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## ***Research Note***

# **How and Why has Poverty in China Changed? A Study Based on Microdata for 1988 and 1995\***

**Björn Gustafsson and Wei Zhong**

Poverty alleviation is on China's political agenda and ambitions are high in a country experiencing rapid economic growth. In a speech at the Central Work Conference on Poverty Eradication on 23 September 1996 Premier Li Peng declared that the country could see an end to poverty in its rural areas by the end of the century. This would mean lifting the country's remaining 65 million poor out of poverty.

In China poverty is closely linked to location. There is an important difference between urban and rural areas, with statistical evidence pointing towards poverty being predominantly a rural phenomenon. There are greater differences between the more prosperous eastern region, the central region and the less developed and most poverty prone western region of the country. It is also possible that households living on the plains are less likely to be poor than those living on hills or in the mountains. The Chinese approach to poverty alleviation tends to be by targeting resources to officially designated poor areas where they are used without considering the economic situation of particular households. This strategy can only be successful where poverty is strongly concentrated in areas classified as poor.

The literature on poverty in China is surprisingly limited. Few researchers have been able to work with microdata covering China as a whole. This study takes advantage of two large household surveys covering most of rural China as well as large regions of urban China. The surveys for 1988 and 1995 were made using similar instruments which make meaningful comparisons across time possible. We specify a poverty line for China at 50 per cent of the median equivalent income for China as a whole in 1988. This level is close to the World Poverty Line used by the World Bank in assessing poverty in the developing world. The poverty line is updated to 1995 with changes in retail prices only, which does not take into consideration the fact that the average income level in China increased rapidly between the two reference years. In order to arrive at robust results we represent the extent of poverty by three indices and also vary the level of the poverty line.

### *Poverty Assessments for the People's Republic of China*

The State Statistical Bureau produces annual estimates of rural poverty in China, based on the household's money income and assessments of its

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own production but not on that which is received in kind. According to these figures the number of rural poor decreased from 250 million in 1978 to 65 million in 1995. This means an average reduction of almost 11 million poor persons a year, which makes it appear not unreasonable for poverty to be eliminated by the year 2000. However, much of the poverty reduction took place immediately after 1978. While the poverty rate for rural China stood at 30.7 per cent in 1978 it was down to 15.1 per cent in 1984, 11.1 per cent in 1988 and 7.1 per cent in 1995.<sup>1</sup>

Although the worse-off inhabitants of urban China appear to have a better situation than the rural poor, they can give concern to local policy makers. Applying poverty lines set to 50 per cent of median income for each city investigated, Chuck Kie Wong analysed poverty in Guangzhou in 1993 and Shanghai in 1996. The results showed 12 and 13 per cent of the population respectively falling below the city specific poverty lines. The retired and the unemployed were more likely to be considered poor than other households.<sup>2</sup>

The published official figures do not give much insight into the profile of Chinese poverty. There are different views on how geographically concentrated rural poverty in China was at the end of the 1980s. On the one hand according to the World Bank, "Most of China's remaining absolute poverty is now concentrated in a number of resource-poor rural areas, primarily in the northern, north-western and south-western provinces."<sup>3</sup> In contrast Riskin writes that:

A new, individualized kind of poverty may be developing within the core regions of agricultural China. With the resurrection of the goal of individual enrichment in the public ideological domain and a decline in both the means and the political commitment to local income redistribution on behalf of the poorest, it is likely that some households that are not able to take advantage of the new conditions and are without a strong social safety net have fallen into poverty. This hypothesis suggests that poverty has become more atomistically dispersed thorough the country, rather than being left only at its margins.<sup>4</sup>

Obviously a strategy of geographic targeting in combating poverty in

1. The development of poverty from 1984 to 1989 is controversial. According to the World Bank, *Sharing Rising Incomes, Disparities in China* (Washington, D.C.: The World Bank, 1997), p. 10, the rural poverty rate actually increased as there was little growth and inequality increased.

2. C.K. Wong, "Measuring Third World poverty by the international poverty line: the case of reform China," *Social Policy and Administration*, No. 29 (1995), pp. 189–203; and "How many poor people in Shanghai today? The question of poverty and poverty measure," *Issues and Studies*, No. 33 (1997), pp. 32–49.

3. World Bank, *China Strategies for Reducing Poverty in the 1990s* (Washington, D.C.: The World Bank, 1992), p. 5.

4. C. Riskin, "Chinese rural poverty: marginalized or dispersed?" *American Economic Review*, Vol. 84, No. 2 (1994), pp. 281–84. In an analysis of the household income survey, 1988, Gustafsson and Li reported results which were more in line with Riskin's view (S. Li and B. Gustafsson, "An estimate of the extent and scale of poverty during the late 1980s in China," *Social Sciences in China*, No. 6 (1996), pp. 29–44; and "The structure of Chinese poverty, 1988," *The Developing Economics*, Vol. 36, No. 4 (1998), pp. 387–406). However, there is no guarantee that what was valid at the end of the 1980s also applies later; this issue is addressed further below.

China has greater potential if poverty is geographically concentrated than if it is diverse. Linked to this is the issue of whether poverty is mainly transient or chronic. The former might be the best description if poverty is geographically diverse, while the latter can be the case if poverty is spatially concentrated. In a recent research project at the World Bank, the duration of poverty in rural China is addressed using panel data for four provinces in the south.<sup>5</sup> Some results now suggest that much of rural poverty in China at the end of the 1980s was transient.<sup>6</sup>

There is also the issue of how large rural poverty in China is from a global perspective. Great variation exists in estimates of purchasing power parity (PPP) for China. Gustafsson and Li report that for the same World Poverty Line set to 375 PPP dollars per person and year (in 1985), estimates vary on the poverty rate for rural China in 1988 because of the choice of PPP between 9 and 62 per cent. This is indeed a very large variation and motivated those authors to set their poverty line at 50 per cent of median equivalent income for China as a whole in 1988.<sup>7</sup> Most remarkably it is almost identical with the US\$375 PPP World Poverty Line if one applies the estimate of PPP for China by Ren and Chen which is the most plausible alternative.<sup>8</sup> According to this, a poverty rate of 13.5 per cent was obtained for China as a whole in 1988, while for rural China it was estimated to be 17.6 per cent. This approach in defining the poverty line for 1988 is replicated here. We bring forward the poverty line to 1995 by using the retail price index.

