

ISSUES IN DEVELOPMENT

Discussion Paper

22

**POVERTY IN CHINA IN THE
PERIOD OF GLOBALIZATION
New Evidence on Trend and Pattern**

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Preface

The present study has been prepared within the framework of the project on Development, Public Policy and Poverty Alleviation undertaken by the Development Policies Department of the International Labour Office. The objective of this programme is to monitor the trends in poverty, and identify effective policies in reducing poverty. The study of poverty in China, particularly during the reform years, has been a subject of a very lively debate. The major question centres around the likely trends in income distribution and poverty as the economy has been recording unprecedented rates of growth over a long period of time.

As China became rapidly integrated with the global economy since the mid 1980s, the growth of its GDP accelerated to unprecedented rates. At the same time the distribution of income deteriorated sharply and China's earlier success in poverty reduction drastically slowed down and, in some areas and periods, was reversed. While there is broad agreement among analysts about China's poor performance in poverty reduction in the period of rapid growth and integration with the global economy, views differ about the extent, nature and causes of this phenomenon. One reason for this is the inadequacy of official data on income distribution which provides information in much too aggregated a format and is based on an incomplete and biased definition of income.

The present study analyzes the levels and changes in poverty in China on the basis of the only sets of detailed household level data on income distribution, based on standard international definition of income, that exist for China. The author was a member of the international team of economists which collaborated with the Economics Institute of the Chinese Academy of Social Sciences in implementing households surveys in 1988 and 1995 to generate these data.

These unique sets of data have been used in this study to estimate indicators of poverty in China for 1988 and 1995 and to analyze the locations and causes of poverty. The findings, while confirming that China's performance in poverty reduction during 1988-95 was indeed much poorer than before, indicate outcomes that are often quite different from what is suggested by existing studies. The study also relates China's poor performance in poverty reduction in this period to the disequalizing features of integration with the global economy during the transition and the disequalizing effects of public policy. It concludes by evaluating China's official poverty reduction strategy and proposing a comprehensive strategy that focuses on an integration of poverty reduction into the overall development strategy as well as on targeted interventions to improve the welfare of the poor.

It is hoped that this study sheds a new light, based on hard evidence on the recent performance of the Chinese economy.

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1. INTRODUCTION

China's remarkable development experience in the period of reform, beginning in 1979, has by now attracted a great deal of attention not only because of the uniquely high rate of growth that it has achieved but also for its evolving distributional consequences. The principal elements of the story appear to be reasonably clear and may be summarized as follows.

The introduction of reforms in 1979 led to a dramatic increase in the rate of economic growth. The average annual rate of growth of GDP was 10.2 per cent during the 1980s and 12.8 per cent during the first half of the 1990s as compared to 5.5 per cent during the 1970s.¹ During the reform period under review - 1979 to 1995 - China's annual population growth was just under 1.4 per cent. Thus per capita GDP almost quadrupled over this period. Never in the past did a quadrupling of the per capita GDP of more than a fifth of humankind over such a short period occur in the course of human history!

The Evolution of China's Development Strategy

Prior to the mid-1980s, China's growth and reform was principally led by agriculture and the rural economy. China's remarkable reform programme began in agriculture with a complete change in the system of ownership and incentives and a sharp improvement in agriculture's terms of trade due to a rise in procurement prices. The result was an all-round development of the rural economy whose effects spilled over in the rest of the economy. The ratio of per capita urban personal income to per capita rural personal income fell from 2.37 in 1978 to 1.70 in 1983.² From about the middle of the 1980s, the rate of growth of agricultural output slowed down, partly due to the public policy of halting, and for a period reversing, the improvement of agriculture's terms of trade and partly due to a decline in public expenditure for agriculture. The growth in the rest of the rural economy could not offset these trends. The ratio of per capita urban personal income to per capita rural personal income started rising sharply after 1985 and became as high as 2.6 by 1994 according to official estimates.³ Since 1994 the ratio has declined somewhat, though still remaining way above the bottom reached in 1983.⁴

Growth in the period since the mid 1980s was led by the growth of exports within a strategy of greater integration with the globalizing world economy. While China's exports, as a proportion of GDP, remained virtually unchanged between 1980 (10.1 per cent) and 1985 (10.5 per cent), it grew rapidly thereafter to reach 21.3 per cent in 1995. The composition of exports changed dramatically, with the share of manufactured exports rising from 49.4 per cent in 1985 to 85.6 per cent in 1995. Most remarkably, China, which had traditionally financed almost its entire investment by domestic savings, became a significant recipient of foreign capital during the 1990s, principally in the form of foreign direct investment (FDI). In 1995 China received \$33.8 billion of FDI, 42 per cent of the total FDI received by the entire developing world and approximately 12 per cent of gross investment in China in that year.⁵

The reasons behind the change in the development strategy have not been officially discussed and are not entirely clear. Two possible explanations however stand out. China's initial reform programme, with its emphasis on improving agriculture's terms of trade, imposed a heavy burden on the state budget and reduced the rate of overall savings from 34.1 per cent in 1978 to 27.9 per cent in 1981. While improved efficiency of resource use made it possible for the rate of growth to accelerate over this period, the government was clearly concerned about the financial consequences of its agricultural policies which were substantially revised. Secondly, by the mid 1980s, China must have been convinced that its ability to maintain its growth over the long-term future called for a source

of growth other than agriculture and the globalizing world economy presented it with a clear opportunity that needed to be grasped.⁶

Available Evidence on Poverty Trends

The distributional consequences of growth on China's poor have been very different between the two periods. During the initial period of reform, until about 1985, China achieved a remarkable reduction in the incidence of poverty. After the mid 1980s the rate of reduction in poverty drastically slowed down and arguably was halted or even reversed. There is a broad agreement among all analysts about a break in the trend in poverty reduction in the mid 1980s although there are some differences, especially between the official sources on the one hand and the rest on the other, about the nature and extent of slow down after that date.

