, such as the abolition of agriculture taxes and fees, subsidies on agriculture production activities, and public transfers such as the *dibao* aimed at low-income populations. Such policies might benefit poor people and reduce poverty in rural China. More and more rural labourers have migrated into urban areas, which has tended to increase wage income among rural residents and might also benefit the low-income population. According to the 2010 poverty line, there were about 70 million poor people in 2014. The Chinese government has proposed to eradicate poverty according to the current poverty line before 2020. The poor population in rural China has fallen by more than 700 million since 1978.

Poverty reduction in rural China is mainly driven by economic growth, as has been well documented in academic research.[5] Income growth also changes the relative importance of the poverty line. Figure 5 reports the nominal poverty line[6] for each year, and the ratio of the poverty line to per capita household income in the current year. The 1978 poverty line amounted to 75 per cent of per capita household income in 1978, falling to 44 per cent in 1990 and 19 per cent in 2007, the last year when the 1978 poverty line was used. The 2010 poverty line amounted to 39 per cent of per capita household income in rural China in 2010. Adjusted by the consumer price index, this poverty line was 2.74 times per capita household income in rural areas in 1978. According to the 2010 poverty line, almost all rural people lived with incomes under the poverty line. Even with the 2010 poverty line, the ratio of the poverty line to per capita household income in rural areas fell to less than 27 per cent. This ratio fell by 12 percentage points between 2010 and 2015.

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[5] The growth effect and inequality effect on poverty reduction will be discussed in the next section.

[6] Only the official poverty lines issued in 1978 and 2010 are discussed in this section. The 1978 poverty line was used for a long period, until 2007; the 2010 poverty line is currently used in poverty alleviation policies. The 2008 poverty line only applied for a very few years. The 1978 and 2010 poverty lines were set at 100 CNY and 2,300 CNY in 1978 and 2010 respectively. NBS adjusted the annual poverty line by the 'consumer price index for rural people'. This price index was generally different from the consumer price index, but it was never released.

Figure 5: Poverty lines used by the Chinese government
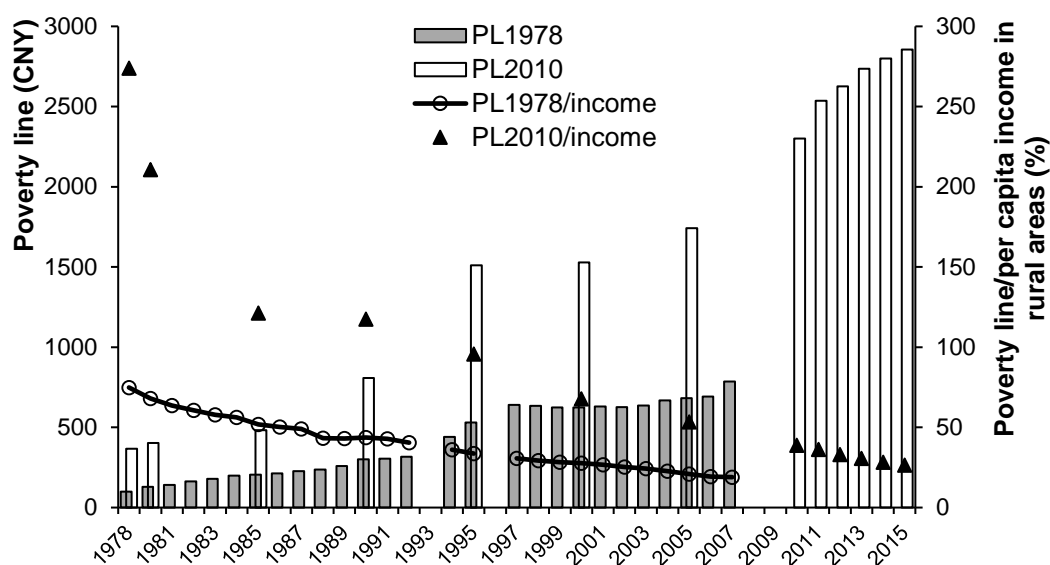
PL: poverty line.

Source: authors' calculations based on data from NBS (2017: 221, 458).

Generally speaking, the rapid growth of household income, the rapid expansion of income disparity, and the substantial reduction of poverty incidence constitute the stylized facts during the economic transition.

3   Data and weights

The data sets used in this research are from the five waves of the nationwide household survey conducted by CHIP in 1988, 1995, 2002, 2007, and 2013. Detailed descriptions of the surveys, including the sampling method and sample composition, are provided at length in Eichen and Zhang (1993), Li et al. (2008), and Luo et al. (2013). The first two CHIP surveys, in 1988 and 1995, included two types of household: urban households and rural households. From CHIP 2002 onwards, migrant households were added to the surveys, since migration had become increasingly widespread and had deeply impacted on Chinese society. The urban and rural surveys were generally conducted separately with independent but exclusive sampling frameworks for urban and rural China, except for the 2013 survey. In the latter, the rural, urban, and migrant surveys were conducted using an integrated sampling framework. The CHIP samples were subsamples of the national annual household survey conducted by NBS, except for the migrant surveys in 2002 and 2007, which were designed and executed separately by the CHIP team. In CHIP 2002, 2,000 rural-urban migrant households were selected from the capital city and from one medium-sized city in each surveyed province. In 2007, the migrant survey was conducted in the 15 cities[7] where migrants were mainly concentrated.