### *Data and Concepts*

The data for this study come from two surveys conducted by the Institute of Economics, Chinese Academy of Social Sciences, with the assistance of the State Statistical Bureau in Beijing. The first survey of household income in 1988 was implemented in the spring of 1989 and has been intensively analysed by the project team led by Keith Griffin and Zhao Renwei.<sup>9</sup> The second survey, for the year 1995, was conducted during January to March 1996.<sup>10</sup> It had different sample procedures and

5. S. Chen and M. Ravallion, "Data in transition: assessing rural living standards in southern China," *China Economic Review*, Vol. 7, No. 1 (1993), pp. 23–56.

6. J. Jalan and M. Ravallion, "Transient poverty in postreform rural China," *Journal of Comparative Economics*, Vol. 26 (1998), pp. 338–357.

7. Gustafsson and Li, "An estimate," and "The structure of Chinese poverty." This poverty line is 32% higher than the absolute poverty line for rural China defined by Riskin, "Chinese rural poverty."

8. R. Ren and K. Chen, "An expenditure-based bilateral comparison of gross domestic product between China and the United States," *Review of Income and Wealth*, Vol. 40, No. 4 (1994), pp. 377–394.

9. K. Griffin and R. Zhao (eds.), *The Distribution of Income in China* (London: Macmillan, 1993). More details of the survey can be found in M. Eichen and M. Zhang, "The 1988 household sample survey – data description and availability," in *ibid.* pp. 331–36. See also A.R. Khan, K. Griffin, C. Riskin and R. Zhao, "Household income and its distribution in China," *The China Quarterly*, No. 132 (1992), pp. 1029–61.

10. A.R. Khan and C. Riskin, "Income and inequality in China: composition, distribution and growth of household income, 1988 to 1995," *The China Quarterly*, No. 154 (1998), pp. 221–253. See also R. Zhao, S. Li and C. Riskin (eds.), *Re-study on Income Distribution*

instruments for households in rural and urban areas, derived from large samples of the State Statistical Bureau (SSB). A sample household is visited monthly by an enumerator for five years. The SSB's method for selecting households is undocumented. Rural households without a *hukou* living in an urban area (thus not officially registered) are probably not in the sample. For obvious reasons it is not possible to have a well-based estimate of the size of this "floating" population.<sup>11</sup>

The sample size for the second survey was reduced from about 20,000 households in the first survey (10,515 in the rural sample and 9,001 in the urban sample), to about 15,000 households (7,998 in rural areas and 6,931 in the urban sample). The rural sample covers 109 counties located in 19 provinces and the urban sample covers cities in 11 provinces. The provinces were chosen by a consideration of geographical differences in China as a whole.<sup>12</sup>

Most questions in the first survey were also in the second. In the urban questionnaires, income questions were posed with the object of deriving household disposable income, so households were required to answer questions regarding income-in-kind and the market value of housing subsidies as well as imputed rent of privately owned houses. In the rural questionnaires, the present values of private houses were asked for to derive their imputed values by adopting a discount rate.

Poverty assessments were based on the variable "disposable equivalent income." Disposable income consists of individual income and household income not attributed to individuals. The former includes earnings, pensions, other money income and in-kind subsidies. The latter includes household income from farming, family enterprises, property and imputed rents of owner-occupied housing.<sup>13</sup> This means that our definition is broader than in surveys used for official estimates of poverty.

Each household's disposable income was divided by an equivalent number as reported in the appendix. Based on this variable all household members are classified as poor or non-poor. As is standard in this kind of analysis we cannot take the intra-household distribution of income into consideration. The poverty line of 50 per cent of the median for China in 1988 means 439 *yuan* per person per year.<sup>14</sup> Variations in prices across

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*footnote continued*

*of Chinese Households* (Beijing: Publishing House of Chinese Finance and Economy, 1999) (in Chinese).

11. As households belonging to the floating population are likely to be more poverty prone than other urban households, we are probably underestimating urban poverty in China. However, it is less clear if the floating population is more or less poverty prone than the rural population. It thus follows that we do not know whether our estimates under- or overestimate poverty in China as a whole.

12. The provinces in the rural sample are Beijing, Hebei, Shanxi, Liaoning, Jilin, Jiangsu, Zhejiang, Anhui, Jiangxi, Shandong, Henan, Hubei, Hunan, Guangdong, Sichuan, Guizhou, Yunnan, Shaanxi and Gansu. The provinces in the urban sample are Beijing, Shanxi, Liaoning, Jiangsu, Anhui, Henan, Hubei, Guangdong, Sichuan, Yunnan and Gansu.

13. We define income of owner-occupied housing in rural China similarly to the definition in Gustafsson and Li, "An estimate," and "The structure of Chinese poverty."

14. The procedure for arriving at disposable income which is comparable across China in reported in *ibid.*

China were taken into account by working with price indices. Our assessment of the poverty situation is of most relevance for evaluating policies which refer to the entire country. It is not in conflict with supplementary assessments of the situation in the more affluent cities to use poverty lines which are defined as 50 per cent of median income for the city investigated.<sup>15</sup>

The poverty line for 1988 was updated to 1995 using retail price indices specific for rural and urban regions of each province as published by the SSB, giving 908 *yuan* per person per year. In order to arrive at robust results all estimates were reworked for one poverty line set to 75 per cent of 908 *yuan* and one set to 125 per cent of 908 *yuan*. It turns out that most results on changes in poverty are robust with respect to these alternatives.