A detailed World Bank study estimated that the proportion of rural population in poverty declined from 33 per cent of rural population in 1978 to 11 per cent in 1984. Thereafter there was no trend change in the ratio which remained as high as 11.5 per cent in 1990, the terminal year of the study. World Bank's estimate of the urban population in poverty similarly shows a decline from 1.9 per cent in 1981 to 0.3 per cent in 1994 and no trend decline thereafter, the ratio being 0.3 per cent in 1990.⁷

The present writer made estimates of poverty for rural and urban China for the period 1980-94 by using the SSB's grouped data on personal income distribution.⁸ Table 1 shows three different indices of poverty that have been estimated for rural and urban China. The first is the Head-Count (HC) Index showing the number of persons belonging to households with per capita incomes below poverty threshold as a proportion of the total population of all households. The second is the Proportionate Poverty Gap (PPG) Index which is the average proportionate shortfall in income from poverty threshold for the entire population, the shortfall for the non-poor being defined as zero. The third measure, the "Weighted Poverty Gap" Index, is estimated by, first, summing for all the poor the *squared* gap between poverty threshold and income as a proportion of poverty threshold and, next, dividing the sum by total population.

Each of these indices provides useful information about the poor. The HC index, the most widely used measure of poverty, simply quantifies the proportion of population in poverty in the sense of having too little income to satisfy basic nutritional and other consumption needs. It is possible for the number of poor to remain unchanged while the average shortfall of their income from poverty threshold changes. In this case, the HC index would be misleading as an indicator of the change in the condition of the poor. The latter is captured by the PPG index which is in fact the product of the HC index and the average income gap of those who are in poverty. It is possible for the number of poor and the average income of the poor to remain unchanged while the distribution of income among the poor improves (the extreme poor gain at the cost of the moderately poor) or deteriorates (the moderately poor gain at the cost of the extreme poor). Policy makers need to monitor this kind of change which is not captured by the head count index or the proportionate poverty gap index. The weighted poverty gap index reflects such a change accurately. By itself the weighted poverty gap index is inadequate because it is not subject to easy interpretation and the common-sense illumination that the other two indices provide.⁹

Table 1. Poverty indices for China

Year	Rural Poverty Indices			Urban Poverty Indices		
	HC	PPG	WPG	HC	PPG	WPG
1980	40.80	11.16	4.25	-	-	-
1980	30.34	7.30	2.64	20.08	3.30	0.94
1983	14.32	2.89	0.82	-	-	-
1985	14.04	3.13	0.98	12.70	2.61	0.98
1988	16.09	4.07	1.45	-	-	-
1989	-	-	-	7.42	1.67	0.77
1990	13.87	2.77	0.75	7.39	1.25	0.30
1991	-	-	-	4.73	1.04	0.48
1992	13.63	2.85	0.81	-	-	-
1993	14.11	3.61	1.47	-	-	-
1994	13.62	3.47	1.42	5.90	0.85	0.17

HC = Head Count Index
PPG = Proportionate Poverty Gap Index
WPG = Weighted Poverty Gap Index

Source: Khan, 1996. Of the two different sets of poverty thresholds for which estimates are made, the ones reported here refer to the lower thresholds, i.e., the more extreme poverty.

To summarize the trends in poverty as revealed by these estimates: China's very high rate of growth in the early years of reform was accompanied by a remarkably rapid reduction in the incidence of poverty. In rural China the reduction in poverty drastically slowed down in the mid 1980s and came to a halt in the early 1990s. In urban China the reduction of poverty was also spectacularly rapid in the early years of reform and continued to take place until the end of the 1980s. Since the late 1980s the reduction of poverty in urban China also drastically slowed down. Since a very large majority of the Chinese live in rural areas, it is right to conclude that for China as a whole the rate of poverty reduction sharply slowed down in the mid 1980s and came to a halt in the early 1990s. This is an extraordinary outcome in view of the fact that the rate of growth in China's per capita GDP continued to accelerate throughout the period to reach a height that is almost unprecedented in human history.¹⁰

In China official estimates of rural poverty are made by the SSB which does not to publicize the details of its methodology.¹¹ For 1985 the SSB estimates the number of rural poor to be 125 million, which is higher than the estimates presented in the studies discussed above. The SSB estimates confirm that the rate of decline in rural poverty slowed down appreciably after 1985; they however claim that the reduction in poverty continued to take place in rural China since 1987 albeit at a much

slower rate than before.¹² In the absence of information about the SSB methodology, it is impossible to explain the difference between their estimate of the trend and the estimates made by others. While certain other estimates by Chinese scholars arrive at similar results as the SSB's by making an inadequate adjustment in poverty threshold for rising cost of living, the SSB's cost of living adjustment does not seem to suffer from the same problem.¹³

While there is general agreement that China's growth in the period since the mid 1980s has been far less poverty alleviating than before, there is a diversity of views about the reasons for the change. The official Chinese view seems to suggest that remaining poverty in China is localized in remote and resource-poor rural areas, a view that appears consistent with the World Bank's assessment.¹⁴ Khan, 1996, on the other hand, argues that the shift of China's development strategy towards greater integration with the world economy has led to a more disequalizing pattern of growth during the transition period. This is an important issue that deserves detailed analysis, but only after we have addressed the issue of whether there are serious questions about the existing estimates of poverty in China.

Limitations of the Existing Poverty Estimates

All the available estimates of poverty in China are based on the data reported in a summary form from the SSB surveys of household income. There are very important deficiencies of these data. They exclude from household income numerous elements that standard accounting elsewhere normally includes. For example, rental value of owner-occupied housing is excluded from income estimated by the SSB survey. So are numerous income subsidies and components of income in kind (e.g., urban housing subsidy in kind and income in kind received from work units). This is a particularly serious problem because the excluded components, as a proportion of household income, have been changing rapidly with the progress of reform in China. This can seriously bias estimates of distribution of income and poverty.¹⁵

Another problem is that these SSB data are reported for highly aggregated income groups, with the format of reporting varying from one year to another. The number of income classes for which the data are reported has been very limited for earlier years leading to serious problems of comparability of groups at higher real levels of income. This inevitably compounds errors in estimation.