To make the samples representative and comparable across years, the survey in each year has been reweighted in this paper. The weights were generated according to the population share of each group (urban, rural, and migrant) within each region in every year. Table 1 reports the number of

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[7] Bengbu, Chengdu, Chongqing, Dongguan, Guangzhou, Hangzhou, Hefei, Luoyang, Nanjing, Ningbo, Shanghai, Shenzhen, Wuhan, Wuxi, and Zhengzhou.

surveyed individuals in each year, by regions and by the urban-rural division. The regional and urban-rural compositions of the surveys are different from the national distribution of the population. We reweighted the sample at two levels: regions and urban-rural. The weighted sample structures for each year are listed in Table 2. The weighted population composition indicates the significant urbanization process, with an increased share of the urban population and a reduced share of the rural. All the estimates in this paper are calculated using weights.

Table 1: Sample size in each year (individuals)

	Total	**By region**			**By urban-rural**		
		East	Central	West	Urban	Rural	Migrant
1988	82951	30095	31131	21725	31827	51352	0
1995	56435	20636	21066	14733	21696	34739	0
2002	61897	20780	22084	19033	20632	37969	3296
2007	86750	39225	28126	19399	29262	51847	5641
2013	62578	21209	22485	18884	20331	39408	2839

Source: authors' compilation based on data from CHIP.

Table 2: Weighted sample structure (%)

	Total	**By region**			**By urban-rural**		
		East	Central	West	Urban	Rural	Migrant
1988	100	38.36	34.88	26.76	22.00	78.00	0
1995	100	37.99	35.43	26.59	27.38	72.62	0
2002	100	39.39	32.44	28.17	33.35	64.18	2.47
2007	100	39.52	32.52	27.95	35.71	56.09	8.20
2013	100	41.48	31.49	27.23	40.93	45.77	13.30

Source: authors' compilation based on data from CHIP.

4   Income and its components

The income definition across different years has also been harmonized according to Khan et al. (1992) and Khan and Riskin (1998). In addition to the net disposable household per capita income, including wage income, household business income, property income, and transfer income, which is used by NBS, the imputed subsidies on subsidized rental housing, and the imputed value of rental income on owner-occupied housing are added to the household income. We refer to this income as 'CHIP income'.

The income components are listed in Table 3. To reflect the gains from migration among rural residents, in the rural survey, wage income from migration has been separated from wage income since CHIP 1995. Household business income is broken down into two types: agriculture business income and non-agriculture business income. Pensions are also separated from other transfer income. Table 3 shows the mean values of household per capita CHIP income and all income components for each year. The total CHIP income increased rapidly in each period. The total CHIP income tripled between 1988 and 1995, the period with the highest growth ratio of total CHIP income. The total CHIP income growth rate was lowest during the period between 1988 and 1995, but it was still high at 57 per cent nominal.

Table 3: Income by source (CNY, %)

	Income (CNY, %)					Share of total income increment, %			
	1988	**1995**	**2002**	**2007**	**2013**	**1988-1995**	**1995-2002**	**2002-2007**	**2007-2013**
Wage income (of urban and local wage income for rural)	302	1371	3031	6336	11446	48.03	90.05	57.58	49.35
Wage income from migration	-	62	239	445	489	2.78	9.62	3.58	0.43
Agriculture business income	394	772	731	922	1022	16.97	-2.23	3.33	0.97
Non-agriculture business income	56	272	414	1100	2154	9.72	7.70	11.94	10.18
Property income	3	27	47	220	722	1.07	1.07	3.02	4.84
Pension	22	174	502	1103	2669	6.84	17.76	10.48	15.12
Other net transfer income	87	73	-303	-298	-304	-0.61	-20.41	0.08	-0.06
In-kind subsidies for public housing	75	162	96	53	101	3.89	-3.58	-0.75	0.47
Imputed rents for self-owned housing	75	327	327	943	2881	11.31	0.01	10.74	18.71
CHIP income (total)	1015	3240	5083	10823	21180	100	100	100	100

Source: authors' compilation based on data from CHIP.

The total income increment generally comprises wage income, agriculture and non-agriculture business income, pensions, and imputed rents for self-owned housing. Other items usually contribute a small proportion of the total income.

Wage income increased persistently and was the main contributor of income growth in each period. Between 1995 and 2002, the contribution ratio of wage income reached 90 per cent. In other periods, wage income also contributed about half of the income increment. Wage income is the main income source of urban residents. The high contribution of wage income to the total income increment is mainly driven by the growth of wage income among urban residents.

The wage income from migration in 1988 was taken as zero, since we could not separate it from the total wage income, and migration was also very rare at that time. Although migration became increasingly popular, the wage income from migration only trivially contributed to the total income increment. The contribution of wage income from migration to the total income increment was at its highest at 9.62 per cent during the period between 1995 and 2002, and was much lower in other periods.

The proportion of agriculture business income to total income persistently declined, from 38.82 per cent in 1988 to 4.83 per cent in 2013. Conversely, the proportion of non-agriculture business income gradually increased, from 5.52 per cent to 10.17 per cent during the same period. The contribution ratios of agriculture and non-agriculture business income also changed in opposite directions. Agriculture business income contributed 16.97 per cent of total income growth between 1988 and 1995, but its contribution declined sharply, while the contribution of non-agriculture business income slightly increased.

Pensions were another major contribution to total income growth. The share of pensions in total income continuously increased, from 2.17 per cent in 1988 to 12.60 per cent in 2013. The coverage of pension schemes was restricted to urban areas until the 2013 survey. Only urban households had pensions in the first four waves of the CHIP survey. In 2013, a very few old-aged individuals in rural China received a pension. Pensions also significantly contributed to the total income increment. The increased shares of pensions in the total income and total income increment were consistent with the increasingly ageing trend of the population in China.

