

THE STRUCTURE OF CHINESE POVERTY, 1988

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I. INTRODUCTION

WHO are the poor in the People's Republic of China? On the one hand there seems to be widespread agreement that the Chinese poverty issue primarily concerns about the rural population. But on the other hand, differing views exist on how geographically concentrated Chinese poverty is. On this issue the answer is vital for evaluating poverty alleviation policies. The present Chinese approach of combating poverty emphasizes resources targeted to some areas where they are distributed without taking household income explicitly into account. If Chinese poverty is geographically concentrated such a strategy has the potential of being successful. Otherwise it can be problematic. How does poverty in China vary along dimensions of the population such as age, gender, and education? As not much about these issues is known, there are several reasons for taking a fresh look at the structure of poverty in China.

Poverty assessments are generally based on data, a poverty line, and a method of aggregating income of the poor households. In this paper we use the household income survey conducted for the reference period of 1988. One advantage of this data is that it makes it possible to work with a more comprehensive income concept than data which is collected for the official statistics. It also has the property of covering households in most of China.

There is no consensus on which poverty line should apply to China. We show that given data, the choice of poverty line, and the definition of household income strongly affect provincial poverty estimates. Further we show that for a poverty line defined in U.S. dollars, choice among available estimates of purchasing power parities (PPP) strongly affects estimates of the size of poverty in China as a whole. This is why we derive a poverty line using a relative approach (which has not previously been done for China).

Starting with a seminal paper by Amartya Sen (1976) much of the literature has

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been directed toward how to aggregate poverty. A number of indices incorporating not only how many poor there are (the incidence of poverty) but also how poor the poor are (the intensity of poverty) as well as inequality of income among the poor have been suggested. Recently Jenkins and Lambert (1995, 1997) have developed a method of using dominance criteria for poverty comparisons. Our paper is the first, to our knowledge, which applies this technique for analyzing the poverty profile of an entire country.

The paper is laid out as follows. In the next section previous poverty lines for China are discussed and using the household income survey we illustrate how different assessments follow depending on which poverty line is chosen. Starting from a data description a relative poverty line for China as a whole is derived in Section III. In Section IV we present the approach of aggregating poverty gaps suggested by Jenkins and Lambert (1995, 1997). The broad locational aspects on poverty in China are presented in Section V, while rural poverty is characterized in Section VI. Finally we sum up the conclusions in Section VII.

II. POVERTY LINES USED IN ASSESSING POVERTY IN CHINA.

Recent quantitative assessments of poverty in China have used the subsistence basket of goods approach in defining the poverty line. Based on assumptions of subsistence intake and income data from the State Statistical Bureau (SSB), the World Bank (1992) produced time series on poverty in China. This information indicates very little poverty in urban China and a sharp decrease in the extent of rural poverty from the end of the 1970s until the middle of the 1980s.¹ After that, changes become smaller and more sensitive to how changes in consumer prices are evaluated.²

Another recent view of rural poverty in China is provided by Riskin (1993, 1994). He uses the rural household income survey which was conducted in 1988 by the Institute of Economics. This makes possible the use of a more comprehensive income concept which increases average household income, and the poverty line is also set higher. While there are only small differences in the estimates of the proportion of poor between the two studies, conclusions on the profile of poverty vary more widely. According to the World Bank (1992, p. 5): "Most of China's remaining absolute poverty is now concentrated in a number of resource-poor rural

¹ Researchers at the World Bank are currently engaged in analyzing the development of Chinese poverty using microdata for some provinces. For example Chen and Ravallion (1996) reviews available data from the State Statistical Bureau and assesses the development of rural poverty in Guangdong, Guangxi, Yunnan, and Guizhou from 1985 to 1990.

² Actually, under one assumption, poverty in rural China increased from 1988 to 1989. Although evidence points in the direction of increases in mean income in rural China during the 1980s, it also suggests increased income inequality. Therefore a social welfare evaluation which includes both those aspects must not necessarily show improvements during this period (see Tam and Zhang [1996]).

areas, primarily in the northern, northwestern and southwestern provinces." In contrast, Riskin (1994, p. 282) 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 throughout the country, rather than being left only at its margins."

Let us look somewhat more carefully at the differences between the two approaches for rural China, which can be done for 1988 using microdata from the household income survey (discussed in the following section). The World Bank poverty line was set at 231 yuan per person per year when planned prices were used, and 249 yuan when procurement prices were applied. From those poverty lines poverty rates for rural China of 9.5 per cent and 11.9 per cent, respectively, were obtained (World Bank 1992, p. 140). The poverty line of Riskin uses another income concept. Imputed rent of private housing is included in household income as well as the value of self-consumption of goods. For this broader income concept the poverty line of Riskin is set at 333 yuan per person per year. Applying this to microdata gives a poverty rate for the entire country of 12.7 per cent (Riskin 1993, pp. 147–49). Thus we have shown that assessments of the overall incidence of poverty in rural China do not differ much between the two alternatives.

However, the importance of the choice of income concept stands out when we look at poverty counts by province. Table I, which is calculated for rural households, shows for each province covered in the survey poverty rates using the two approaches. It is quite clear that the overlap is not large. For rural China as a whole there are three categories of almost equal size: those classified as poor according to both approaches, and two categories classified as poor by one but not the other approach.

Table I also shows that on the provincial level there are examples of identical estimates of the incidence of poverty (Qinghai), but also that in some provinces the estimates differ a great deal. For example according to the assumptions of Riskin (1993), 27 per cent of the households in Guizhou are classified as poor while the corresponding proportion according to the World Bank approach is less than 19 per cent. Conversely, in Guangxi the numbers are almost reversed. In Figure 1 we have plotted the information from Table I of provincial estimates of the head count ratio for the two alternatives. Regressing the poverty rate according to Riskin on the estimates using the approach used by the World Bank gives an R^2 not higher than 0.43.³

³ The regression is (t -statistics in parentheses): $3.99 (1.59) + 0.779 (4.50)$ Rate according to the World Bank (1992).