An important insight from recent literature on poverty measurement is that it is not advisable to base poverty assessments solely on how large a proportion of a population is poor (“incidence”). There have been many suggestions of how to incorporate more considerations into poverty assessments. These refer to “intensity” showing how poor the poor are (on average) and “inequality” stating how the poverty deficit up to the poverty line is shared among the poor. In recent applied work perhaps the most frequently used alternative is a family of indices suggested by Foster *et al.*<sup>16</sup>:

$$FGT(\alpha) = \frac{1}{N} \sum_{i=1}^q \left(1 - \frac{y_i}{z}\right)^\alpha = \frac{1}{N} \sum_{i=1}^q \left(\frac{g}{z}\right)_i^\alpha,$$

where  $N$  is the size of the entire population under study and  $g_i (= z - y_i)$  is the poverty gap. The poverty gap for a poor household is thus the amount of income which is required to make it non-poor. We normalize it by the poverty line which means that it is bounded by 0 and 1 (in the case of no negative income). In the FGT index those gaps are raised by the positive parameter  $\alpha$  before the average is taken. Higher numbers of the parameter give increased weight to large poverty gaps, indicating greater “poverty aversion.” In this application  $\alpha$  is put equal to 0 which leads to the head count ratio, as well as equal to 1 and 2. When  $\alpha$  is set equal to 1 it is just averaging over the poverty gaps, while setting  $\alpha$  equal to 2 gives a distribution sensitive index. An advantage with this family of indices is that it is additively decomposable by subgroup. The total poverty is then the weighted sum of poverty in mutually exclusive subgroups.

15. Compare the practice of Eurostat, the statistical authority of the European Union, which publishes estimates of poverty for the various member states based on poverty lines defined as 50% of mean income for the Union, as well as based on 50% of mean income for each member state. Eurostat, *Income Distribution and Poverty in EU 12-1993* (Luxembourg: Statistics in Focus, 1997).

16. J. Foster, J. Greer and E. Thorbecke, “A class of decomposable poverty measures,” *Econometrica*, Vol. 52, No. 3 (1984), pp. 761–66.

*The Changed Extent of Poverty in China and Geographical Aspects of the Changes*

Table 1 shows estimates of the various poverty indices for China as a whole, urban China and rural China for the two years under study. The incidence of poverty for China as a whole has fallen from 13.49 per cent in 1988 to 10.63 per cent in 1995, according to these assumptions. During the same period median equivalent income grew by 37 per cent and average equivalent income by 58 per cent. The discrepancy between these two numbers illustrates that the distribution became considerably more unequal. Thus despite rapid economic growth the poverty rate for China as a whole decreased only modestly. This conclusion is robust with respect to how high the poverty line is set and also follows if the poverty line from 1988 is updated by the consumer price index instead of the

**Table 1: Estimates of Poverty Index for China as a Whole, Urban China and Rural China 1988 and 1995**

		<i>FGT(0)</i> percentage	<i>FGT(1)</i> percentage	<i>FGT(2)</i> percentage
<i>China as a whole</i>				
1988		13.49	4.12	2.16
1995		10.63	2.95	1.28
The index 1995 as percentage of 1988		79	72	59
<i>Urban China</i>				
1988		0.37	0.10	0.06
1995		0.17	0.03	0.02
The index 1995 as percentage of 1988		46	33	33
<i>Rural China</i>				
1988		17.57	5.48	2.87
1995		14.91	4.14	1.80
The index 1995 as percentage of 1988		85	76	63
	Percentage of the sample		Composition of poverty Percentage	
<i>Rural China</i>				
1988	74.7	99.3	99.4	99.3
1995	71.0	99.4	99.8	99.8
<i>Urban China</i>				
1988	25.3	0.7	0.6	0.7
1995	29.0	0.6	0.3	0.2

retail price index.<sup>17</sup> From the background of China's impressive growth record the poverty reduction appears to be surprisingly small. In addition, the assessment of poverty in 1995 is based on a poverty line which represents constant purchasing power. Had the poverty line for 1995 been defined as 50 per cent of the median equivalent income for the same year, as many as 19.94 per cent of the population as a whole in 1995 would fall below the line, an increase by as much as 6.5 percentage points. This clearly shows that the distribution of equivalent disposable income in China (at the lower tail) became considerably more unequal between the two years under study.<sup>18</sup>

The results in Table 1 indicate that poverty in China continues to be a rural phenomenon, at least when using a poverty line specified for China as a whole and where there is no possibility of considering the floating population. The estimated urban poverty rates are very low, and not more than 1 per cent of poverty in China as a whole is located in its urban areas. The rest of this article concentrates on rural poverty. The rural poverty rate is higher than the rate for China as a whole. It decreased from 17.57 per cent in 1988 to 14.91 per cent in 1995.

Table 2 gives estimates of rural poverty in eastern, central and western China, which are the categorization of provinces used for official policies.<sup>19</sup> Most foreign investment has been made in the east, the region which has also experienced the most rapid growth in income. From our data we have estimated growth in average equivalent income from 1988 to 1995 for the eastern rural region of 71 per cent, while for the middle rural region it was 39 per cent. The growth for the western rural region was not more than 20 per cent. Thus between the two years, average income grew 3.5 times as rapidly in the eastern rural region as in the western rural region.

In the eastern region of rural China the extent of poverty was reduced to about half. The extent of poverty in the middle region decreased almost as rapidly, and in 1995 13.0 per cent of the inhabitants were considered poor. Poverty in the rural west developed differently from the other two regions as it actually increased somewhat according to all indices. Thus in 1995 as many as 31.2 per cent of the inhabitants were counted as poor.

17. Our picture of the development over time is consistent with the official estimates discussed above. However, our methodology results in a poverty population for China somewhat larger than the one found in official estimates. Our poverty rate is also slightly higher than the alternative "absolute poverty line" reported by the World Bank (*Sharing Rising Incomes*) but it is lower than for the same source's alternative "higher poverty line." If our poverty line is increased by 25% poverty rates of 18.42% (1988) and 16.88% (1995) are found; and putting it at 75% of the preferred line results in rates of 5.63% (1988) and 5.06% (1995).

18. The issue of how to update the poverty line has received attention in the literature on poverty in industrialized countries (see C. Citro and R. Michael, *Measuring Poverty. A New Approach* (Washington, D.C.: National Academy Press, 1995)).