Under the planned economy, many urban residents lived in public housing with rents below market level and received in-kind subsidies for the public housing. From the mid-1990s onwards, more and more urban households privately owned their housing thanks to the privatization of home ownership in urban China. Therefore, private ownership of housing increased while public-owned housing declined, which led to increased imputed rents for self-owned housing and reduced in-kind subsidies for public housing. Housing prices rose sharply thereafter, which also increased the imputed rents for self-owned housing. The imputed rents for self-owned housing reached 13.6 per cent of total income, and contributed 18.71 per cent of the total income increment, between 2007 and 2013. Conversely, the share of in-kind subsidies for public housing in total income declined. In 1988, in-kind subsides for public housing amounted to 7.39 per cent of total income—the same as the imputed rents for self-owned housing—but declined to 0.5 per cent in 2007 and 2013. The contribution of in-kind subsidies for public housing was also very low or even contributed negatively to total income growth.

Table 4 further provides income by source for the bottom and top total income quintiles. Except for wage income from migration and agriculture business income, the mean values of income sources in the top quintile were much higher than those in the bottom quintile. Wage income and pensions were the two income sources with the largest differences. The mean value of wage income in the bottom quintile was only about one per cent of that in the top quintile in the first four waves of CHIP surveys; in 2013, this ratio increased to 4.45 per cent. The situation is similar for pensions. There was no pension for the bottom quintile in 1988, and nearly zero in 1995, 2002, and 2007. In 2013, mean pension per capita in the bottom quintile amounted to 2.56 per cent of that in the top quintile. Rural residents were more likely to be concentrated in the bottom quintile. They were generally excluded from formal employment, so they rarely had the opportunity to obtain a wage income or pension. Both wage income and pensions are associated with formal employment. In 2007 and 2013, wage income from migration and agriculture business income were higher for the bottom quintile than for the top quintile. The bottom quintile benefited more from migration. Agriculture business income declined absolutely for the top quintile, which indicates that rich people were quitting agricultural activity.

Table 4: Income by source, bottom and top quintiles

	Bottom quintile, CNY					Top quintile, CNY				
	1988	1995	2002	2007	2013	1988	1995	2002	2007	2013
Wage income (of urban and local wage income for rural)	11	41	171	343	1282	1042	4545	9922	19690	28618
Wage income from migration	0	17	139	334	820	0	73	148	62	78
Agriculture business income	227	537	621	888	1150	287	614	304	235	486
Non-agriculture business income	9	85	51	101	222	96	484	843	2816	5342
Property income	0	2	2	32	18	12	94	164	666	2090
Pension	0	1	5	2	197	87	630	1769	3497	7698
Other net transfer income	7	-20	15	66	133	288	304	-1194	-1369	-1526
In-kind subsidies for public housing	0	0	0	0	2	298	675	371	198	399
Imputed rents for self-owned housing	40	104	91	200	756	123	913	891	2755	7317
CHIP income (total)	294	766	1096	1966	4580	2232	8332	13217	28548	50501

Source: authors' compilation based on data from CHIP.

4.1 Uneven income growth

The growth incidence curve (GIC) is used to capture graphically the impact of aggregate economic growth over a wide range of the distribution. With CHIP surveys across years, we calculated the annual growth rate in income at each percentile, using the formula:

$$\frac{1}{t}\left(\ln\left(INC_{q,t}\right) - \ln\left(INC_{q,0}\right)\right)$$ [1]

In Figure 6, the horizontal axis is the percentile of the income distribution, from the fifth to the 95th percentile, at five-percentile intervals; the vertical axis is the annualized growth rate of per capita income for every percentile of the income distribution between two points in time.

Figure 6 shows different patterns of GICs for each period. Between 1988 and 1995, the higher the income, the higher the income growth rate. This is consistent with the increasing income disparity during that period. Between 1995 and 2002, the income growth rate is low at each percentile. The growth rates for middle-income groups are somewhat lower, implying that during this period, bottom inequality declined, but top inequality expanded, and the latter is dominant, making the income gap as a whole wider. Between 2002 and 2007, and between 2007 and 2013, the GICs coincide for low-income groups, and are very similar to that between 1988 and 1995. However, for groups in percentiles above the median, the trends diverge. Between 2002 and 2007, the income growth rate remains at a relatively high level; but it decreases between 2007 and 2013 to fall lower than the growth rates for 1988–1995 and 2002–2007. Thus, except for the period between 1995 and 2002, bottom inequality expanded; but for top inequality, we find different change patterns.

Figure 6: Growth incidence curves, CHIP
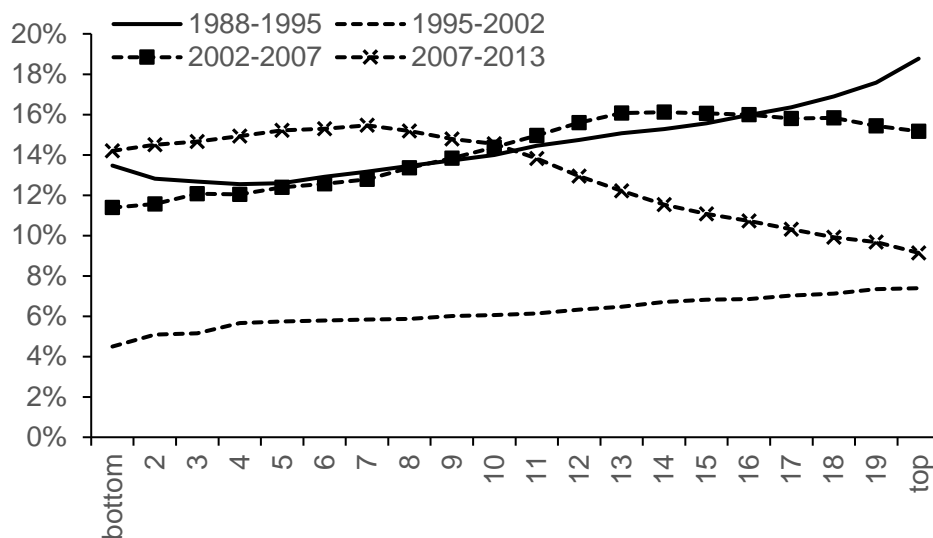
Source: authors' calculations based on data from CHIP.