TABLE I
POVERTY RATES IN RURAL CHINA FROM DIFFERENT APPROACHES, BY PROVINCE

Province	Proportion of Poor Households by Both Approaches (1)	Proportion of Poor Households by Only the World Bank's Approach (2)	Proportion of Poor Households by Only Riskin's Approach (3)
Beijing	1.05	0.00	3.16
Tianjin	0.98	0.98	0.00
Hebei	4.95	10.54	4.15
Shanxi	8.86	13.29	9.81
Inner Mongolia	9.34	8.30	18.34
Liaoning	2.15	1.79	5.02
Jilin	3.59	1.59	11.55
Jiangsu	2.03	1.62	6.90
Zhejiang	0.23	0.68	1.82
Anhui	4.58	2.19	7.97
Fujian	0.34	1.69	8.81
Jiangxi	1.15	4.89	2.30
Shandong	2.66	6.25	5.31
Henan	9.97	11.68	12.46
Hubei	1.61	5.62	2.61
Hunan	0.38	3.40	2.26
Guangdong	0.26	4.63	0.77
Guangxi	5.85	15.20	3.51
Hainan	0.76	3.05	0.76
Sichuan	4.14	9.54	6.02
Guizhou	13.64	4.87	12.99
Yunnan	8.16	10.20	7.87
Shaanxi	11.24	7.10	12.31
Gansu	19.26	15.20	8.78
Qinghai	13.21	10.38	10.38
Ningxia	12.00	8.00	4.00

Notes: 1. The results in the table are computed from 1988 household survey, in which both variables of household disposable income used by Riskin (1993) and net income used by the World Bank (1992) can be derived. Using the former and the poverty line defined by Riskin, we get a set of provincial poverty rates. To use the net income and the poverty line defined by the World Bank, we can derive another set of provincial poverty rates.

2. Riskin's poverty rates = (1) + (3); World Bank's poverty rates = (1) + (2).

A third possible approach in adopting a poverty line for China is to use the world poverty line(s) which the World Bank used for assessing poverty in the entire developing world. These lines were set to 375 and 275 PPP dollars per capita in 1985 for poor and very poor persons, respectively (World Bank 1990; Ravallion, Datt, and van de Walle 1991). The difficulty with this approach for assessing poverty in China is in estimating PPP. The difference arises as available estimates vary greatly; for 1988 the highest is not less than 250 per cent of the lowest (Ren and Chen 1994). Undoubtedly one would expect such a difference to transform to large

Fig. 1. Rural Poor in Various Chinese Provinces According to Poverty Lines Defined by the World Bank and Riskin (Percentage Poor Households)

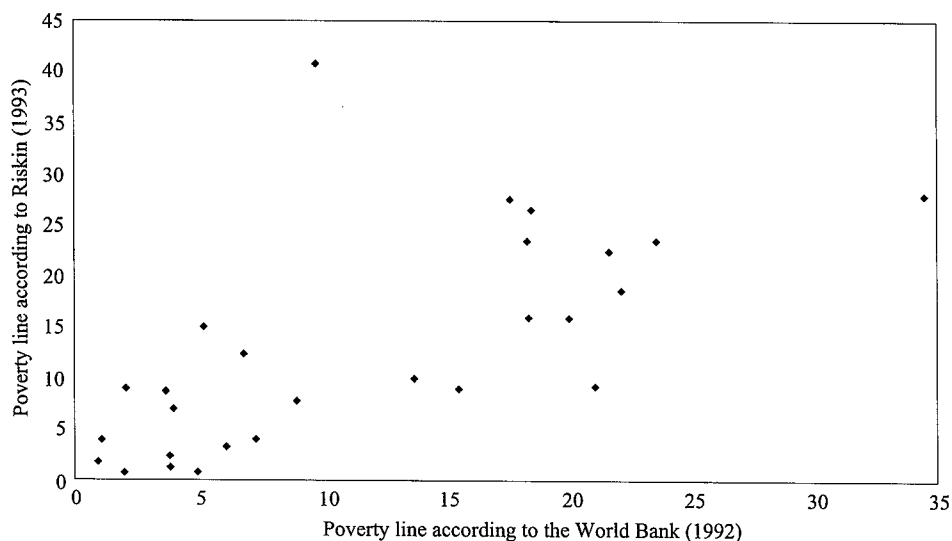


TABLE II
POVERTY LINES AND POVERTY RATES IN CHINA IN 1988: SUMMARY

	As Published in the World Bank (1992)	According to Riskin (1993)	The World Poverty Line Using Various Estimates of PPP ^a		
			Kravis	Ren-Chen	Taylor
Poverty line (yuan):					
Rural	249	333	228 (167)	422 (308)	562 (410)
Urban	289	n.a.	243 (177)	449 (328)	598 (436)
Poverty incidence (% of household):					
Rural	12.54	12.74	8.92 (3.35)	39.89 (20.69)	61.70 (37.73)
Urban	0.33	n.a.	0.19 (0.18)	0.94 (0.41)	2.80 (0.84)
Number of poor people (millions):					
Rural	101.23	102.85	72.11	322.03	498.10
Urban	0.93	n.a.	0.53	2.64	7.86

^a The estimates for PPP approaches are based on the World Bank's upper world poverty line and lower world poverty line in 1985 PPP dollars. The various estimates of PPP are found in Ren and Chen (1994). The figures in the parentheses are the estimates from the lower poverty line.

differences in estimates of poverty in China. This is also what we can report in Table II, which we have produced from the household income survey.

Depending on which estimate of PPP that is used the rate of very poor in rural China varies from 3.4 to 37.7 per cent. Using the higher alternative of the world poverty line the rural poverty rate varies as much as from 8.9 up to 61.7 per cent. From this it follows that statements on the extent of poverty in the entire world based on both of the world poverty lines are quite sensitive to the choice of PPP for China.⁴ According to the World Bank (1990) 906 million persons outside China fell under the 370 PPP dollars line in 1985. Adding the poor in China (for 1988) makes the number (depending on choice of PPP) increase by 73 million, 325 million, or 506 million persons. Thus by choosing a particular estimate of PPP for China the poor in China can make up as few as 7 per cent of the poor in the world or as many as 36 per cent of all poor in the world.⁵

This very short survey of approaches in defining a poverty line for China leads to the insight that assessments of the size as well as the structure of Chinese poverty differ greatly depending on alternatives chosen. This motivates us to follow the approach of using a relative poverty line.

III. A RELATIVE POVERTY LINE FOR CHINA

The approach of applying a relative poverty line has come to be used more frequently for poverty assessments in industrialized countries. It also seems to dominate in international comparisons of poverty. A widespread practice is to set the poverty line at a level of 50 per cent of median (or mean) equivalent income. Many readers first react with skepticism to this approach. Fifty per cent of median or mean income lacks concrete meaning. However, such a percentage is not chosen entirely at random as the level of such lines agrees to a surprising extent with poverty lines determined in other ways. The largest advantage of such a relative poverty line is that a poverty line can always be constructed from the data only.

Following Riskin (1993), we base our study on the household income survey conducted in the spring of 1989 for the reference period of 1988.⁶ Urban and rural samples were derived from larger samples drawn by the SSB. The rural sample, consisting of 10,258 households, covers all provinces of the People's Republic of China with the exception of the autonomous regions of Tibet and Xinjiang. Difficulties in data collecting motivated concentrating the fieldwork for the urban sample to ten provinces for which 9,009 households were surveyed. Rural house-

⁴ The same point has recently been made by the World Bank (1996, p. 6).