19. The eastern region includes Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, Hainan and Guanxi. The middle region includes Shanxi, Inner Mongolia, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei and Hunan. The western region includes Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang.

**Table 2: Estimates of Poverty for Different Regions of Rural China 1988 and 1995**

		<i>FGT(0)</i> percentage	<i>FGT(1)</i> percentage	<i>FGT(2)</i> percentage
<i>Eastern rural China</i>				
1988		9.37	3.28	1.97
1995		5.36	1.60	0.78
The index 1995 as percentage of the index 1988		57	49	40
<i>Central rural China</i>				
1988		19.97	6.11	3.36
1995		13.01	3.60	1.58
The index 1995 as percentage of the index 1988		65	59	47
<i>Western rural China</i>				
1988		26.51	7.21	3.24
1995		31.21	8.52	3.58
The index 1995 as percentage of the index 1988		116	118	110
	Percentage of the sample for China as a whole		Composition of poverty in China as a whole Percentage	
<i>Eastern rural China</i>				
1988	24.6	18	20	23
1995	25.8	14	14	16
<i>Central rural China</i>				
1988	29.6	40	44	46
1995	26.9	32	33	34
<i>Western rural China</i>				
1988	20.5	41	36	31
1995	18.3	54	53	51

The uneven development of poverty for the different regions of rural China means that Chinese poverty has become even more concentrated to the western rural region. About one out of five people in China live in this area, but it comprised one-third of the total poverty in China in 1988 and more than this in 1995. While in 1988 the risk of being poor for an average person living in the rural west was less than 3 times as high as

**Table 3: Estimates of Poverty by Altitude for Rural China 1988 and 1995**

		<i>FGT(0)</i> percentage	<i>FGT(1)</i> percentage	<i>FGT(2)</i> percentage
<i>Plains region</i>				
1988		16.05	5.58	3.16
1995		5.65	1.41	0.62
The index 1995 as percentage of 1988		35	25	20
<i>Hilly region</i>				
1988		14.61	4.74	2.60
1995		13.60	3.68	1.59
The index 1995 as percentage of 1988		93	78	61
<i>Mountainous region</i>				
1988		25.25	6.36	2.67
1995		34.09	9.90	4.31
The index 1995 as percentage of 1988		135	156	161
	Percentage of the sample for rural China		Composition of poverty in rural China Percentage	
<i>Plains region</i>				
1988	48	44	49	52
1995	46	18	16	16
<i>Hilly region</i>				
1988	30	25	26	27
1995	29	27	26	26
<i>Mountainous region</i>				
1988	22	31	25	20
1995	24	56	58	58

for an average person living in the east, in 1995 the relation was almost 6 to 1.

Table 3 gives estimates of how poverty status varies by the altitude of the household. There are several reasons to believe that households living in the lowlands (the plains) are less poverty prone than those living up in the mountains. For farming, there is better access to irrigated and fertile land on the plains and the soil can be more easily cultivated by draught animals and machines. Low altitude farmland can give more than one harvest a year, while this is not the case at higher altitudes. Households living in the lowlands have lower costs of transport to and from markets than mountain households, and proximity to urban markets also makes it

possible for the former to grow agricultural products which need to be fresh when sold to consumers, an option not open to many mountain people. In addition, opportunities for receiving additional income from employment in Township and Village Enterprises or from being self-employed can be greater for a person living on flat land than for one in the mountains. There is also the possibility that people living on the plains are better educated. Finally, one should remember that while many people in western China live in the mountains, in eastern China many live on the plains and it was shown above that the development of poverty has not been favourable in the west.

In order to investigate the relation between altitude of the household and poverty status the rural sample is split into three categories.<sup>20</sup> Table 3 shows that in 1988 the poverty rate was clearly, but far from dramatically, higher among households living in the mountains, while the difference between the two other categories was small. Between 1988 and 1995 poverty rates developed very differently for rural households living at different altitudes. The poverty rate among households living on the plains decreased to be only about one-third and was as low as 5.7 per cent in 1995. Measured by the other indices the decrease was even more dramatic. The poverty rate for people living in the hills changed little according to Table 1.<sup>21</sup> At the other extreme the poverty rate for people living in the mountains actually increased from 25 to 34 per cent and the proportional increase was even higher according to the other indices. Thus in 1995 the risk of being poor was six times larger for an average person living in the mountains than for an average person living in the lowlands.<sup>22</sup> The changes mean that the proportion of China's rural poor living in the mountains increased from being less than one-third in 1988 to a majority in 1995.

#### *Additional Aspects of How the Profile of Chinese Poverty has Changed*

This section breaks down the rural sample along dimensions other than location in order to study the poverty profile for rural China and how it has changed. Table 4 distinguishes between those who belong to one of China's many minorities (8 per cent of the rural sample) and the majority population. The Chinese minority population is disproportionately located in the western region of the country, and many live in the mountains. These circumstances and the results reported above suggest that the

20. An altitude of less than 200 metres above sea level is termed plains, an altitude of 200–500 metres is classified as hills and an altitude of more than 500 metres is classified as mountains.

21. If the poverty line is set to 125% there is actually an increase (from 20.83 to 23.96%) while if it is set to 75% the estimates are virtually identical (6.45 and 6.49%).

22. Similar conclusions are reached when estimating poverty rates for categories having different access to irrigated land. Those with more than average irrigated land have poverty rates of 9.23% in 1988 and 5.74% in 1995, while those with less than average irrigated land have poverty rates of 22.77% in 1988 and 21.77% in 1995.

**Table 4: Estimates of Poverty for Majority and Minority Persons in Rural China 1988 and 1995**

		<i>FGT(0)</i> percentage	<i>FGT(1)</i> percentage	<i>FGT(2)</i> percentage
<i>Majority</i>				
1988		16.50	5.57	2.95
1995		13.32	3.69	1.62
The index 1995 as percentage of the index 1988		81	69	55
<i>Minority</i>				
1988		30.36	8.31	3.89
1995		34.90	9.52	3.88
The index 1995 as percentage of the index 1988		115	115	100
	Percentage of the sample for rural China		Composition of rural poverty in China Percentage	
<i>Majority</i>				
1988	92.2	87	88	90
1995	92.1	81	82	83
<i>Minority</i>				
1988	7.8	13	12	10
1995	7.9	18	18	17

development of poverty for the minority may be less favourable than for the majority.<sup>23</sup> This is also what is reported in Table 4.