4.2 Income inequality and rural poverty

The Gini coefficient of per capita household income increased from 0.381 in 1988 to 0.462 in 1995; the rise of 8.1 percentage points marks these years as a period with a very high increase in income inequality. Since 1995, the increased magnitude of the Gini gradually declined, but the income disparity was still rising until 2013. The Gini coefficient of income fell dramatically in 2013 to 2.9 percentage points lower than its level in 2007. Other indexes, such as the coefficient of variation, the Theil index, and the mean log deviation index, show similar patterns.

To capture the changes in poverty, we report the poverty incidence[8] in each year using different poverty lines (Table 5). Specifically, we use the 1978 poverty line and the 2010 poverty line, the two official poverty lines in China; and US$1.25 per day and US$2 per day, the international poverty lines.[9] Poverty incidence falls consistently, using various poverty lines. Poverty incidence in rural China fell from 8.29 per cent in 1988 to only 1.35 per cent in 2013 using the 1978 poverty line. A higher poverty line leads to a higher poverty incidence in each year, but poverty reduction becomes even more significant. Using the poverty line of US$2 per day, poverty incidence in rural China fell by 10 percentage points between 1988 and 1995, and by 20 percentage points between 1995 and 2002.

Table 5: Income inequality and poverty incidence

	1988	1995	2002	2007	2013
Income inequality					
Coefficient of variation	0.795	1.288	1.033	1.050	0.955
Gini coefficient	0.381	0.462	0.471	0.490	0.433
Theil index	0.235	0.398	0.383	0.409	0.317
Mean log deviation index	0.241	0.369	0.391	0.438	0.333
Poverty incidence in rural China (%)					
PL1978	8.29	6.58	4.36	2.39	1.35
	(11.1)	(7.1)	(3.0)	(1.6)	
PL2010	56.43	52.74	31.40	17.82	8.80
					(8.5)
US$1.25 per day	41.29	37.45	21.98	10.77	5.38
US$2 per day	74.18	64.34	47.25	27.60	14.07

PL: poverty line.

Source: authors' calculations based on data from CHIP.

4.3 The effect of income growth and inequality on poverty incidence in rural China

The economic transition brings both a rapid growth in income and an expansion of the income gap. Usually these two factors have opposite effects on poverty incidence. Income growth tends to reduce poverty incidence, but an expanded income gap may worsen the situation. To separate the effects of income growth and inequality on poverty incidence, we apply the method of decomposition.

The decomposition method can be briefly described as follows. Let P denote poverty incidence, which is determined by the average income level μ, the Lorenz curve $L(p)$,[10] and the poverty line z:

$$P = P(\mu, L(p), z) \tag{2}$$

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[8] Poverty incidence is identified where individuals' per capita household income excluding imputed rents for self-owned housing is beneath the poverty line, since the poverty criterion does not include housing expenditure.

[9] Based on purchasing power parity, US$1.25 per day and US$2 per day are equivalent to 1,362 CNY and 2,180 CNY per year in 2005, and to 2,200 CNY and 3,500 CNY per year in 2014 (NBS 2015: 104).

[10] $L(p)$ denotes the income proportion owned by the bottom p per cent population of the income distribution.

If the poverty line is fixed, then:

$$P = P(\mu, L(p)) \tag{3}$$

The poverty incidence in period 1 and period 2 is:

$$P_1 = P(\mu_1, L_1(p)) \text{ and } P_2 = P(\mu_2, L_2(p)) \tag{4}$$

Using Shapley decomposition, the change of poverty incidence between period 1 and period 2 can be written as:

$$\Delta P = P_2 - P_1 = 0.5\{[P(\mu_2, L_1(p)) - P(\mu_1, L_1(p))] + [P(\mu_2, L_2(p)) - P(\mu_1, L_2(p))]\}$$

$$+0.5\{[P(\mu_1, L_2(p)) - P(\mu_1, L_1(p))] + [P(\mu_2, L_2(p)) - P(\mu_2, L_1(p))]\}$$
$$\tag{5}$$

with the first term (i.e. $0.5\{[P(\mu_2, L_1(p)) - P(\mu_1, L_1(p))] + [P(\mu_2, L_2(p)) - P(\mu_1, L_2(p))]\}$ the growth effect, and the second term the inequality effect. The growth effect and inequality effect on poverty reduction for each period are reported in Table 6.

The results in Table 6 show a dominant effect of income growth on poverty reduction. Since income inequality in rural areas expanded in each period, the inequality effect always tends to increase the poverty incidence (except for the period 1995–2002, when income inequality in rural China declined from 0.422 in 1995 to 0.381 in 2002). The poverty reduction by growth effects were partly offset by the inequality effects in most cases. The growth effect on poverty reduction is more significant at a higher poverty line. The significant poverty reduction in rural areas during the economic transition mainly derived from the high speed of economic growth.

Table 6: Decomposition of poverty incidence in rural China, growth effect and inequality effect

		1988-1995	1995-2002	2002-2007	2007-2013
PL1978	Growth effect	-5.32	-1.35	-2.02	-2.13
	Inequality effect	3.61	-0.86	0.05	1.09
	Total effect	-1.71	-2.21	-1.98	-1.04
PL2010	Growth effect	-14.70	-15.14	-12.72	-12.23
	Inequality effect	11.01	-6.19	-0.86	3.21
	Total effect	-3.69	-21.33	-13.58	-9.02
US$1.25 per day	Growth effect	-16.47	-9.72	-10.65	-8.10
	Inequality effect	12.63	-5.75	-0.56	2.71
	Total effect	-3.84	-15.47	-11.21	-5.39
US$2 per day	Growth effect	-11.74	-18.52	-17.18	-17.07
	Inequality effect	-5.34	-1.14	3.66	3.58
	Total effect	-17.09	-19.6%	-13.52	-13.4

PL: poverty line.