⁵ But note that estimates of PPP do not affect the view of urban poverty in China as being small (Table II).

⁶ It was the first nation-wide household survey conducted in the 1980s in China. China's State Statistical Bureau has published only aggregated data, while it collects household data every year.

holds living in an urban area without a formal permit (*hukou*) are not included in the sample. This is a problem in poverty assessments because such households are generally thought of as being less privileged than others. Further discussion of the survey and the data can be found in Eichen and Zhang (1993).

The various operational assumptions for obtaining a poverty line are discussed below. First, one must define the territory over which disposable income is assessed. We chose China as a whole. Although when making policies rural China and urban China often are separated territories, one can argue that general statements on poverty in China should take the situation in the entire country as the point of reference.

Our approach requires that disposable income be defined in a manner which controls for locational differences in prices. However, as in many other countries a price index which makes such an adjustment across the country at one point in time possible is not available and we have to proceed along other lines which contain steps for controlling for differences in (a) housing costs between urban and rural areas, (b) other costs between urban and rural areas, and (c) provincial prices.

Disposable income as it is defined in the household income survey consists of monetary income and income in-kind, which mainly includes imputed rents from private housing, in-kind subsidies from public housing, as well as household consumption from self-production.⁷ In our view the former is problematic in poverty analyses. The majority of urban households live in apartments where the rent is very low. In the household income survey they receive imputed rents derived from construction costs and those imputed rents are, on average, substantial. On the other hand imputed rents in rural areas are much lower, while it is difficult to state that housing conditions are generally lower. Therefore we adjust the component imputed rents in the variable disposable income for households living in urban areas, though an alternative would have been to use equivalence scales which take location into account. The adjustment is made by multiplying the imputed rents for urban households by 0.189, a figure derived from considering data on imputed rents for similar rural households.

There are also differences in retail prices for consumer goods between urban and rural areas. According to our view, these differences were negligible before the economic reforms were institutionalized. Since then, consumer prices have increased more in urban areas than in rural areas. Assuming that consumer prices were identical in 1978 we use rural and urban price indices published by the SSB to deflate urban income (excluding the imputed rents from housing) by 19 per cent.

⁷ Consumption of household production is valued by using market prices and information on quantities provided by the respondents. Household subsidy from public housing in urban China is estimated against average construction cost in each province. Imputed value of private housing in rural China is estimated on the information of housing present value and the assumption of a 5 per cent depreciation rate.

TABLE III
EQUIVALENCE SCALES FOR URBAN AND RURAL HOUSEHOLDS IN CHINA, 1988

Size of Households	Consumption Net of Housing		Housing Expenditure (3)
	Rural (1)	Urban (2)	
1	100	100	100
2	192	188	172
3	288	266	190
4	376	354	207
5	468	429	246
6	561	540	280
7	635	—	327
γ	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 (see Riskin 1993), which means, for example, only 188 yuan is needed for two persons living together to have same utilities as 200 yuan if they living separately in urban areas. The figures are used to estimate parameter γ , with the formula $EY = HY/N^\gamma$, in which EY is equivalent income, HY is household income and N is number of household members. EY is the product of household size and 100 in this table. 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 γ can be estimated using OLS.

The SSB has published provincial price indices for urban and rural areas separately, making comparisons over time possible. We use the figures for 1988 and adjust disposable income for each household depending on which province it resides in and if the household is living in an urban or rural area. In this manner we arrive at household income expressed in average rural prices.⁸

To arrive at equivalent income, disposable income is adjusted with an equivalence scale. We use separate scales for imputed rents and other income as presented in Table III, which is based on work done by the SSB. The scale takes the number of persons in the households into account but does not attempt to control for personal characteristics such as age.

As Buhmann et al (1988) have demonstrated, most empirical equivalence scales can be represented by the following formula:

$$EY = HY/N^\gamma, \quad (1)$$

where HY is disposable household income, EY is equivalent income, N the number

⁸ The three steps can be illustrated by an example. Assume the disposable income of an urban household recorded in the household income survey is 1,000 yuan of which 200 is imputed rents from housing. We scale down imputed rents to 37.8 yuan and the other component of disposable income to 648 yuan in terms of rural prices. This leads to a disposable income of 685.9 yuan. In the case of the urban price index for the particular province deviating from the national average the disposable income is further adjusted.

of household members, and γ a parameter ranging from 0 to 1. When $\gamma = 0$ it implies that households have complete economies of scale, while when $\gamma = 1$ that no economies of scale prevails. We have estimated the parameter γ for the three columns in Table III, where it is reported on the last line. It can be seen that the equivalence scale implies substantial economies of scale in housing but very little in other consumption.

With the adjustment of household income to individual equivalent income we arrive at a poverty line of 439 yuan a year in 1988. This number is only marginally sensitive to the adjustment of urban household income by the price index.⁹

It is interesting to see that although we have extracted the poverty lines differently from earlier ones for China, the level is not very different. It is 32 per cent higher than the absolute poverty line for rural China as defined by Riskin (1993). We will thus report a higher poverty incidence for rural China than the 12.7 per cent Riskin reported. Most remarkably our poverty line is almost identical with the 375 USD PPP world poverty line (i.e., 422 yuan) if one applies estimates of PPP for China done by Ren and Chen (1994), which might be the most plausible alternative. This comparison strengthens our assertion that the poverty line we use is reasonable.

IV. APPROACHES IN AGGREGATING POVERTY

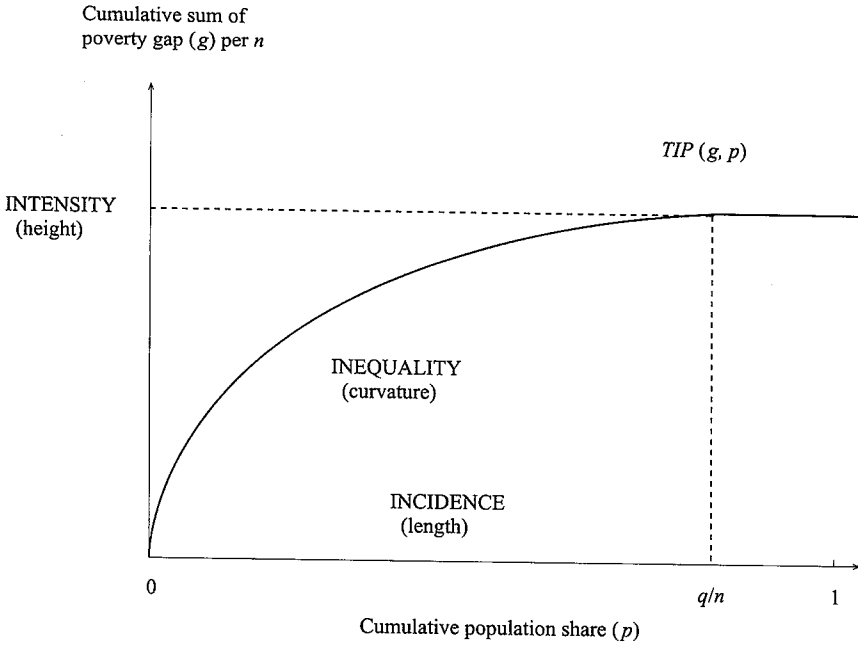
There have been many suggestions on how to incorporate more considerations ("intensity" and "inequality") into poverty assessments other than by only counting the poor ("incidence"). In recent applied work perhaps the most frequently used alternative is a family of indices suggested by Foster, Greer, and Thorbecke (FGT) (1984):