A third problem with the SSB data sources is that they do not provide information on the characteristics of the poor. This makes it very difficult to identify the characteristics of the poor which can only be done in a rudimentary manner with reference to indirect evidence from other sources.

The quality and quantity of distributional data are not the only problems facing the estimation of poverty trends in China. Another serious problem relates to the lack of transparency of the estimates of consumer price indices (CPI). This makes it very difficult to estimate poverty thresholds over time as indices of a *constant level* of real income.

New Evidence

A major initiative was made by an international group of economists, in collaboration with the Economics Institute of the Chinese Academy of Social Sciences, to improve the data on personal income distribution in China by implementing a household survey for 1988 and by repeating a similar survey for 1995.¹⁶ These surveys provide the only detailed data base relating to the distribution of

income, using definitions that conform closely to the standard international definitions, which can be used to construct estimates of indices of poverty.

Table 2. A comparison of the surveys for 1988 and 1995

	1988	1995
<i>Rural sample</i>		
Number of households	10 258	7 998
Number of persons	51 352	34 739
Average household size	5.006	4.343
Number of provinces included in the survey	28	19
Provinces included in 1988 but excluded in 1995	Heilongjiang, Inner Mongolia, Qinghai, Ningxia, Guangxi, Fujian, Hainan, Tianjin, Shanghai	
<i>Urban sample</i>		
Number of households	9 009	6 931
Number of persons	31 827	21 694
Average household size	3.533	3.131
Number of provinces included in the survey	10	11
Province included in 1995 but not in 1988	Sichuan	

Table 2 summarizes some of the facts concerning the surveys in 1988 and 1995. The main difference between the two surveys is the reduction in coverage in 1995. This by itself does not create a serious problem of comparison. The other important difference is the smaller number of rural provinces covered in 1995. In 1988 only two provinces - Tibet and Xinjiang - were excluded from the rural sample. In 1995 nine others, named in Table 2, were excluded. Care however was exercised in choosing the provinces for exclusion from the rural sample. They are equally spread among the provinces in terms of their ranking according to per capita income. The average rank of the excluded provinces was 14.9 for 1988 among a total of 28 provinces. It might therefore be reasonable to hope that the reduction in the number of provinces covered in the rural sample does not create a serious bias. Urban provinces were selected to represent urban locations in different regions of China and in cities and towns of different size. In 1995 there was an addition of one province, Sichuan, to the urban sample.

These surveys provide a unique set of data to analyze poverty trends in China during its increased integration with the global economy. The year 1988 was still quite early in the process of China's opening up to the global economy. Data for the year 1995 incorporate the consequences of one of the most breathtakingly rapid rates of integration with the global economy in recent times.

II. ESTIMATING POVERTY THRESHOLDS

Not all problems of estimating the indices of poverty are resolved by the availability of better data on income and its distribution. The surveys of 1988 and 1995 do not provide necessary information either to estimate poverty thresholds - e.g., by fitting Engel functions between levels of nutrition and income - or to endogenously derive CPIs for households at the poverty threshold. These must still be done by using the data from existing official sources.

Estimating Poverty Thresholds for 1995

We use 1995 as the base year for the estimation of the poverty thresholds and then obtain the poverty thresholds for 1988 by using the CPI to deflate them. This is because more information is available for 1995 than for 1988 concerning the aspects that need to be taken into account in determining the poverty thresholds.

A poverty threshold represents a cut-off standard, in terms of income, consumption or other characteristics, below which a person is considered poor. In the final analysis such standards must reflect the judgement and preference of the individual or the agency setting them. While these judgements and preferences might be based on careful considerations and sensible criteria, there is no escape from the fact that the procedure is essentially arbitrary. In recognition of this point, researchers and planners making poverty estimates often use multiple poverty thresholds reflecting alternative standards of demarcating the poor from the non poor. It is also the recognition of this issue that makes the interpreters of this kind of poverty estimates focus more on the *change* in the incidence of poverty over time rather than on its *level* at any particular time.

The most common practice in estimating poverty thresholds is to relate them to the level of income/expenditure that is necessary to satisfy a minimum level of consumption. Two most widely used procedures are: (a) to estimate, from Engel functions fitted to cross section data, the level of income/expenditure that would enable a typical person to achieve a specified minimum level of nutrition; and (b) to estimate the cost of a basket of food and non-food goods, within the constraints imposed by consumer preference, that represents a minimum living standard to enable a person to escape poverty. For China the first method can not be applied for want of necessary statistical information. The SSB data on rural household expenditure do not provide information on the pattern of consumption for different income groups that is necessary to estimate the Engel function. For urban China some amount of information is available about the consumption pattern of eight different fractile groups. There are however serious problems of using the fitted Engel functions based on these data. The income elasticity of food energy consumption estimated from these data is very low so that a small difference in the threshold in terms of nutrition leads to a very large difference in terms of poverty threshold. Furthermore, the estimated elasticity varies rather sharply from one year to another.¹⁷

Our method of determining the poverty thresholds is thus a variant of the second of the two procedures listed above. It involves the following steps: (a) a normative minimum of food energy requirement in kilocalories per day for an average person is set; (b) this is multiplied by the estimated actual cost of food energy consumed by the income group that seems to be closest to the poverty

threshold, thereby making an allowance for consumer preference; and (c) a further allowance is made for non-food consumption expenditure on the basis of the consumption pattern of the group that seems to be closest to the poverty threshold.

The actual implementation of the above method involved numerous difficulties which had to be resolved by making decisions whose accuracy is far from assured. For rural China per capita daily food energy requirement is set at 2150 kcalories and the unit cost of a kcalorie *per day* (i.e., a total of 365 kcalories) is estimated to be 0.323 yuan. Food consumption is estimated to be 60 per cent of total consumption at the poverty threshold.¹⁸ A combination of the above parameters gives a rural poverty threshold of 1157 yuan for 1995.