In 1988 the poverty rate among minorities was about twice that of the majority population. By 1995 it had increased from 30.4 to 34.9 per cent. However, it should also be remembered that although those from minorities are more poverty prone than those of the majority, the overwhelming proportion of China's poor (slightly more than 4 out of 5 in 1995) belong to the majority population.

Table 5 shows the relation between the education of the household head and poverty status. In a study based on the same survey for 1988, Gustafsson and Li showed little difference in poverty status by education of household head.<sup>24</sup> However, in an environment of economic transformation the better educated might have an easier time finding new employ-

23. For further details of how economic reform has affected China's minorities and the gap in living standards between them and the majority population see C. Mackerras, "The impact of economic reform on China's minority nationalities," *Journal of Asia Pacific Economy*, No. 30 (1998), pp. 61-79.

24. Gustafsson and Li, "An estimate," and "The structure of Chinese poverty."

Table 5: Estimates of Poverty by Education of Household Head for Rural China 1988 and 1995

	<i>FGT(0)</i> <i>percentage</i>	<i>FGT(1)</i> <i>percentage</i>	<i>FGT(2)</i> <i>percentage</i>	
<i>College and technical school</i>				
1988	17.12	6.37	3.93	
1995	4.35	0.76	0.20	
The index 1995 as percentage of the index 1988	25	12	5	
<i>Upper middle</i>				
1988	13.37	3.88	2.06	
1995	8.40	2.31	1.06	
The index 1995 as percentage of the index 1988	63	60	51	
<i>Lower middle</i>				
1988	15.04	4.72	2.45	
1995	11.28	3.10	1.37	
The index 1995 as percentage of the index 1988	75	66	56	
<i>Primary</i>				
1988	16.33	5.16	2.75	
1995	14.42	3.94	1.69	
The index 1995 as percentage of the index 1988	88	76	61	
<i>Illiterate</i>				
1988	27.43	8.67	4.44	
1995	21.48	6.25	2.75	
The index 1995 as percentage of the index 1988	78	72	62	
	Percentage of the sample for rural China	Composition of poverty in rural China Percentage		
<i>College and technical school</i>				
1988	1.8	1.8	2.1	2.4
1995	0.5	0.1	0.1	0.1
<i>Upper middle</i>				
1988	9.4	7.2	6.7	6.7
1995	5.5	3.1	3.1	3.2

<i>Lower middle</i>				
1988	30.3	25.9	26.1	25.8
1995	32.7	24.8	24.5	24.9
<i>Primary</i>				
1988	35.4	32.9	33.4	34.0
1995	22.2	21.4	21.1	20.8
<i>Less than primary</i>				
1988	6.2	5.9	5.1	4.8
1995	19.1	21.8	21.1	20.6
<i>Illiterate</i>				
1988	16.9	26.4	26.8	26.2
1995	20.0	28.8	30.2	30.6

ment opportunities: they will be better informed and quicker to adopt new agricultural techniques. Results from some recent studies indicate that the relation between education and household income has increased in rural China during the reform process.<sup>25</sup>

Table 5 confirms that in 1988 poverty status differs little by education of household head, except that persons living in households with an illiterate household head were somewhat more poverty prone than others. By 1995 poverty rates had clearly fallen for people living in households with a head with lower middle school or higher education. Among people living in households headed by someone with a primary education or less, poverty rates in 1995 are similar to these of 1988.

Table 6 shows no strong relation between household size and poverty status for 1988. There is a tendency for people in households of three or four members to be less-than-average poverty prone while those living in the largest households are more poverty prone. While poverty rates decreased markedly between the years studied for people in smaller households changes were more or less absent among the larger households.<sup>26</sup> Thus in 1995 the relation between household size and the poverty rate is more pronounced than earlier. For example the poverty rate among families with seven or more members is twice as high as for households with three or four members.

Changes in the composition of the poverty population according to household size can be seen to be the result of two forces working in opposite directions. On the one hand there are fewer large households in 1995 than in 1988. On the other the poverty rate for large households has developed less favourably than for other households. In fact, the first

25. T. Li and J. Zhang, "Returns to education under collective and household farming in China," *Journal of Developing Economics*, No. 56 (1998), pp. 307–335; X. Meng and H. Wu, "Household income determination and regional income differential in rural China," *Asian Economic Journal*, Vol. 12, No. 1 (1998), pp. 65–88.

26. Replicating Table 6 but using a poverty line set to 75% or 125% of the preferred alternative gives in both cases a less favourable picture of the development of poverty in large households.

Table 6: Estimates of Poverty by Household Size for Rural China 1988 and 1995

		<i>FGT(0)</i>	<i>FGT(1)</i>	<i>FGT(2)</i>
<i>One or two persons</i>				
1988		15.92	4.83	2.82
1995		8.71	2.15	0.99
The index 1995 as percentage of the index 1988		55	45	35
<i>Three or four persons</i>				
1988		13.96	4.50	2.45
1995		11.34	3.13	1.45
The index 1995 as percentage of the index 1988		81	70	59
<i>Five or six persons</i>				
1988		17.91	5.73	3.08
1995		17.58	4.90	2.06
The index 1995 as percentage of the index 1988		98	86	67
<i>Seven or more persons</i>				
1988		21.22	6.67	3.59
1995		22.15	6.19	2.60
The index 1995 as percentage of the index 1988		104	93	72
	Percentage of the sample for rural China		Composition of poverty in rural China Percentages	
<i>One or two persons</i>				
1988	1.2	1.1	1.0	1.1
1995	2.2	1.3	1.1	1.2
<i>Three or four persons</i>				
1988	28.4	22.6	22.8	23.0
1995	46.6	35.4	35.2	37.4
<i>Five or six persons</i>				
1988	45.8	46.7	46.9	46.6
1995	41.9	49.3	49.6	47.8
<i>Seven or more persons</i>				
1988	24.6	29.7	29.3	29.2
1995	9.4	14.0	14.1	13.4

change is more important than the second and fewer poor in China were living in large households in the middle of the 1990s than before.