$$FGT(\alpha) = \frac{1}{N} \sum_{i=1}^q \left(1 - \frac{y_i}{z}\right)^\alpha = \frac{1}{N} \sum_{i=1}^q \left(\frac{g}{z}\right)_i^\alpha, \quad (2)$$

where N is the size of the entire population under study and $g_i (= z - y_i)$ is the poverty gap, y = income, z = poverty line, and q = cumulative poverty incidence. The poverty gap is normalized by the poverty line bounded by 0 and 1 (in case of no negative income). Those gaps are raised by the positive parameter α before the average is taken. Higher numbers of the parameter give increased weight to large poverty gaps, and thus indicate greater "poverty aversion." In this application we put α equal to 0 (the head count ratio), 1, and 2. An advantage with this family of indices

⁹ If we do not deflate urban income the poverty line increases to 460 yuan. Applying this poverty line the poverty rate for individuals in the entire country rises from 13.5 per cent to 14.8 per cent. Basing the poverty line on mean income instead of median income has much larger consequences as a poverty line of 511 yuan is derived (in case urban prices are deflated) and the poverty rate is equal to 18.7 per cent.

Fig. 2. The TIP Curve and the Three 'I's of Poverty



- Notes: 1. n = income-receiving unit (e.g., persons or households).
- 2. Vertical intercepts show poverty index $FGT(\alpha)$ with parameter $\alpha = 1$.
- 3. In this figure the head count ratio is given by q/n ; it shows p at which the curve becomes horizontal. q = cumulative poverty incidence.

is that it is additively decomposable by subgroup. The total poverty is then the weighted sum of poverty in mutually exclusive subgroups.

The alternative to poverty indices is to work with dominance criteria. Here we supplement the reporting of estimated poverty index by comparing the “Three ‘I’s of Poverty” (TIP) curves for various breakdowns of the Chinese population. The TIP curve originating from Jenkins and Lambert (1997) is illustrated in Figure 2.¹⁰ The picture of poverty is obtained by ranking units from the poorest to richest ($0 \leq p \leq 1$ with p being cumulative population share), cumulating their (normalized) poverty gaps, and plotting them.

The picture shows the proportion poor (incidence), the average poverty gap (intensity), and also how poverty is distributed among the poor (inequality). This device not only provides a means of portraying several important dimensions of poverty, but also identifies the circumstances in which poverty comparisons may be said to be unambiguous.

¹⁰ The device was originally introduced in Jenkins and Lambert (1995), using another term.

The TIP curve is an increasing concave function of cumulative population share (p), with slope at a given percentile equal to the poverty gap for that percentile. This means that the curve is horizontal at all p corresponding to income at or above the poverty line. Thus the incidence aspect of poverty can be read along the horizontal axis. The head count ratio is that p at which the curve becomes horizontal.

The intensity aspect of poverty is summarized by the height of the TIP curve's non-horizontal section and can thus be read along the vertical axis. When the TIP curve becomes horizontal its intersection with the vertical axis assumes the value of the FGT index with the parameter equal to 1.

The inequality aspect is summarized by the degree of concavity of the non-horizontal section of the TIP. In the case of all poverty gaps being identical this section is a 45° line.

The TIP curve is useful for poverty comparisons, as for example between subgroups of a population. If one TIP curve lies wholly above another TIP curve, we have a situation of "TIP dominance." Jenkins and Lambert (1995, 1997) show that given any two income distributions x and y and a common poverty line z , TIP dominance of the TIP curve for x over the TIP curve for y means that all poverty indices belonging to a large class give the same ranking.

V. BROAD LOCATIONAL ASPECTS ON POVERTY IN CHINA

Applying our relative poverty line gives us a poverty rate for China as a whole of 13.5 per cent. In this section we look at broader locational aspects of poverty in China. Here as in the next section all figures refer to individuals. We start by comparing poverty between urban and rural China and look at (the first part of) the TIP curves shown in Figure 3.

The conclusion from this comparison is very clear and uncontroversial: poverty in China is almost entirely a rural phenomenon. From Table IV reporting the FGT indices it can be learned that 99 per cent of poverty in the entire country is rural poverty. The head count ratio is almost fifty times higher in rural areas than in urban areas as 17.6 per cent of the rural population (approximately 142 million people) is classified as poor while the head count for the urban population is only 0.4 per cent. Also, the other indices indicate a very large difference in poverty status between rural and urban China.

Turning to comparisons between eastern, middle, and western parts of rural China, Figure 4 shows very clear and expected differences.¹¹ Especially large is the

¹¹ By official Chinese classification, the eastern region includes Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, Hainan, and Guangxi. 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.