Source: authors' calculations based on data from CHIP.

5 Income composition and income inequality

Income composition changed profoundly during the process of economic transition and development, and this shaped the changes in income inequality. To capture the impacts of changes in income composition on income inequality, this section decomposes the total income by its components. The total income (Y) is the summation of all income components (y_k):

$$Y = \sum_k y_k \qquad [6]$$

so that the Gini of total income can be decomposed as follows (Stark et al. 1986):

$$Gini = \frac{cov(Y, F(Y))}{\bar{Y}} = \frac{cov(\sum_k y_k, F(Y))}{\bar{Y}} = \sum_k \frac{cov(y_k, F(Y))}{\bar{Y}} = \sum_k \frac{\bar{y}_k}{\bar{Y}} \frac{cov(y_k, F(Y))}{\bar{y}_k} \triangleq \sum_k S_k C_k \quad [7]$$

where cov denotes covariance, $F(Y)$ denotes the ascent rank of total income or distribution function, $\bar{Y}$ and $\bar{y}_k$ denote the mean value of the total income and income component y_k accordingly, and S_k and C_k denote the proportion and concentration ratio of y_k against total income.

Since urban and rural areas are institutionally segmented in China, income components are not only divided by economic activities such as employment (wage income), household business, etc., but also incorporate the urban-rural division. For example, wage income is separated into two components, wage income for rural residents and wage income for urban residents.

Table 7: Inequality (Gini decomposition) by components

	1988		1995		2002		2007		2013	
	S_k	C_k	S_k	C_k	S_k	C_k	S_k	C_k	S_k	C_k
Wage income (of urban and local wage income for rural)	0.298	0.673	0.423	0.659	0.596	0.636	0.585	0.619	0.541	0.484
Wage income from migration			0.019	0.185	0.047	0.015	0.041	-0.187	0.023	-0.338
Agriculture business income	0.388	0.042	0.238	0.007	0.144	-0.104	0.085	-0.196	0.048	-0.170
Non-agriculture business income	0.055	0.329	0.084	0.305	0.082	0.411	0.102	0.506	0.102	0.471
Property income	0.003	0.641	0.008	0.668	0.009	0.686	0.020	0.579	0.034	0.572
Pension	0.022	0.75	0.054	0.708	0.099	0.696	0.102	0.654	0.126	0.568
Other net transfer income	0.086	0.632	0.023	0.88	-0.060	0.796	-0.028	0.971	-0.015	1.084
In-kind housing subsidies	0.074	0.767	0.050	0.803	0.019	0.75	0.005	0.709	0.005	0.730
Imputed housing rents	0.074	0.229	0.101	0.487	0.064	0.48	0.087	0.522	0.136	0.448
Total	1.000	0.381	1.000	0.462	1.000	0.471	1.000	0.490	1.000	0.433

Source: authors' calculations based on data from CHIP.

As shown in Table 7, the income compositions changed over time. For the whole population, the proportion of wage income increased, and the proportion of agriculture business income decreased. More specifically, the share of wage income was 29.8 per cent in 1988; it increased to 42.3 per cent in 1995, and then went up to about 60 per cent afterwards, with a peak of 58.5 per cent in 2007. The share of agriculture business income fell from 38.8 per cent in 1988 to 4.8 per cent in 2013, which implies a decreasing importance of agriculture during the process of economic transition.

The increase of wage income share potentially has two opposing effects on income inequality. One is the expansion of the urban-rural income gap, which might be contributed by the increase in wage income among urban residents, since wage income is the main component of household income in urban China. The other is that more people gain employment opportunities: as the share of wage income among rural residents and migrants increases, so the wage income of rural residents also increases, narrowing the whole income gap. Table 7 also shows a decrease in the concentration ratio of wage income, from 0.673 in 1988 to 0.484 in 2013, so the share of wage income for low-income groups increases. Overall, the second effect is dominant. Additionally, rural residents' income from migration strongly equalizes the national income distribution.

Table 8: Inequality (Gini decomposition) by income components and the urban-rural division

	1988		1995		2002		2007		2013	
	S_k	C_k	S_k	C_k	S_k	C_k	S_k	C_k	S_k	C_k
Rural	**0.594**	**0.133**	**0.506**	**0.211**	**0.362**	**0.054**	**0.247**	**-0.087**	**0.261**	**0.022**
Wage income	0.069	0.485	0.116	0.584	0.083	0.203	0.054	0.004	0.088	0.054
Income from migration			0.019	0.185	0.047	0.015	0.041	-0.187	0.023	-0.338
Agriculture business income	0.388	0.042	0.238	0.007	0.144	-0.104	0.085	-0.196	0.048	-0.170
Non-agriculture business income	0.049	0.273	0.081	0.298	0.044	0.262	0.025	0.122	0.027	0.279
Property income	0.001	0.277	0.002	0.326	0.003	0.490	0.007	0.220	0.015	0.334
Pension									0.009	0.110
Other net transfer income	0.029	0.372	0.001	5.100	0.018	0.201	0.011	-0.062	0.011	0.019
Imputed housing rents	0.058	0.083	0.049	0.104	0.023	0.011	0.023	-0.059	0.041	0.077
Urban	**0.406**	**0.744**	**0.494**	**0.720**	**0.605**	**0.716**	**0.634**	**0.696**	**0.599**	**0.617**
Wage income	0.229	0.729	0.308	0.688	0.501	0.712	0.449	0.710	0.358	0.615
Non-agriculture business income	0.006	0.782	0.003	0.526	0.018	0.543	0.034	0.629	0.038	0.597
Property income	0.002	0.806	0.006	0.794	0.006	0.771	0.012	0.775	0.016	0.802
Pension	0.022	0.750	0.054	0.708	0.099	0.696	0.102	0.654	0.115	0.606
Other net transfer income	0.057	0.763	0.022	0.728	-0.078	0.654	-0.030	0.784	-0.019	0.704
In-kind housing subsidies	0.074	0.767	0.050	0.803	0.019	0.750	0.005	0.709	0.005	0.730
Imputed housing rents	0.016	0.763	0.052	0.845	0.040	0.749	0.062	0.724	0.087	0.625
Migrant					**0.033**	**0.577**	**0.119**	**0.595**	**0.140**	**0.414**
Wage income					0.012	0.489	0.083	0.528	0.095	0.386
Non-agriculture business income					0.019	0.627	0.042	0.641	0.037	0.481
Property income					0.000	0.334	0.001	0.846	0.002	0.515
Pension									0.002	0.497
Other net transfer income					0.001	0.620	-0.009	0.285	-0.006	0.467
Imputed housing rents					0.001	0.745	0.003	0.804	0.008	0.425