The final analysis is how poverty varies by the age of the person. Children and many of the elderly do not have any income of their own but can escape from poverty by living in households where other members provide a sufficient income. This is the background to why in 1988 poverty status varied little with age of the person.<sup>27</sup> Table 7 also shows that poverty has been reduced for most age groups. The exceptions are among children where in 1995 a larger proportion of pre-schoolers are under the poverty line than in 1988. The poverty risk for children is about twice as high as for persons aged 36–60 where the rates are the lowest. However, birth rates have fallen rapidly in China and therefore children make up a considerably smaller proportion of the population than earlier. Therefore young children actually constitute a smaller proportion of the Chinese poor in 1995 than in 1988 while the reverse is the case for children aged 8–13 years.

These data and the assumption of equal sharing within the households give no support to the idea of feminization of poverty in rural China. Poverty rates by gender are very similar for both years under investigation. An important reason for this could be the household formation process. There are very few single persons living alone and very few single parent families living alone.

#### *An Analysis of Why the Poverty Rate for China as a Whole has Fallen*

Up to now analysis has shown that during the period of rapid income growth in China the distribution of income at the lower level has become more unequal, counterbalancing the poverty reduction of income growth. It has also shown that the composition of the Chinese population has changed and that poverty risks have developed differently for different categories. Joining these threads together may shed light on what has driven the development of the poverty rate for China as a whole.

Following Danziger and Gottschalk<sup>28</sup> we make a sequence of simulation exercises in order to quantify the importance of economic and demographic changes for the development of the poverty rate between the two years. The general idea is to quantify how poverty would have changed as a result of three separate forces: income growth, distributional change and demographic change. The first of these shows how the poverty rate would have changed in the case of all persons experiencing a growth in disposable income between the two years equal to that observed for average income. The second shows how the poverty rate would have changed in the case of unchanged average income, but where the distribution of equivalent income changed between the two years. The

27. We cannot rule out the possibility that if we had applied a different equivalence scale when computing equivalent income that the age-poverty profile would have looked somewhat different.

28. S. Danziger and P. Gottschalk, *America Unequal* (New York: Russell Sage; and Cambridge, MA: Harvard University Press, 1995), ch. 5.

**Table 7: Estimates of Poverty for People of Different Ages in Rural China 1988 and 1995**

	<i>FGT(0)</i> <i>percentage</i>	<i>FGT(1)</i> <i>percentage</i>	<i>FGT(2)</i> <i>percentage</i>
<i>0-7 years</i>			
1988	17.71	5.61	3.06
1995	23.71	7.13	3.21
The index 1995 as percentage of the index 1988	134	127	105
<i>8-13 years</i>			
1988	14.72	4.55	2.37
1995	16.96	4.73	2.04
The index 1995 as percentage of the index 1988	115	104	86
<i>14-18 years</i>			
1988	17.69	5.59	2.90
1995	13.46	3.38	1.42
The index 1995 as percentage of the index 1988	76	60	49
<i>19-25 years</i>			
1988	20.95	6.43	3.31
1995	13.94	3.87	1.69
The index 1995 as percentage of the index 1988	68	60	51
<i>26-35 years</i>			
1988	15.93	5.02	2.75
1995	16.67	4.87	2.18
The index 1995 as percentage of the index 1988	105	97	97
<i>36-45 years</i>			
1988	14.98	4.70	2.46
1995	12.50	3.11	1.26
The index 1995 as percentage of the index 1988	83	66	51
<i>46-60 years</i>			
1988	18.91	5.76	2.97
1995	11.99	3.54	1.61
The index 1995 as percentage of the index 1988	63	61	54

<i>61 years and older</i>				
1988		20.24	6.45	3.27
1995		15.41	4.11	1.78
The index 1995 as percentage of the index 1988		76	64	54

	Percentage of the sample for rural China		Composition of poverty in rural China Percentage	
<i>0-7 years</i>				
1988	9.8	11.6	11.8	12.3
1995	5.4	8.5	9.2	9.6
<i>8-13 years</i>				
1988	14.4	10.6	10.5	10.5
1995	18.1	20.6	20.7	20.7
<i>14-18 years</i>				
1988	11.2	14.5	14.7	14.6
1995	8.7	7.9	7.1	6.9
<i>19-25 years</i>				
1988	19.4	19.3	19.0	18.7
1995	14.8	13.8	13.8	13.8
<i>26-35 years</i>				
1988	12.6	11.4	11.5	12.1
1995	14.3	15.9	16.8	17.3
<i>36-45 years</i>				
1988	13.6	11.6	11.7	11.7
1995	16.1	13.9	12.5	11.6
<i>46-60 years</i>				
1988	12.6	13.5	13.2	13.0
1995	12.6	13.4	13.9	13.9
<i>61 years and older</i>				
1988	6.4	7.4	7.6	7.3
1995	6.5	6.7	6.5	6.4

third shows how poverty would have changed in the case of changed demographic composition only.

The decomposition builds on several steps, beginning with computing the growth component. We start with the actual 1988 observations for each person and family, then assign each an income based on the assumption that the growth of average income observed between the years is equally shared within the population. From this distribution we compute how many fall below the poverty line. This simulation maintains the demographic composition and the income inequality of 1988, but has the mean income of 1995. From this it follows that the difference

between this simulated poverty rate and the actual 1988 rate equals the change in the poverty rate that is attributed to income growth.

This first simulation allows us to estimate what every demographic group's 1995 poverty rate would have been if only mean income had changed since 1988. It uses six different breakdowns of the population: urban/rural, east/central/west, family size, age of the individual, education of household head, occupation of household head. The next step weighs these group-specific poverty rates by the demographic composition of the population as it was observed in 1995. This second simulation incorporates the inequality of 1988, but has the mean income and demographic composition of 1995. The difference between the poverty rates from the two simulations equals the percentage-point change in poverty that is accounted for by demographic change.