Fig. 3. Comparison of Poverty between Rural and Urban China

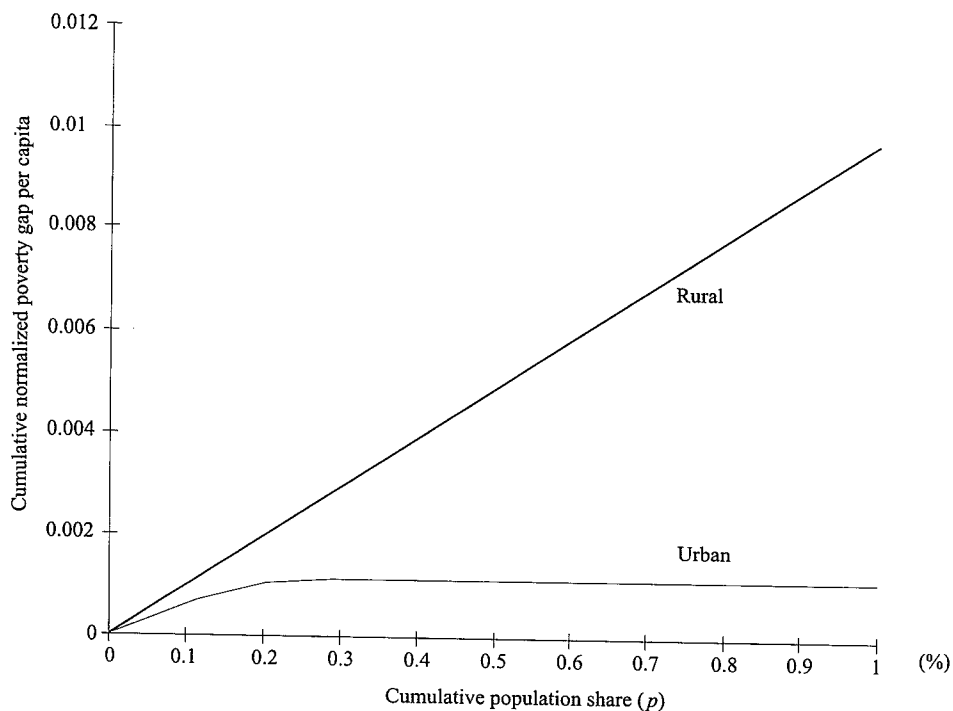
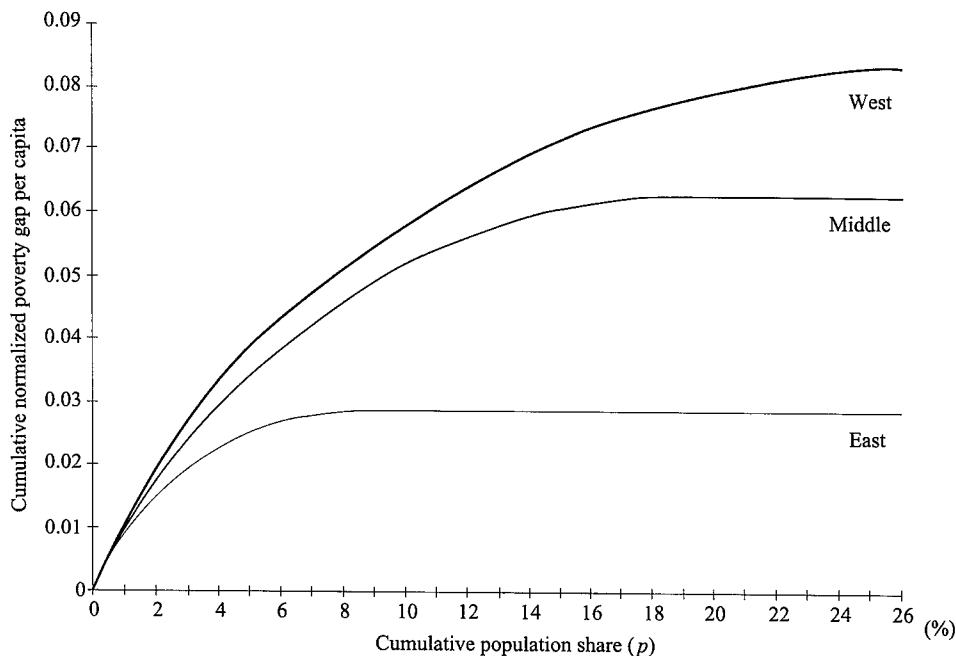


TABLE IV

POVERTY MEASURES: NATIONWIDE AND BY RURAL AND URBAN AREAS

	% of Sample	Equivalent Income			As % of Nationwide			Composition of Poverty (%)		
		Head Count	FGT $\alpha=1$	FGT $\alpha=2$	Head Count	FGT $\alpha=1$	FGT $\alpha=2$	Head Count	FGT $\alpha=1$	FGT $\alpha=2$
Nationwide	100	13.49	0.0430	0.0233	100.0	100.0	100.0	100	100	100
Rural	74.7	17.57	0.0560	0.0302	130.3	130.2	129.6	99.34	99.26	98.80
Urban	25.3	0.36	0.0012	0.0008	2.7	2.8	3.4	0.66	0.74	1.20
Rural-East	29.5	9.37	0.0296	0.0164	69.5	68.8	70.4	20.49	20.31	20.76
Rural-Middle	28.0	19.97	0.0644	0.0341	148.0	149.8	146.4	41.46	41.94	40.98
Rural-West	18.7	26.96	0.0851	0.0463	199.9	197.9	198.7	37.37	37.11	37.16
Urban-East	9.1	0.00	0.0000	0.0000	0.0	0.0	0.0	0.00	0.00	0.00
Urban-Middle	10.4	0.40	0.0008	0.0003	3.0	1.9	1.3	0.32	0.19	0.14
Urban-West	4.3	1.01	0.0047	0.0038	7.5	10.9	16.3	0.33	0.47	0.70

Fig. 4. Comparison of Poverty among Three Rural Belts



difference between Eastern China and the other parts. While 9 per cent of the rural population in the eastern part is counted as poor, it is 20 per cent for Central China and 27 per cent for Western China. However, because the proportion of the population living in the western region is smaller than in the other parts, rural poverty in Western China makes up less than 40 per cent of poverty in China as a whole. It is interesting to see that urban poverty also varies between the three belts (although at a much lower level) in the same way as in the rural areas. The very small extent of urban poverty in our data-set makes us concentrate on rural poverty in further analysis in the next section.

VI. THE LIMITS OF GEOGRAPHICALLY TARGETING POVERTY POLICIES

Traditionally poverty policy in China has been geographically targeted. Central to such policies is the system of officially designated poor counties. For example the Poor Areas Development Office (PADO) administers large programs of development assistance. Measures include subsidized credits or funds granted to county, township, village, and sub-village enterprise in counties nationally classified as poor. Much of the funds are used to finance development of “productive” infra-

TABLE V
POVERTY MEASURES: BY POOR COUNTY AND MINORITY REGION IN RURAL CHINA

	% of Sample	Equivalent Income			As % of Nationwide			Composition of Poverty (%)		
		Head Count (%)	FGT $\alpha = 1$	FGT $\alpha = 2$	Head Count	FGT $\alpha = 1$	FGT $\alpha = 2$	Head Count	FGT $\alpha = 1$	FGT $\alpha = 2$
Rural	100	17.57	0.0560	0.0302	100.0	100.0	100.0	100	100	100
East-poor	3.89	24.12	0.0667	0.0308	137.3	119.1	102.0	5.3	4.6	4.0
Middle-poor	6.90	24.84	0.0737	0.0345	141.4	131.6	114.2	9.7	9.0	7.8
West-poor	9.81	37.82	0.1037	0.0443	215.3	185.2	146.7	21.1	18.2	14.4
East-nonpoor	34.42	7.73	0.0256	0.0150	44.0	45.7	49.7	15.1	15.7	17.2
Middle-nonpoor	29.88	18.96	0.0627	0.0343	107.9	112.0	113.6	32.1	33.4	33.8
West-nonpoor	15.28	19.14	0.0701	0.0451	108.9	125.2	149.3	16.7	19.1	22.8
Poor-minority	5.08	33.71	0.0869	0.0334	191.9	155.2	110.6	11.0	8.9	6.4
Poor-nonminority	15.53	28.96	0.0840	0.0395	164.8	150.0	130.8	25.9	23.6	20.6
Nonpoor-minority	4.12	24.31	0.0717	0.0372	138.4	128.0	123.2	6.0	5.6	5.3
Nonpoor-nonminority	75.27	13.52	0.0467	0.0276	77.0	83.4	91.4	57.1	61.9	67.7