Source: authors' calculations based on data from CHIP.

Table 8 reports the Gini decomposition by income components for urban and rural residents separately, and shows different effects of wage income on total income for urban and rural workers. There is a dramatic rise in the share of wage income in rural sectors between 1988 (6.9 per cent) and 1995 (11.6 per cent). Moreover, if migrants are included, this number could be as high as around 20 per cent in 2007 and 2013. This reflects the labour migration from agricultural

sectors to non-agricultural sectors, and from rural areas to urban areas, during the economic transition. The concentration ratio of wage income in rural areas is much lower than the Gini coefficient of total income, implying that wage income has a strong impact on narrowing the income gap. For urban workers, the share of wage income first increased by eight percentage points between 1988 and 1995, peaked at 50.1 per cent in 2002, and then kept falling, reaching 35.8.1 per cent in 2013. More importantly, the concentration ratio of wage income in urban areas remains at a high level compared with the Gini coefficient in each year, implying that wage income widens the income gap. For migrants, the concentration ratio of wage income in 2002 and 2007 is high, but there is a sharp decline in 2013 as the demand for migrants in the labour market increases.

Both the proportion ratio and the concentration ratio of non-agriculture business income increased. As shown in Table 7, the concentration ratio jumped from 0.329 in 1988 to 0.506 in 2007. Although there is a fall in 2013, it is still somewhat higher than the Gini coefficient of the total income. The effects of non-agriculture business income on inequality are different between rural and urban areas. For rural workers, non-agriculture business income helps to narrow the income gap, but this is not the case for urban workers.

Property income has a low proportion ratio in general, while the concentration ratio is very high. Property income is mostly earned by high-income groups, and it only has a small effect on the income gap.

Transfer income is decomposed into two items: pensions and other net transfer income. The share of pensions in total income increased gradually, from 2.2 per cent in 1988 to 12.6 per cent in 2013. Generally, the pension scheme only covered workers in urban areas, and pensions strongly disequalized the income distribution with a high concentration ratio, much higher than the Gini coefficient of the total income. The urban-rural segmented pension scheme, accompanied by the increasingly ageing population, tended worsen income inequality. Pensions enlarged the urban-rural income disparity and hence inequality for the whole population.

Other net transfer income generally amounted to a small proportion of total income, but it was also highly unequal. In rural populations, the share of net transfer income was positive, which means they were net transferred in, while urban residents were usually net transferred out. Other net transfer income in rural areas reduced total income inequality, while such income components earned by urban residents and migrants had the opposite effect on inequality.

In-kind subsidies for public housing were only obtained by urban residents, and were a decreasing proportion of total income because of the privatization of housing ownership. In 2007 and 2013, in-kind subsidies for public housing amounted to a very trivial proportion of total income. In-kind subsidies were generally concentrated towards rich people. The concentration ratio of in-kind subsidies was above 0.7 in each year, which was much higher than the Gini for total income.

The effect of imputed rents for self-owned housing on inequality of total income also related to housing reform. The share of imputed rents for self-owned housing in the total income increased continuously from 7.4 per cent in 1988 to 13.6 per cent in 2013. This was a result of the rapid expansion of private ownership of housing and rising housing prices in urban areas, which also disequalized the total income distribution, since these factors disproportionally increased household income among urban residents.

We can also compare total incomes between rural and urban areas. The proportion of rural residents' income in total income for the whole population gradually decreases, from 59.4 per cent in 1988 to 24.7 per cent in 2007. The concentration ratio of total rural income is very low, even below zero for some years, indicating that rural incomes are mainly earned by low-income groups,

and most rural residents are at the bottom of the income distribution. The expansion of the income gap is mainly caused by the increase in income among urban residents. If we take migrants as part of the urban population, the proportion of urban income increases continuously,[11] and the concentration ratio of urban income against total income is higher than the Gini coefficients in each year. Inequality fell between 2007 and 2013, which was accompanied by the declining share of income earned by urban residents.

6   Inequality decomposition by group

Inequality decomposition by group is also a general way to explore contributors to inequality. The generalized entropy (GE) indices can be completely decomposed into between-inequality and within-inequality, as follows:

$$GE(\theta)_{whole} = \sum_{k=1}^{K} \omega_k^{POP} \left(\mu_k / \mu\right)^{\theta} GE_k + GE_{between} \qquad [8]$$

where μ_k and μ denote the mean value of per capita income in group k and the full sample; θ is a parameter of GE indices to indicate inequality aversion; ω_k^{POP} denotes the population share of group k; GE_k denotes the GE indices within group k; and $GE_{between}$ and GE_{whole} denote the GE indices for between-groups and the whole population. $\sum_{k=1}^{K} \omega_k^{POP} \left(\mu_k / \mu\right)^{\theta} GE_k$ measures within-inequality, which is composed of population shares within groups (ω_k^{POP}), relative income for each group $\left(\mu_k / \mu\right)$, and GE_k for each group. The population composition and relative income (between-inequality) of groups also affect within-inequality.