For urban China per capita daily food energy requirement is set at 2100 kcalories. The justification for the lower food energy requirement *per capita* in urban China than in rural China is the lower labour force participation per capita and the possible lower intensity of work in urban China as compared to rural China. While this is an adequate justification for a lower food energy requirement in urban China than in rural China, this decision was also helpful in reducing the difference between the rural and urban poverty thresholds which is already quite large and would have been even larger if the same level of food energy in urban and rural China were used.

For urban China the SSB provides food consumption data for decile and quintile groups. We assume that the households representing the poorest decile of urban population have the same food consumption pattern as the households at the urban poverty threshold. The unit cost of a kcalorie for this group is estimated to be 0.60 yuan and food is estimated to account for 55 per cent of consumption for this group.¹⁹ These parameters provide an estimated urban poverty threshold of 2291 yuan.

Table 3. Poverty thresholds and per capita incomes, 1995 (values in Yuan)

	Per capita income	Poverty threshold	Poverty threshold/ Per capita income
Rural	2 308.63	1 157	0.50
Urban	5 706.19	2 291	0.40
Urban/rural ratio	2.47	1.98	

Note: Per capita incomes refer to disposable household incomes estimated from the survey.

There are a number of issues that need to be addressed. Urban poverty threshold is 1.98 times as high as the rural poverty threshold. Although we can not make a reasonable estimate of the level of urban income that represents living standard comparable to a given level of rural income, it is obvious that the difference between the two can not be as large as this ratio. The urban (rural) consumption bundle at poverty threshold is unlikely to cost nearly twice as much at urban prices as at rural prices. What then is the justification for so large a difference between the urban and rural poverty thresholds?

It should be noted that the ratio of our poverty threshold to average income is much lower for urban China (0.4) than for rural China (0.5). In our opinion there are powerful reasons why the difference in this ratio should not be even greater (i.e., the difference between the two poverty

thresholds should not be smaller) than what we have arrived at. Poverty thresholds are (nominally) anchored to minimum acceptable levels of food energy consumption. We have chosen a lower level of nutrition for urban China than for rural China. This has been justified by the higher observed labour force participation rate and a possibly higher intensity of work in rural China than in urban China. But, as noted above, an important reason that prompted us to take this relatively unusual step is the very high urban-rural difference in poverty threshold that would otherwise result. The reason for this is the far higher unit cost of a kcalorie of food energy in urban China than in rural China even when the comparison is between the consumption of the *poorest decile* of urban consumers and the *average* of rural consumers. This could be due to a variety of reasons: a difference in the relative price of food, a difference in consumer preference, and a difference in constraints on preference that consumers in two societies face.²⁰ While we can not quantify their relative importance, each of these factors must explain a part of the difference in the unit cost of food energy. It should be noted that we have already taken some liberty to reduce the difference in the unit of costs of food energy between rural and urban China that seems to be dictated by actual consumption behavior.

We nevertheless must deal with the argument that our poverty thresholds imply that a rural resident just above poverty would have to nearly double her/his income to be counted as non poor once she/he moves to an urban location. Is this plausible? Certainly a doubling of nominal income by migration would mean an increase in real income; the cost of living in urban China is not twice as high as in rural China according to any reasonable method of estimation. On reflection it however appears that it is not necessarily implausible to consider a migrant as falling from the category of rural non poor to the category of urban poor even though migration results in a rise in income at constant purchasing power once it is recognized that the person concerned has moved from a poorer society to a richer society. There is no a priori reason why poverty thresholds should represent comparable living standards in two societies - rural and urban China - which differ so much in terms of average living standard. The plausibility of the argument becomes clearer when considered in the context of international migration. A non-poor Chinese can have a substantial increase in real income by migrating to Europe or North America and yet be counted as poor in her/his adopted country simply because the cut-off standard of poverty in the latter is far higher than in China.

Do we need to worry that the relative levels of our rural and urban poverty thresholds might be out of line with the estimates used by others? This is certainly not the case for the official Chinese poverty thresholds. For rural China the official poverty threshold for 1995 is 540 yuan, 34.2 per cent of per capita income as estimated by the SSB, a smaller proportion of average income than ours. For urban China the official poverty threshold for 1994 is however a higher proportion of official per capita income (45.3 per cent) than is our ratio. The World Bank, on the other hand, used a poverty threshold for urban China for 1990 which was only 23 per cent of per capita income as estimated by the SSB. This dismally low poverty threshold was actually 30 per cent below the actual food expenditure of the poorest 5 per cent of the urban households in 1990 and 60 per cent below the average aggregate expenditure of the same group as estimated by the SSB! To use such a poverty threshold is to start with the presumption that there is no urban poverty.

Extreme and Ultra Poverty Thresholds

While we consider the above arguments persuasive, we do not want to leave the users of our results without a choice. To this end, we define two additional poverty thresholds: an "extreme poverty" threshold that is 80 per cent of the above "standard poverty" threshold, and an "ultra poverty" threshold which is 70 per cent of the standard poverty threshold. In view of the inevitable arbitrariness that is involved in the determination of poverty thresholds, it would in any case be desirable to use alternative thresholds to ascertain what happens to poverty levels and trends when they are changed.

Additionally, the use of alternative thresholds would enable those who do not find our arguments sufficiently convincing to select their own combination of rural and urban poverty thresholds. Thus by opting for the urban ultra poverty threshold and the rural standard poverty threshold as the proper standards to define the poor, one would select a rural threshold that is only 28 per cent lower than the urban threshold. This is probably close to the absolute urban-rural difference in purchasing power of income. Alternatively, one might think that an allowance indeed needs to be made for the difference in average living standards between rural and urban China but that this should be less than what we have indicated our preference for. In this case the standard poverty threshold for rural China and the extreme poverty threshold for urban China might be used.