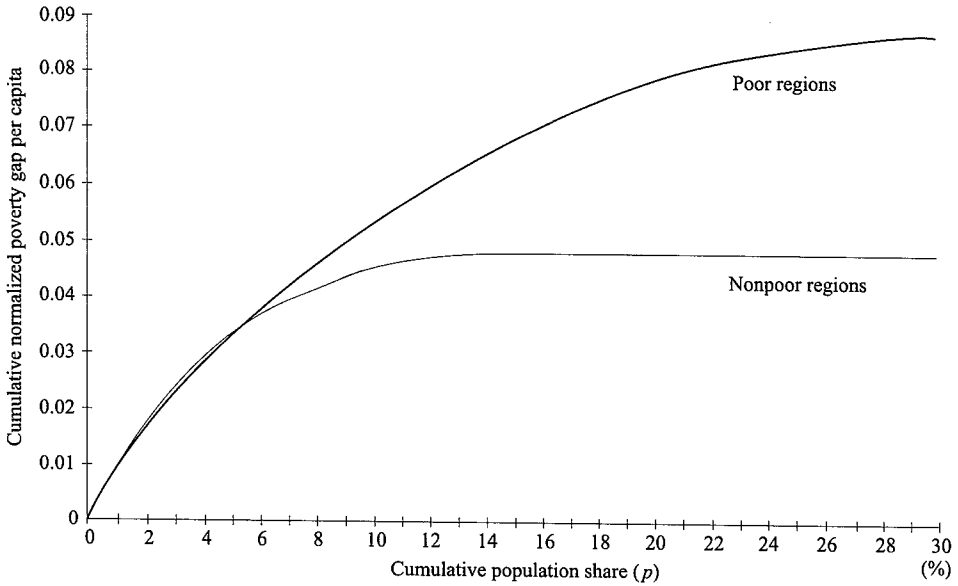
structure such as irrigation works. Some anti-poverty programs such as "Yigong daizheng" (project of working for food) are initiated for those poor counties (Zhu and Jiang 1995). In addition to poor areas defined by the central government are those defined by the provinces.

As can be seen in Table V one out of five persons in China lives in a poor county. Poor counties can be found in all parts of China. However, they are disproportionately concentrated in the western part. Here we are interested in throwing light on how useful the officially defined poverty areas are for geographically targeting poverty policy.

The idea of geographical targeting is that resources are directed toward chosen areas, where they are evenly distributed. 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). Second, nonpoor households in the target group can benefit (leakage). How large are those problems in rural China?

The success of a targeting strategy depends not only on how concentrated poverty is but also on how the targeted areas are chosen. How have the poor counties in China been selected? Based on earlier work (data on 1985 average per capita income and per capita grain production), the PADO produced a list of nationally designed poor counties. As discussed by the World Bank (1992) this process of

Fig. 5. Comparison of Poverty between Poor and Nonpoor Regions

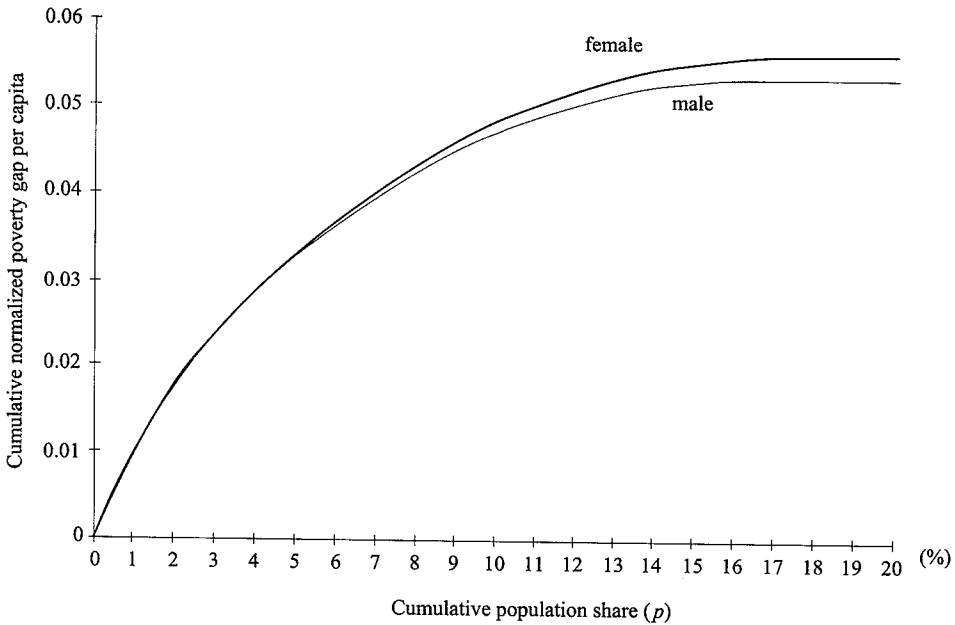


classification also included political elements, which led some counties with relatively high average income to be included on the list while some low-income counties were excluded. There are additional reasons for suspecting a not very strong relation between officially defined poverty areas and poverty at the household level. Average income measured for one year is not necessarily a good predictor of poverty measured some years later.

There is also another type of area of potential interest when discussing geographical concentration of the poor: minority areas where 9 per cent of the Chinese population lives. In rural China the ethnic minorities are geographically concentrated, as 90 per cent of such individuals reside in a minority area where they make up 76 per cent of the population. There is a considerable overlap between minority areas and poor counties. Nevertheless about half the people in minority areas are not living in poor counties and most poor counties are not minority areas.