In this section, we mainly focus on the case of $\theta = 1$, i.e. the Theil index. The Theil index can be calculated as:

$$GE(1) = \sum_i \frac{w_i y_i}{\mu} log \left(\frac{y_i}{\mu}\right) \qquad [9]$$

where w_i is the weight for i, and y_i denotes the income of individual i. The GE decomposition always excludes individuals with negative or zero income.

6.1   Urban-rural inequality

In general, urban-rural inequality constitutes a large part of overall inequality (Table 9). In 1988, urban-rural inequality accounted for 35.83 per cent of total inequality. This fell to 27.24 per cent in 1995; then increased in 2002 and 2007, reaching 50.08 per cent; then fell to 27.85 per cent in 2013. During the period 1995–2007, the expansion of the income gap was mainly caused by urban-rural inequality. The Theil index fell between 1995 and 2002, and remained stable between 2002 and 2007. But between-inequality increased, from 0.079 in 1995 to 0.1437 in 2002, and to 0.2046 in 2007.

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[11] There are mainly two reasons for this. First, the urban-rural income gap is expanding because the income growth rate is higher for urban residents. Second, the population share of urban residents is increasing because of urbanization.

Table 9: Urban-rural inequality (Theil decomposition)

		1988	1995	2002	2007	2013
ω_k^{POP}	Rural	0.7785	0.7261	0.6415	0.5605	0.4583
	Urban	0.2215	0.2739	0.3339	0.3576	0.4099
	Migrant			0.0246	0.0819	0.1318
μ_k/μ	Rural	0.7465	0.6973	0.5650	0.4414	0.5706
	Urban	1.8280	1.8022	1.8108	1.7726	1.4608
	Migrant			1.3388	1.4493	1.0600
GE_k	Rural	0.1922	0.3481	0.2644	0.2469	0.2906
	Urban	0.0906	0.2289	0.1953	0.1920	0.2092
	Migrant			0.2135	0.1780	0.1986
Within-inequality		0.1511	0.2893	0.2209	0.2039	0.2290
%		64.17	72.76	57.75	49.92	72.15
Between-inequality		0.0844	0.1083	0.1617	0.2046	0.0884
%		35.83	27.24	42.25	50.08	27.85

Source: authors' calculations based on data from CHIP.

Within-group inequality is affected by three factors: urban-rural population composition, urban-rural relative income, and the Theil index within the groups. Since the within-Theil index for rural groups is always higher than that for urban groups, a decrease in the population share of the rural population will also reduce the within-group inequality. The urban-rural income gap also increased between 1995 and 2007. The rising relative income of urban residents (μ_u/μ) gives a greater weight to GE_u, which is smaller than GE_r, so this reduces within-group inequality. In general, the within-group Theil index increases over time for both urban and rural residents, except for an extremely high value for rural residents in 1995. Overall, the ratio of within-group inequality to total inequality decreases, and the ratio of the between-group inequality increases. But the decreasing share of within-group inequality is mainly caused by the change in the urban-rural population structure, and inequality within each group is rising.

6.2 Regional inequality

Economic developments in different regions are quite different. Here we explore two forms of regional inequality: one between the eastern, central, and western regions, and the other among the provinces.

The population share of the east, centre, and west increased, decreased, and remained stable respectively. Between 1988 and 2002, the relative income of the east increased, and the relative income of the centre decreased. For these two regions, the trends were reversed between 2002 and 2013. For the western region, the relative income exhibited fluctuations.

The Theil index within the eastern region increased over time, but was lower than in the west. For example, in 2007, the difference was around eight percentage points. The Theil index within the western region was higher than the index of the other two regions; it rose continuously between 1988 and 2007, then fell by seven percentage points in 2013 (Table 10).

Table 10: Regional inequality (Theil decomposition)

		1988	1995	2002	2007	2013
ω_k^{POP}	East	0.3838	0.3797	0.3938	0.3946	0.4141
	Centre	0.3483	0.3542	0.3245	0.3256	0.3156
	West	0.2680	0.2661	0.2818	0.2798	0.2703
μ_k/μ	East	1.2581	1.4189	1.4172	1.4351	1.2651
	Centre	0.8884	0.8091	0.7630	0.7790	0.8289
	West	0.7755	0.6563	0.6899	0.6435	0.7937
GE_k	East	0.2170	0.3566	0.3212	0.3342	0.2935
	Centre	0.2053	0.2365	0.2858	0.3283	0.2713
	West	0.2201	0.4774	0.3968	0.4117	0.3173
Within-inequality		0.2140	0.3433	0.3271	0.3467	0.2928
%		90.92	86.35	85.51	84.86	92.28
Between-inequality		0.0908	0.0543	0.0554	0.0619	0.0245
%		9.08	13.65	14.49	15.14	7.72

Source: authors' calculations based on data from CHIP.

According to the Theil decomposition, within-group inequality increased from 0.2140 in 1988 to 0.3467 in 2007, with a mild decrease in 2013. Between-group inequality shows a similar pattern, first increasing from 0.0908 in 1988 to 0.0619 in 2007, and then decreasing to 0.0245 in 2013. For the relative contribution ratio, the proportion of between-group inequality, which measures the differences among the regions, increased between 1988 and 2002, but then started to decrease.