Table 4. Indicators of price changes (indices for 1995 with 1988 = 100)

Rural CPI	220.09
Urban CPI	227.90
Industrial consumers' price index	206.86
Industrial producers' price index	238.42
Industrial products rural retail price index	198.27
Grain purchase price	257.75
Overall farm products purchase price	215.91
GNP deflator	204.40
Urban grain purchasers' price	489.09
Unit cost of a Kcalorie: Rural	299.00
Unit cost of a Kcalorie: Urban	394.60
Note: All but the last three items are based on SSB data reported in SSB, 1996. The last three items are estimated from SSB survey data reported in SSB, 1989 and 1996. Unit cost of a Kcalorie is estimated from a selection of items of food consumption for which information is available for both 1988 and 1995. For urban China this refers to the composition of food for the low income groups (the poorest two deciles).	

Consumer Price Indices for Poverty Thresholds

Some of the indicators of changes in costs of living and prices between 1988 and 1995 are summarized in Table 4. The first two relate to changes in the rural and urban CPI estimated by the SSB. These are Paasche indices with 1985 as the base for the rural index and 1978 as the base for the urban index. The values in Table 4 have been estimated by dividing the 1995 values by respective 1988 values.

It is rather unusual for the CPIs to be based on Paasche formula which is known to understate the rate of increase in cost of living.²¹ In this case, however, the use of the Paasche formula makes it impossible even to interpret the "index" showing the change in CPI between 1988 and 1995.²²

That changes in rural and urban CPIs (henceforth simply rural and urban CPIs) between 1988 and 1995 understate respective consumer price indices for the households at poverty thresholds is very strongly suggested by the other indicators of price change shown in Table 4. Thus the unit costs of food energy increased at very high rates. If they are combined with the lowest of the indices showing the change in the cost of non-food goods, the resulting CPIs would be far greater. We however accept the official CPIs as the basic set of deflators to estimate the poverty thresholds for 1988. We then estimate an *adjusted set of CPIs* to deflate the poverty thresholds for 1995 to arrive at alternative sets of poverty thresholds for 1988 as follows.

The CPI is the weighted average of the food CPI (P_f) and the non-food CPI (P_{nf}). For urban China we use the Industrial Consumer Goods Price Index as the non-food CPI. Next we estimate the food CPI from the following equation: $0.499P_f + 0.501(206.86) = 227.9$ where 0.499 is the average urban share of consumer expenditure on food, 206.86 is the non-food CPI and 227.9 is CPI. This gives us an urban food CPI of 249.02. We then decompose the urban food CPI into CPI for grain and for non-grain food by using the urban grain price index (489.09) and the average share of grain in urban food expenditure (14.7 per cent). Next we estimate the urban food CPI relevant for the poor by weighting the price indices for grain and non-grain food by their respective weights for the *poorest decile* (19.3 per cent for grain). Finally we average the urban food CPI for the poor and the non-food CPI by weighting them by the expenditure weights of the poorest decile (55 per cent for food). The adjusted urban CPI is 237.15.

The adjusted rural index makes a one-stage adjustment by averaging the food CPI (assumed to be the same as for urban food CPI) and the non-food CPI (assumed to be the same as Industrial Products Rural Retail Price Index) by using the rural consumer expenditure weights at poverty threshold (60 per cent for food). The adjusted rural CPI is 228.72.

It should be obvious that the adjusted indices represent minimum upward adjustment of CPIs that one might make from all possible alternatives shown in Table 4. On average they represent roughly one-half a per cent higher increase in CPI per year than the unadjusted indices. It is also noteworthy that the CPI implicit in SSB's own rural poverty thresholds in 1988 and 1995 is 228.8, the same as the adjusted rural CPI estimated in Table 5.²³

There are clear deficiencies in our estimation of the poverty thresholds. One important inadequacy is the neglect of regional differences in cost of living. The reason for this is the absence of available information. SSB's own poverty thresholds suffer from the same deficiency although they should have access to information necessary to make adjustment for regional differences. The consequence of this neglect may be that our poverty threshold represents different levels of living for different locations. It is practically impossible to overcome this problem in so far as there may be important differences in cost of living within entities (e.g., provinces) for which cost of living comparisons might be feasible once data were made available.

A second issue is that income, rather than expenditure, is the variable in terms of which poverty threshold is defined. It has been argued that expenditure is a better measure of "permanent income" than is current income. Unfortunately, distributional data in China are available only in the form of income.

Table 5. Poverty Thresholds and CPIs (values in current Yuan)

	1988	1995
<i>Standard poverty threshold</i>		
Rural unadjusted	526	1 157
As per cent of income	69.2	50.1
Rural adjusted	506	1 157
As per cent of income	66.6	50.1
Urban unadjusted	1 005	2 291
As per cent of income	54.6	40.1
Urban adjusted	966	2 291
As per cent of income	52.4	40.1
<i>Extreme poverty threshold</i>		
Rural unadjusted	421	926
As per cent of income	55.4	40.1
Rural adjusted	405	926
As per cent of income	53.3	40.1
Urban unadjusted	804	1 833
As per cent of income	43.6	32.1
Urban adjusted	773	1 833
As per cent of income	42.0	32.1
<i>Ultra poverty threshold</i>		
Rural unadjusted	368	810
As per cent of income	48.4	35.1
Rural adjusted	354	810
As per cent of income	46.6	35.1
Urban unadjusted	704	1 604
As per cent of income	38.2	28.1
Urban adjusted	676	1 604
As per cent of income	36.7	28.1
<i>CPIs</i>		
Rural CPI		
Unadjusted	100.00	220.09
Adjusted	100.00	228.72
Urban CPI		
Unadjusted	100.00	227.90
Adjusted	100.00	237.15

A final point that deserves to be highlighted is that, although the poverty thresholds have been anchored to desirable levels of nutrition in the benchmark year (1995), there is no stipulation that at poverty thresholds average households would consume the same level of food energy in other years. Indeed food energy at constant-real-income poverty threshold must have been higher in 1988 than in 1995 due to a sharp rise in relative food prices between the two periods. To ensure constant levels of food energy consumption at poverty thresholds in the two years, one would have to settle for a poverty threshold for 1995 that represents a higher real income than does the poverty threshold for 1988. Our poverty thresholds represent constant standards of living in the sense that a consumer in 1995 could buy the bundle of food and other goods that he/she bought in 1988 if he/she so desired. In reality a typical consumer with constant standard of living (i.e., income with unchanged purchasing power) purchased substantially less food in 1995 than in 1988 due to a massive rise in the relative price of food.