Table V reports estimates on poverty in areas made up of poor counties and non-poor counties located in (a) the east, middle, and west and (b) minority areas and non-minority areas. We draw the conclusion that most poverty is actually located outside the poor areas. As much as between 63 and 73 per cent (depending on index) of total rural poverty in China is located outside the poor counties. This result on the location of poverty supports the view on the poverty profile of China put forward by Riskin (1994), but not the one by the World Bank (1992). This result has important policy implications as it implies that (at the end of the 1980s) any

Fig. 6. Comparison of Poverty between Males and Females



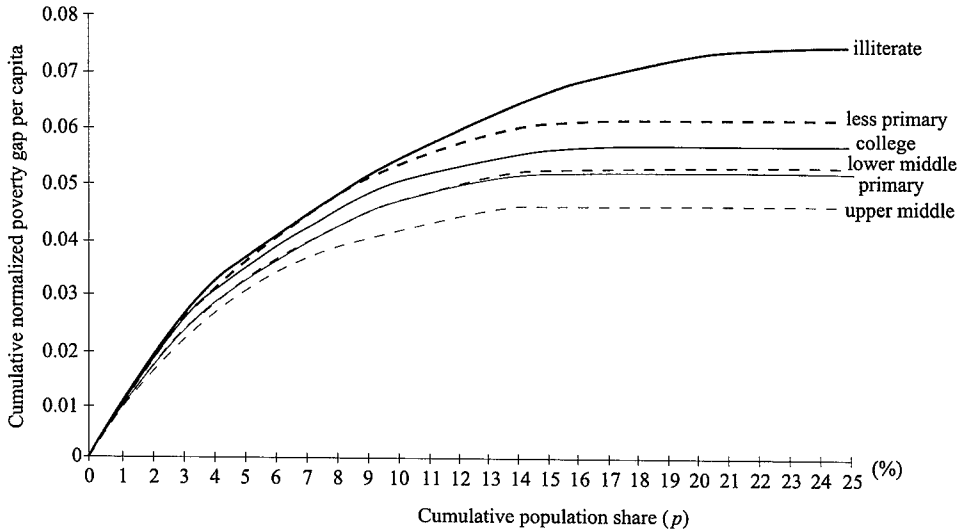
poverty policy that focused only on the poor areas would not cover most of the poor in China.

Further as shown in Figure 5 the TIP curves for poor and nonpoor regions do not show dominance as the curves are very close in the beginning of the diagram. The fraction of very poor in the nonpoor regions is as large as in the poor regions. However, further to the right in the figure differences emerge and become large. A considerably larger proportion of the population in poor areas falls below the poverty line than in other nonpoor areas. This leads to another important policy conclusion: policies that focus on poor areas reach more poor compared to an allocation entirely at random across rural China.

Table V shows further that the poverty situation in poor areas varies between different parts of China. People living in poor areas located in the western part of the country are more poverty prone than people living in poor areas elsewhere. However, it is noteworthy that even in poor areas located in the western part of China most persons are *not* classified as poor. Thus poverty alleviation policies distributing resources to all persons in poor areas in the west will lead to the most leakage of resources to the nonpoor.

People living in minority areas are more poverty prone than people living elsewhere. Crossing the classifications of poor area and minority area we get additional

Fig. 7. Comparison of Poverty by Education Level



insight (see Table V). People in minority areas which are not classified as poor areas are more poverty prone than people on average in rural China.

We now turn to how poverty in rural China varies along dimensions other than location. A general conclusion from Table VI is that given the large variation due to location, other differences appear rather small. Starting with gender, Figure 6 shows that females and males are almost equally poverty prone in rural China.¹²

Somewhat more variation is found when disaggregating the rural population according to education of the household head. Figure 7 shows that as expected, more persons in households headed by an illiterate household head are poverty prone. However, other differences due to education of household head are small. Actually persons in a household headed by someone having the highest level of education are not less poverty prone.

Further we report in Table VI that variations in poverty status in rural China according to age are small. The poverty rate for aged persons in rural China is not higher than for people in active ages. From an international perspective this is remarkable, as in many developing countries aged persons are particularly poverty prone, as was also the case in many industrialized countries before systems of social insurance matured. In present-day rural China only very limited resources are channeled from the public sector to the aged. The reason for the moderate poverty incidence among aged in rural China must therefore be sought in how the

¹² Another remarkable result which follows when we classify households according to gender of head of household, not the individual, is that female-headed households are considerably less poverty prone than male-headed households.

TABLE VI
POVERTY MEASURES: BY POPULATION GROUPS IN RURAL CHINA

	% of Sample	Equivalent Income			As % of Nationwide			Composition of Poverty (%)		
		Head Count (%)	FGT $\alpha = 1$	FGT $\alpha = 2$	Head Count	FGT $\alpha = 1$	FGT $\alpha = 2$	Head Count	FGT $\alpha = 1$	FGT $\alpha = 2$
Rural	100	17.57	0.0560	0.0302	100.0	100.0	100.0	100	100	100
Characteristics of household:										
Poor regions	20.6	30.95	0.0873	0.0391	176.2	155.9	129.5	36.27	32.21	26.67
Nonpoor regions	79.4	14.11	0.0479	0.0279	80.3	85.5	92.4	63.73	67.79	73.33
Minority areas	9.2	31.43	0.0859	0.0376	178.9	153.4	124.5	16.45	14.11	11.42
Nonminority areas	90.8	16.17	0.0529	0.0295	92.0	94.5	97.7	83.54	85.87	88.58
1-2 person households	1.2	15.92	0.0483	0.0282	90.6	86.3	93.4	1.09	1.04	1.12
3-4 person households	28.4	13.96	0.0450	0.0245	79.5	80.4	81.1	22.55	22.82	22.96
5-6 person households	45.8	17.91	0.0573	0.0308	101.9	102.3	102.0	46.66	46.86	46.56
7 person and over households	24.6	21.22	0.0666	0.0359	120.8	118.9	118.9	29.70	29.26	29.15
Characteristics of household head:										
Education										
1. College & technical school	1.8	16.03	0.0569	0.0332	91.2	101.6	109.9	1.64	1.83	1.97
2. Upper middle	9.3	15.66	0.0456	0.0243	89.1	81.4	80.5	8.29	7.57	7.46
3. Lower middle	30.1	16.34	0.0522	0.0284	93.0	93.2	94.0	27.98	28.06	28.21
4. Primary	35.2	16.04	0.0518	0.0282	91.3	92.5	93.4	32.12	32.56	32.76
5. Less primary	6.2	18.16	0.0609	0.0362	103.4	108.8	119.9	6.41	6.75	7.41
6. Illiterate	17.4	23.80	0.0747	0.0385	135.5	133.4	127.5	23.56	23.21	22.11
Party member	14.7	10.85	0.0368	0.0219	61.8	65.7	72.5	9.12	9.66	10.63
Non-party member	85.3	18.73	0.0593	0.0317	106.6	105.9	105.0	90.88	90.34	89.37
Male	94.7	17.89	0.0567	0.0305	101.8	101.3	101.0	96.41	95.88	95.33
Female	5.3	11.90	0.0439	0.0261	67.7	78.4	86.4	3.59	4.12	4.67
Characteristics of individual:										
Male	50.7	17.13	0.0546	0.0296	97.5	97.5	98.0	49.41	49.43	49.53
Female	49.3	18.03	0.0574	0.0309	102.6	102.5	102.3	50.59	50.75	50.47
Minority households	7.8	30.36	0.0831	0.0389	172.8	149.6	128.8	13.47	11.57	10.02
Nonminority households	92.2	16.50	0.0537	0.0295	93.9	95.9	97.7	86.53	88.43	89.98
Age -7	9.8	24.29	0.0783	0.0414	138.3	139.8	137.1	13.54	13.71	13.39
Age 8-13	14.4	19.09	0.0588	0.0308	108.7	105.0	102.0	15.64	15.13	14.64
Age 14-18	11.2	16.36	0.0538	0.0298	93.1	96.1	98.7	10.43	10.76	11.03
Age 19-25	19.4	15.93	0.0515	0.0286	90.7	92.0	94.7	17.58	17.84	18.32
Age 26-35	12.6	19.23	0.0596	0.0315	109.5	106.4	104.3	13.78	13.41	13.10
Age 36-45	13.6	16.10	0.0517	0.0283	91.6	92.3	93.7	12.46	12.56	12.70
Age 46-60	12.6	14.28	0.0451	0.0244	81.3	80.5	80.8	10.24	10.15	10.15
Age 61-	6.4	17.36	0.0563	0.0306	98.8	100.5	101.3	6.32	6.44	6.46