The change in poverty that is accounted for by changes in inequality in income is equal to the difference between the poverty rate for all persons from this second simulation and the poverty rate observed in 1995. By construction, the sum of these three components – the change attributable to changes in mean income, to demographic changes and to changes in income inequality – will equal the observed percentage-point change in the poverty rate.

Table 8 reports the outcome of the exercise. It shows that a uniform economic growth would have decreased the poverty rate for China as a whole by as much as 7.8 percentage points. However, this was more than fully counterbalanced by increased income inequality, so that the economic changes did not reduce poverty. Instead the observed reduction in the poverty rate stems entirely from demographic changes. The table shows that several changes worked in the direction of decreased poverty in rural China. The single most important was that the households became

**Table 8: Decomposition of Percentage-point Change in the Poverty Rate for All Persons in China 1988–1995**

(1) Actual change in poverty rate	– 2.58
% point change owing to:	
(2) Economic change	0.84
(a) Growth in mean adjusted income	– 7.79
(b) Change in income inequality	8.63
(3) Demographic changes	– 3.42
Urban rural composition	– 0.64
Rural regional composition	– 0.41
Change in family size	– 1.26
Change in age group	– 0.21
Composition of education of head	– 0.85
Composition of occupation type of head	– 0.48
Interaction	0.42

smaller in size.<sup>29</sup> If one extrapolates the findings there is little reason to expect the poverty rate in rural China to fall quickly in the near future.

### *Changes in the Concentration of Poverty in China to Officially Designated Poor Areas*

How useful are the officially defined poverty areas for geographically targeting poverty policy in China? The idea behind geographical targeting is that resources are directed towards chosen areas, where they are distributed without explicitly considering the income situation of a particular household. Two limitations exist with such an approach. First, some poor households are not covered by the policy as they do not belong to the target group (undercoverage). Secondly, non-poor households in the target group can benefit (leakage). Have those problems increased or decreased in rural China?

The success of a targeting strategy depends not only on how concentrated the poverty is but also on how the target areas are chosen. Poor areas are designated at both the central level and the provincial level, and as well as using data on household income, political elements enter the decision-making process. Over time there have been changes in the classification. As a consequence mainly of these changes, the proportion of rural persons living in poor areas increased from one out of five in 1988 to one out of four in 1995.

Table 9 reports estimates of poverty for people living in officially designated poor areas and in other areas. It can be seen that in 1988 the risk of being poor was twice as high for an average person living in a poor area as for someone living in other areas. However, most people living in poor areas were not classified as poor according to our assumptions, and also, most of China's poor did not live in poor areas. Thus for 1988 the policies targeted to the poor areas did not reach a majority of the poor, and most people that were reached were not poor.

However, the situation was different in 1995. All indices point towards a larger extent of poverty in the officially designated poor areas than in 1988 although the change is far from dramatic. During the same period the extent of poverty decreased in areas not classified as poor according to all indices and this change is great. The risk of being poor if living in a poor area was in 1995 four times as great as living in a non-poor area. In 1995 the majority of poverty in rural China was located in the poor areas. Thus undercoverage is a much smaller problem than previously for policies targeted towards officially designated poor areas, as they now reach most of China's poor. However, leakage is still a substantial problem as two-thirds of the people living in poor areas are not poor according to the results presented in Table 9.

Further insight can be obtained when analysing in which region the poor areas are located. Table 9 reports estimates for poor and non-poor areas located in the east, the central region and the west. There is an

29. The interaction term in Table 8 stems from the fact that the disadvantages are not simply additive.

**Table 9: Estimates of Poverty Index for People Living in Poor Areas and Other Areas in Rural China 1988 and 1995**

		<i>FGT(0)</i> percentage	<i>FGT(1)</i> percentage	<i>FGT(2)</i> percentage
<i>Poor areas</i>				
1988		30.95	8.73	3.91
1995		33.72	10.04	4.43
The index 1995 as percentage of the index 1988		109	115	113
<i>Non-poor areas</i>				
1988		14.11	4.79	2.79
1995		8.05	1.99	0.85
The index 1995 as percentage of the index 1988		57	42	30
	Percentage of the sample for rural China		Composition of rural poverty in China Percentages	
<i>Poor areas</i>				
1988	20.6	36.3	32.2	26.7
1995	26.7	60.4	64.8	65.6
<i>Non-poor areas</i>				
1988	79.4	63.7	67.8	73.3
1995	72.3	39.6	35.2	34.4
		<i>FGT(0)</i> percentage	<i>FGT(1)</i> percentage	<i>FGT(2)</i> percentage
<i>Poor areas located in eastern China</i>				
1988		24.1	6.67	3.08
1995		14.5	4.17	1.93
The index 1995 as percentage of the index 1988		60	63	63
<i>Central China</i>				
1988		24.84	7.37	3.45
1995		31.28	9.60	4.25
The index 1995 as percentage of the index 1988		126	130	123
<i>Western China</i>				
1988		37.82	10.37	4.43
1995		44.77	13.14	5.74
The index 1995 as percentage of the index 1988		118	127	130

*Non-poor areas located  
in eastern China*

1988	7.73	2.56	1.50
1995	3.78	1.16	0.57
The index 1995 as percentage of the index 1988	49	45	38

*Central China*

1988	18.96	6.27	3.43
1995	6.65	1.51	0.65
The index 1995 as percentage of the index 1988	35	24	19

*Western China*

1988	19.14	7.01	4.51
1995	20.17	4.76	1.82
The index 1995 as percentage of the index 1988	105	68	40

Percentage of  
the sample for  
rural China

Composition of  
rural poverty  
in China  
Percentages

*Poor areas located in  
eastern China*

1988	3.9	5.3	4.6	4.0
1995	5.4	5.2	5.4	5.8

*Central China*

1988	6.9	9.7	9.0	7.8
1995	9.8	20.6	22.7	23.1

*Western China*

1988	9.8	21.1	18.2	14.4
1995	11.5	34.7	36.6	36.8

*Non-poor areas located  
in eastern China*

1988	34.4	15.1	15.7	17.2
1995	31.0	7.9	8.7	9.9

*Central China*

1988	29.9	32.1	33.4	33.8
1995	28.1	12.6	10.3	10.1

*Western China*

1988	15.3	16.7	19.1	22.8
1995	14.2	19.2	16.3	14.3

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interesting pattern. The poverty-rate for poor areas located in the east is in 1995 similar to the poverty rate for rural China in its entirety. Obviously located in a spatial environment of relatively wealthy neighbours, the income situation of a county does not have to be very depressed to qualify as a poor area.