III. ESTIMATES OF POVERTY

Three different indices of poverty - the head count (HC) index, the proportionate poverty gap (PPG) index and the weighted poverty gap (WPG) index - have been estimated. These have been explained in section I.

For 1995 we have three sets of poverty estimates for rural and urban China and each of their provinces, respectively measuring poverty with reference to the standard poverty threshold, the extreme poverty threshold and the ultra poverty threshold. For 1988 each of these sets has two variants, one related to the unadjusted CPI and the other related to the adjusted CPI. Our discussion of poverty will focus on patterns and trends, not levels per se. This is because the levels are sensitive to poverty thresholds which, as already noted, are in the ultimate analysis matters of arbitrary decisions. The level of any poverty index will be lower for extreme poverty than for standard poverty. But there is no a priori basis to expect that the trends for the two will be necessarily different or related in any particular way. The same is true for comparison between extreme poverty and ultra poverty.

The trend will however be different between the estimates based on the unadjusted CPI and the estimates based on the adjusted CPI. The change in any index of poverty between 1988 and 1995 will be less favourable according to the adjusted CPI than according to the unadjusted CPI. This is because the adjusted CPI indicates a higher rate of increase in cost of living and hence a sharper rise in the nominal value of the poverty threshold between the two periods.

Rural Poverty

Tables 6, 7, 8 and 9 summarize various indices of poverty for rural China and its 19 provinces in our sample for 1988 and 1995.²⁴

The incidence of poverty is by and large lower for the provinces with higher per capita income. Spearman's rank correlation coefficient between the provincial rank in head count rural poverty and the provincial rank in per capita rural income is a highly significant -0.69.²⁵

"Standard poverty", i.e., estimates of poverty for the standard poverty threshold without any adjustment in CPI. There was a modest decline of 19 per cent in the head-count index of rural poverty over the period during which per capita real rural income increased by 38 per cent.²⁶ The estimated number of rural population in poverty fell from 289 million in 1988 to 246 million in 1995, a 15 per cent reduction. Had the distribution of rural income in 1995 remained the same as in 1988, the head-count index of rural poverty would have declined by much more, about a half.²⁷

Table 6. Indices of Rural Poverty (standard unadjusted poverty threshold)

	Head count		Proportionate poverty gap		Weighted poverty gap	
	1988	1995	1988	1995	1988	1995
All China	35.1	28.6	11.5	8.2	5.7	3.5
Gansu	69.7	69.0	23.2	26.4	10.2	13.0
Guizhou	58.3	61.8	20.9	19.1	10.2	8.3
Shanxi	51.9	49.5	17.0	16.3	8.3	7.7
Shaanxi	59.9	58.0	20.7	18.5	10.1	7.8
Yunnan	47.3	45.6	14.0	10.6	5.8	3.7
Hunan	13.1	37.5	3.0	12.0	1.6	5.1
Sichuan	32.5	43.1	9.5	12.1	4.5	5.5
Jiangxi	25.7	27.0	5.9	5.9	2.3	2.2
Anhui	35.6	19.8	10.8	4.9	5.2	1.8
Henan	52.5	20.1	19.0	4.2	9.8	1.6
Hubei	20.3	25.0	4.6	8.6	1.7	4.3
Hebei	29.9	22.7	8.6	6.1	3.7	2.5
Liaoning	27.0	21.9	8.4	5.2	4.3	1.9
Jilin	41.5	18.3	14.6	4.4	8.9	1.7
Shandong	28.3	19.3	8.1	4.6	3.8	2.0
Zhejiang	5.8	4.0	2.3	0.7	1.5	0.3
Jiangsu	27.8	4.7	9.4	1.1	5.2	0.6
Guangdong	4.8	5.2	1.2	1.3	0.6	0.5
Beijing	8.7	1.3	2.8	0.8	1.4	0.5

Note: Head count index is the number of persons belonging to households with average income less than the poverty threshold as per cent of all persons. Proportionate poverty gap shows the ratio of total income gap of all poor persons from poverty threshold as per cent of the total income needed by the entire population to get to the poverty threshold (poverty threshold times the population). The weighted poverty gap shows the sum of squares of proportionate income gaps of all the poor divided by the by number of population. In estimating PG and WPG a lower limit on income of zero has been put.

Table 7. Indices of extreme rural poverty (unadjusted extreme poverty threshold)

	Head count		Proportionate poverty gap		Weighted poverty gap	
	1988	1995	1988	1995	1988	1995
All China	22.6	17.4	7.2	4.6	3.6	1.9
Gansu	50.5	54.5	13.9	17.3	5.4	7.8
Guizhou	40.6	40.7	13.8	10.9	6.2	4.4
Shanxi	35.1	35.2	10.8	10.0	5.1	4.5
Shaanxi	41.6	41.5	13.1	10.6	6.2	4.0
Yunnan	30.2	24.1	7.6	4.5	3.0	1.5
Hunan	5.7	27.1	1.8	7.0	1.2	2.6
Sichuan	18.6	25.7	5.6	6.6	2.8	2.6
Jiangxi	12.2	11.9	2.7	2.8	1.2	1.1
Anhui	19.6	11.4	6.6	2.3	3.3	0.8
Henan	39.1	8.3	12.4	1.9	6.4	0.8
Hubei	8.4	17.1	2.1	5.7	0.9	2.6
Hebei	16.8	12.6	4.8	3.1	2.1	1.3
Liaoning	16.2	11.0	5.2	2.5	2.9	0.8
Jilin	25.3	7.9	10.3	2.1	6.9	0.9
Shandong	16.7	8.7	4.5	2.5	2.4	1.2
Zhejiang	3.9	1.5	1.6	0.2	1.2	0.2
Jiangsu	16.2	1.3	6.3	0.7	3.7	0.5
Guangdong	2.1	2.9	0.7	0.7	0.4	0.2
Beijing	5.3	1.3	1.9	0.6	0.8	0.3
Note: See note to Table 6 for explanation.						