Chinese families take care of the elderly. Many elderly persons are taken into the households of their adult children and are thus provided for. In addition adult children and relatives might transfer resources to aged living by themselves.

Finally in our data we can identify whether the household head is a member of the Communist Party. Perhaps not surprisingly rural persons living in such households are less poverty prone than other rural persons.

VII. CONCLUSIONS

Using a poverty line set equal to 50 per cent of median income of China as a whole, the new approach of Jenkins and Lambert (1995, 1997) in aggregating poverty and the household income survey for China as a whole, we have analyzed the structure of poverty in the People's Republic of China at the end of the 1980s. Several substantial conclusions have emerged.

Uncontroversially we have reported that poverty in China is almost entirely a rural phenomenon. This applies as long as one does not take the situation of the non-registered (or "floating") population in the urban areas into consideration, which is a limitation of all investigations of poverty in China.

Poverty status in China has a clear spatial dimension. Poverty is most extensive in the western part, and least extensive in the eastern part. But according to our results rural poor are found all over the country. Thus we find it hard to subscribe to a view stating that poverty (at the end of the 1980s) is concentrated in a number of resource-poor areas, as suggested by the World Bank (1992). Instead our results are much more in line with the view put forward by Riskin (1993).

Much of the poverty alleviation policies in China are based on favorable treatment of persons living in officially defined poverty areas. Our results have illustrated considerable limitations with such a strategy. Such measures do not reach most of the poor. If measures do not take the income situation of households in the poor areas into account, most resources will leak to non-poor. However, in comparison to a policy of allocating the same total budget at random over rural China, such a policy achieves more poverty reduction.

Chinese rural poverty is relatively equally shared along certain dimensions of the population, which is noteworthy. Our results show females and males to be almost identically poverty prone. The relation between education of household head and poverty is not strong. Finally, in contrast to the plight of the aged in many other countries, old age does not bring a high risk of poverty in China.

While we have the opinion that this study has thrown some new light on the issue of China's poverty profile, it has limitations which hopefully can be overcome in

future research. All results refers to an accounting period of one year. It would be interesting to know how the picture changes if a longer accounting period could be applied, in order to find out if the profile of chronic poor differs from that measured for a single year. Another limitation is that the survey refers to the situation in 1988. It would be interesting to replicate the study for a more recent year to investigate the extent to which our findings are persistent.

REFERENCES

- Buhmann, Brigitte; Lee Rainwater; Guenther Schmaus; and Timothy M. Smeeding. 1988. "Equivalence Scales, Well-Being, Inequality, and Poverty: Sensitivity Estimates across Ten Countries Using the Luxembourg Income Study (LIS) Database," *Review of Income and Wealth* 34, no. 2: 115-42.
- Chen, Shaohua, and Martin Ravallion. 1996. "Data in Transition: Assessing Rural Living Standards in Southern China," *China Economic Review* 7, no. 1: 23-56.
- Eichen, Mare, and Zhang Ming. 1993. "The 1988 Household Sample Survey—Data Description and Availability." In *The Distribution of Income in China*, ed. Keith Griffin and Zhao Renwei. London: Macmillan Press: 331-36.
- Foster, James; Joel Greer; and Eric Thorbecke. 1984. "A Class of Decomposable Poverty Measures," *Econometrica* 52, no. 3: 761-66.
- Jenkins, Stephen P., and Peter J. Lambert. 1995. "Poverty Dominance, Poverty Gaps, and Poverty Lines." Working Papers of the ESRC Research Centre on Micro-social Change, no. 95-20. University of Essex.
- . 1997. "Three 'I's of Poverty Curves, with an Analysis of UK Poverty Trends," *Oxford Economic Papers* 49, no. 3: 317-27.
- Ravallion, Martin; Gaurav Datt; and Dominique van de Walle. 1991. "Quantifying Absolute Poverty in the Developing World," *Review of Income and Wealth* 37, no. 4: 345-61.
- Ren, Ruoan, and Chen Kai. 1994. "An Expenditure-Based Bilateral Comparison of Gross Domestic Product between China and the United States," *Review of Income and Wealth* 40, no. 4: 377-94.
- Riskin, Carl. 1993. "Income Distribution and Poverty in Rural China." In *The Distribution of Income in China*, ed. Keith Griffin and Zhao Renwei. London: Macmillan Press.
- . 1994. "Chinese Rural Poverty: Marginalized or Dispersed?" *American Economic Review* 84, no. 2: 281-84.
- Sen, Amartya. 1976. "Poverty: An Ordinal Approach to Measurement," *Econometrica* 44, no. 2: 219-31.
- Tam, Mo-Ying S., and Zhang Renze. 1996. "Ranking Income Distributions: The Tradeoff between Efficiency and Equality," *Economica* 63, no. 250: 239-52.
- World Bank. 1990. *World Development Report 1990*. Oxford: Oxford University Press.
- . 1992. *China: Strategies for Reducing Poverty in the 1990s*. Washington, D.C.: World Bank.
- . 1996. *Poverty Reduction and the World Bank: Progress and Challenges in the 1990s*. Washington, D.C.: World Bank.
- Zhu, Ling, and Jiang Zhongyi. 1995. "'Yigong-daizhen' in China: Labour-Intensive Public Works in Poor Areas," *Development Policy Review* 13, no. 4: 349-70.