The results of the Theil decomposition of inequality grouped by provinces are listed in Table 11. Within-group inequality and its share both increased continuously after 1988. In general, the share of between-group inequality was decreasing, but the Theil index of between-group inequality increased between 1988 and 2002, and then stared to decrease. This means that intra-province inequality was rather high, even at the beginning of economic transition.

Table 11: Within- and between-province inequality

	1988	1995	2002	2007	2013
Within-inequality	0.1709	0.2906	0.2564	0.3163	0.2760
%	72.60	73.10	67.03	77.43	86.98
Between-inequality	0.0645	0.1069	0.1261	0.0922	0.0413
%	27.40	26.90	32.97	22.57	13.02

Source: authors' calculations based on data from CHIP.

6.3 Educational attainment

There a close link between education and the income gap. Here we use the educational attainment of household heads to divide the population into four groups. The contribution ratio of between-group inequality to overall inequality increased, from 10.45 per cent in 1988 to 28.03 per cent in 2007. The Theil index measuring between-group inequality also increased, from 0.0246 in 1988 to 0.1145 in 2007. In general, educational attainment plays an increasingly important role in the determination of income inequality.

The share of the population with educational attainment at primary level and below decreased dramatically, from 0.4937 in 1988 to 0.2211 in 2007. At the same time, the share of the population with higher educational attainment increased, from 0.0410 in 1988 to 0.1315 in 2013. This reflects the effect of the educational expansion launched in 1999 (Table 12).

Table 12: Inequality (Theil decomposition) by educational attainment of household head

Education of household head		1988	1995	2002	2007	2013
ω_k^{POP}	Primary and below	0.4937	0.3512	0.2468	0.2211	0.2501
	Junior middle	0.3150	0.3826	0.4164	0.4104	0.4156
	Senior middle	0.1503	0.1977	0.2439	0.2462	0.2027
	Higher education	0.0410	0.0685	0.0929	0.1222	0.1315
μ_k/μ	Primary and below	0.8327	0.7356	0.5959	0.5054	0.6214
	Junior middle	1.0246	0.9241	0.8079	0.7725	0.8378
	Senior middle	1.2583	1.2433	1.2444	1.2377	1.1957
	Higher education	1.8788	2.0773	2.2932	2.1802	1.9314
GE_k	Primary and below	0.2228	0.3802	0.3093	0.3417	0.3097
	Junior middle	0.2185	0.3592	0.3235	0.3641	0.2703
	Senior middle	0.2120	0.3334	0.3039	0.2994	0.2441
	Higher education	0.1117	0.2813	0.1915	0.1844	0.1618
Within-inequality		0.2108	0.3472	0.2873	0.2940	0.2424
%		89.55	87.34	75.10	71.97	76.40
Between-inequality		0.0246	0.0503	0.0953	0.1145	0.0749
%		10.45	12.66	24.90	28.03	23.60

Source: authors' calculations based on data from CHIP.

For the group with primary-level educational attainment and below, relative income decreased. Usually, the average family income is lower than the average level for the whole population if the household head has a low educational attainment (primary and below, or junior middle). The relative income of the group where the household head had a higher educational attainment was the highest. It increased between 1988 and 2002, but then decreased between 2002 and 2013. We can further calculate the relative income between the group with higher educational attainment and the group with primary or lower educational attainment. The ratio increased from 2.26 in 1988 to 4.31 in 2007, and then decreased somewhat to 3.11 in 2013.

The Theil index measuring within-group inequality decreases as educational attainment gets higher. For example, in 1988 the Theil index for the group where the household head has an educational attainment at primary level or lower is 0.2228, while that for the higher education group is 0.1117, about half the former. We find similar patterns in other years.

7   Conclusion

This paper provides a more consistent and systematic analysis of long-term changes in income inequality and poverty in China than previous studies. The findings from our analysis can be summarized as follows. Income inequality shows a rising tendency until 2007 and then starts falling to a small degree. The fall continues until 2016. Rising income inequality is mainly because higher income percentiles have faster income growth than lower percentiles; falling income inequality implies faster income growth among lower-income percentiles. This pattern explains why China can make a large reduction in the number of poor people alongside rising income inequality.

This paper finds that one of the major driving forces for rising income inequality in China is changes in household income structure and its concentration. The share of farming income in household income declined in the first three decades, even having an equalizing effect, and wages as a share of household income increased over time, particularly in rural areas. Moreover, property income was negligible in the 1980s and even the 1990s, but has grown increasingly and unequally since 2000. By contrast, declining income inequality is largely due to more equally distributed

income components, such as transfer income and wage income. As the urban-rural income gap has been a big issue in China, the paper re-estimates dynamic changes in this gap since 1988 using CHIP data. The finding is the same as that made by previous studies, which indicates that the gap widened continuously in the first three decades of economic transition and showed signs of declining in the last decade.

The paper further provides evidence that poverty reduction has been successfully achieved in China. Since the Chinese poor are concentrated in rural areas, the paper focuses on changes in the poverty incidence of rural households in the period 1988–2013. Using the poverty line adopted in 2010, the paper estimates that the incidence of rural poverty decreased from 75 per cent in 1988 to 10 per cent in 2013. The paper attempts to explain poverty reduction by decomposing the overall poverty reduction into a growth effect and an inequality effect. The results show the two effects vary in different periods. The growth effect and inequality effect are large in the period 1988–95, but the two effects take opposite directions. Both effects become much smaller in the period 1995–2002, but they show the same positive signs, showing pro-poor effects. In the following two periods, 2002–07 and 2007–13, it is not surprising that growth has a positive effect on poverty reduction, while inequality has a negative effect. The difference between the two periods is that the growth effect is weaker and the inequality effect stronger in 2007–13 than in 2002–07.

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