Table 8. Indices of ultra rural poverty (Unadjusted ultra poverty threshold)

	Head count		Proportionate poverty gap		Weighted poverty gap	
	1988	1995	1988	1995	1988	1995
All China	16.9	12.1	5.4	3.1	2.8	1.3
Gansu	37.7	43.9	9.5	12.8	3.4	5.6
Guizhou	34.2	28.5	10.4	7.5	4.4	2.9
Shanxi	26.0	24.3	7.9	7.3	3.8	3.3
Shaanxi	32.1	28.9	9.6	7.0	4.6	2.5
Yunnan	20.6	12.7	5.0	2.6	2.0	0.9
Hunan	3.6	19.2	1.4	4.7	1.0	1.6
Sichuan	13.2	18.5	4.2	4.3	2.2	1.7
Jiangxi	7.2	8.3	1.7	1.8	0.9	0.7
Anhui	15.5	6.4	5.0	1.3	2.5	0.5
Henan	28.6	5.0	9.3	1.2	5.0	0.6
Hubei	6.4	14.1	1.4	4.3	0.6	1.8
Hebei	11.6	7.7	3.4	2.0	1.5	1.0
Liaoning	11.3	7.3	3.9	1.4	2.5	0.5
Jilin	18.5	6.5	8.7	1.4	6.1	0.6
Shandong	11.5	5.9	3.3	1.8	2.0	0.9
Zhejiang	2.6	0.2	1.4	0.2	1.1	0.2
Jiangsu	13.2	1.2	5.1	0.6	3.1	0.5
Guangdong	1.2	2.2	0.5	0.4	0.3	0.2
Beijing	4.6	1.3	1.4	0.5	0.6	0.2
Note: See note to Table 6 for explanation.						

Table 9. Indices of rural poverty, adjusted CPI, 1988

	Standard poverty threshold			Extreme poverty threshold			Ultra poverty threshold		
	HC	PPG	WPG	HC	PPG	WPG	HC	PPG	WPG
All China	32.7	10.6	5.2	20.9	6.6	3.4	15.5	4.9	2.6
Gansu	67.1	21.4	9.2	46.6	12.5	4.7	34.3	8.4	3.0
Guizhou	55.3	19.5	9.4	39.1	12.8	5.7	32.4	9.5	4.0
Shanxi	47.4	15.7	7.6	32.9	9.9	4.7	24.1	7.2	3.5
Shaanxi	56.9	19.2	9.3	37.9	12.0	5.7	28.8	8.8	4.2
Yunnan	44.3	12.7	5.2	27.4	6.8	2.7	19.0	4.4	1.8
Hunan	10.7	2.8	1.5	5.1	1.6	1.1	3.1	1.3	1.0
Sichuan	29.5	8.7	4.2	16.4	5.1	2.6	12.4	3.8	2.1
Jiangxi	24.7	5.2	2.0	10.5	2.4	1.1	5.7	1.5	0.8
Anhui	31.8	9.9	4.8	18.8	6.1	3.1	15.1	4.6	2.3
Henan	50.1	17.8	9.1	35.2	11.4	6.0	25.5	8.6	4.7
Hubei	18.5	4.0	1.5	7.1	1.9	0.8	5.8	1.2	0.6
Hebei	27.5	7.8	3.4	15.5	4.3	1.9	10.7	3.1	1.4
Liaoning	24.5	7.7	4.0	15.3	4.8	2.8	10.6	3.7	2.3
Jilin	37.0	13.6	8.4	22.6	9.8	6.6	17.9	8.3	5.9
Shandong	25.6	7.3	3.5	14.3	4.1	2.3	9.8	3.0	1.9
Zhejiang	5.3	2.2	1.4	3.4	1.6	1.2	2.6	1.3	1.1
Jiangsu	25.0	8.7	4.9	14.4	5.9	3.6	12.0	4.9	3.0
Guangdong	4.4	1.1	0.5	2.1	0.6	0.4	1.1	0.5	0.3
Beijing	8.7	2.6	1.3	5.3	1.7	0.7	4.6	1.3	0.5

Note: HC = Head-count index
PPG = Proportionate poverty gap index
WPG = Weighted Poverty Gap Index

See note to Table 6 for further explanation.

The proportionate poverty gap - showing the combined effect of the proportion of population in poverty and the average depth of poverty of the poor - declined by more, 29 per cent. The rate of decline in distributionally weighted index of poverty was even greater, 39 per cent, indicating an improvement in the distribution of income among those who are below the poverty threshold.

The rate of change in poverty was not the same everywhere. In five provinces - Jiangsu, Jilin, Henan, Anhui and Beijing - the head-count index of poverty declined rapidly. In another four provinces - Shandong, Liaoning, Hebei and Zhejiang - there was a moderately rapid decline in the index. In Gansu, Shanxi, Shaanxi and Yunnan the rate of head-count poverty reduction was very slow. In six provinces - Guizhou, Hunan, Sichuan, Jiangxi, Hubei and Guangdong - the head-count index of poverty increased, often quite rapidly.