It comes as no surprise that the highest poverty rate is observed for the poor areas in the western region. But even there most people are not classified as poor. However, the risk of being poor for an average person living in a poor area in the west in 1995 is as much as 12 times higher than for an average person living in a non-poor area in the east.<sup>30</sup>

The general conclusion from this section is that a strategy of combating poverty in China by measures that are geographically targeted has potential if it considers where in China the poor areas are located. Most motivated are measures directed towards poor areas located in the west. However, it should also be understood that in 1995, according to our results, measures targeted to poor areas in the west cannot have reached two-thirds of China's poor. In addition a majority of people benefiting from measures directed to poverty areas in the west which do not consider the income of households are not poor, according to our results. Clearly those facts indicate strong limitations by a strategy in poverty alleviation by geographical targeting only. A more optimistic view is obtained when comparing it to the situation in 1988. Measures directed to the poor areas in the west would in 1988 have reached a considerably smaller proportion of China's poor, and problems of leakage would have been somewhat larger. Thus the strategy of geographical targeting has over time become more relevant for fighting poverty in China.

### *Conclusions*

This article has investigated the poverty situation in China in 1988 and 1995 based on large samples of households. An advantage of the data is that they cover the entire country. The main disadvantage is (as in other studies of poverty in China) that they do not cover the floating population in urban China. We have applied different poverty indices in order to get a fuller view of the poverty situation.

How to specify a poverty line for China is not self-evident. The one selected is common to all China and is defined as 50 per cent of the median for disposable equivalent income as observed in 1988. This level turns out to be surprisingly similar to the World Bank's World Poverty line of 1 PPP dollar per day if one applies what might be the most plausible estimate of PPP for China. Further, we have varied the level of the poverty line in order to arrive at robust conclusions. To update the poverty line in an environment of rapid economic growth we chose to use the retail price index, which means that the yardstick poverty is measured against does not become more generous. Thus we feel that this study

30. Further analyses are required to find out to what extent those differences are purely locational, and to what extent they can be explained by differences in access to land, household size, education and other household variables.

cannot be criticized for giving too bleak a picture of the recent poverty development because of the choice of method. On the contrary, it could be said to give too rosy a view.

Turning to the results, we have found that despite impressive economic growth the proportion of people falling below the poverty line decreased only slightly. However, estimates of other poverty indices indicate that the poor in the middle of the 1990s are on average somewhat less poor than at the end of the 1980s. The results from a simulation exercise showed that the distribution of income had become considerably more unequal which had more than counterbalanced the poverty-reducing effect of income growth. The reason for the mild fall in the poverty rate is not a result of the economic performance of China but rather of the changed demographic composition of the population. From this background it does not seem realistic to expect poverty in China to be substantially reduced in the near future.

Poverty in China is very much a rural problem when a poverty line common for the entire country is applied. However, this does not rule out arguments for applying locally defined poverty lines when assessing policies at the local urban level. During the period analysed the variation as a result of location within rural China has increased and location has come to play an even larger role in the risk of being poor. There has been a marked decrease in the proportion of poor in the rapidly developing eastern region, and the poor living there became less poor. On the other hand changes in the slower-growing western region are towards a slow increase in poverty. People living on the plains are in the mid-1990s considerably less poverty prone than at the end of the 1980s, but people living in the mountains have become more poverty prone.

The poverty profile in China has changed along other dimension of the population as well. Consistent with being predominantly located in the western region of China, the poverty situation of minorities has worsened, while this has not been the case for the majority population. In 1995 poverty status is linked more than earlier to the education of the household head and the size of the household. A disturbing result is that while the poverty rate has been reduced for almost all age groups, this has not been the case for children.

In China there are measures directed towards officially designated poor areas. We have reported that people in poor areas are more poverty prone than those living elsewhere in rural China. In 1995 there is also a remarkable difference in poverty rates between poor areas located in different regions of rural China. However, most people living in poor areas are, according to our results, not poor which means that most resources for poverty-reducing measures which do not take a particular household's income situation into consideration will leak out to the non-poor. This is a much more serious problem for resources directed towards poor areas located in the east than for poor areas in the west where one-third of China's poor live. It was also found that a considerably larger proportion of China's poor are found in poor areas in 1995 than in 1988. Therefore, the strategy of geographical targeting has

become more relevant for fighting poverty in China during the period studied here.

### Appendix: Equivalent Scales for Urban and Rural Households in China

Size of HH	Consumption net of housing		
	Rural(1)	Urban(2)	Housing expenditure(3)
1	100	100	100
2	192	188	172
3	288	266	190
4	376	354	207
5	468	429	246
6	561	504	280
7	635	—	327
$\gamma$	0.96	0.89	0.56

*Notes:*

Figures in columns (1) and (2) are from an index of efficiency of consumption worked out by SSB which means, for example, only 188 *yuan* is needed for two persons living together to have same utilities as 200 *yuan* if they were living separately in urban areas. The figures are used to estimate the parameter  $\gamma$ , with the formula  $EY = HY/N^\gamma$ , in which EY is equivalent income, HY is household income and N is the number of household members. HY is assumed to be the figures from columns (1)–(3). Taking the form of logarithm for the formula, we derive  $\log(HY) - \log(EY) = \gamma \log(N)$ . Thus  $\gamma$  can be estimated using OLS.