The proportionate poverty gap increased in five provinces (Gansu, Hunan, Sichuan, Hubei and Guangdong), remained unchanged in Jiangxi, and declined by at least a significant margin in ten provinces (Yunnan, Anhui, Henan, Hebei, Liaoning, Jilin, Shandong, Zhejiang, Jiangsu and Beijing). In the remaining three provinces (Guizhou, Shanxi and Shaanxi) the rate of decline in the proportionate poverty gap was by a relatively small margin. The weighted poverty gap, incorporating the effect of the distribution of income among the poor, declined in all but four provinces (Gansu, Hunan, Sichuan and Hubei) in which it rose.

Poverty reduction was by and large positively associated with the growth of income with only a few notable exceptions. Guangdong, one of the richest provinces with a very low average incidence of poverty, recorded a rise in most of the poverty indices in spite of a very high rate of growth in income. Anhui had less than average rate of income growth but one of the most rapid rates of reduction in all three indices of poverty. Hebei and Liaoning, both coastal provinces, had well below the average rate of income growth but moderately rapid reduction in poverty.

All the provinces in which poverty increased - with the exception of Guangdong - the rate of income growth was well below the average for rural China. All the provinces which experienced a rapid reduction in poverty - with the exception of Anhui - achieved a higher than average growth in income. Of the seven coastal provinces included in the rural survey, poverty declined in six. Guangdong is the only coastal province in which poverty increased.

Extreme poverty, i.e., estimates of poverty for poverty thresholds that are only 80 per cent of the standard poverty thresholds. There was a more rapid reduction in extreme rural poverty than standard poverty: the overall head-count index decreased by 23 per cent while the proportionate poverty gap index declined by 36 per cent. The rate of decline in the distributionally weighted poverty gap was even greater, 47 per cent, confirming that there was a significant improvement in income distribution among the extreme poor. However, a simulation exercise once again shows that the decline in the head-count index of extreme rural poverty would have been much higher, approximately 50 per cent, if the distribution of rural income in 1995 had remained the same as in 1988. The broad pattern of poverty trend among provinces remains the same as for standard poverty with some minor changes. These changes can be ascertained by comparing Table 7 with Table 6.

Ultra poverty, i.e., estimates of poverty with reference to a poverty threshold that is only 70 per cent of the standard poverty threshold. The head count rate of ultra poverty declined by even more, 28 per cent. The proportionate poverty gap and the weighted poverty gap for the ultra poor respectively declined by 43 per cent and 54 per cent.

Trends in ultra poverty are more favourable for provinces than trends in poverty. Guizhou, which showed an increase in head count rates of standard and extreme poverty, registered a decline in the incidence of ultra poverty according to all indices.

Rural poverty estimates based on adjusted CPI. The adjustment of the poverty thresholds in the estimates reported in Tables 6, 7 and 8 are based on the rate of change in the official CPI between 1988 and 1995. We argued in the previous section that this results in an understatement of the increase in cost of living for those households that are at or below the poverty threshold. We also estimated alternative CPIs that make a *minimum allowance* for the higher rate of increase in the cost of living of the poor. Table 9 shows the estimates of standard, extreme and ultra rural poverty for 1988 based on poverty thresholds that are adjusted by this, more realistic, alternative CPI.²⁸ By comparing these indices of poverty with the corresponding estimates for 1995 shown in Tables 6, 7 and 8, we find that the reduction of rural poverty has been significantly slower than is suggested by the results reported above: the head-count index of standard poverty declines by 13 per cent, for extreme poverty by 17 per cent and for ultra poverty by 22 per cent (as compared to 19, 23 and 28 per cent for unadjusted poverty thresholds). Also, four more provinces - Gansu, Shanxi, Shaanxi and Yunnan - show a rise in poverty, indicating a rise in poverty in the majority of provinces.

Urban Poverty

Tables 10, 11, 12 and 13 summarize the indices of poverty for urban China and its provinces for 1988 and 1995. The incidence of urban poverty is much lower than the incidence of rural poverty, an expected outcome of the far higher living standard in urban China than in rural China. As in rural China, there is a great deal of variability in the incidence of urban poverty among provinces. It is also generally inversely related to the level of provincial income. For 1995 Spearman's rank correlation coefficient between the provincial rank in per capita income and the provincial rank in the incidence of head-count poverty was a significant -0.77.

Standard poverty estimates based on unadjusted CPI. There was virtually no change in the proportion of urban population in poverty between 1988 and 1995, a period of unprecedented overall growth of urban China and a rise in real per capita disposable urban household income of 36 per cent, even if an obviously understated CPI is used to adjust the poverty threshold! Since urban population increased over this period, the estimated number of urban population in poverty, thus estimated, rose from 23.5 million in 1988 to 28.1 million in 1995, an increase of 20 per cent!

A simulation exercise, assuming an unchanged distribution of income between 1988 and 1995 and the growth in urban personal income that actually obtained, shows that the proportion of urban population in poverty should have declined to less than 1 per cent by the latter year, i.e., urban poverty should have been virtually eliminated! Instead an adverse change in the distribution of income led to the continuation of an unchanged proportion - a much larger absolute number - of urban population in poverty.

In reality the trend was worse than what is suggested above. The use of a more realistic consumer price index to deflate the growth of urban income over the period, results in a distinct rise in the proportion of urban population in poverty (shown by comparing Table 13 with Table 10).

Table 10. Indices of urban poverty (unadjusted standard poverty threshold)

	Head count		Proportionate poverty gap		Weighted poverty gap	
	1988	1995	1988	1995	1988	1995
All China	8.2	8.0	1.4	2.0	0.4	0.8
Shanxi	24.1	20.7	4.5	5.3	1.3	2.1
Henan	16.0	21.1	2.3	5.8	0.6	2.3
Anhui	13.8	6.9	2.3	1.3	0.6	0.4
Yunnan	7.9	6.1	1.3	0.9	0.4	0.3
Hubei	3.7	5.3	0.4	1.3	0.1	0.8
Sichuan	-	7.3	-	1.8	-	0.7
Liaoning	1.8	5.7	0.2	1.1	0.0	0.3
Gansu	6.3	12.9	1.5	3.4	0.7	1.2
Jiangsu	2.6	1.8	0.4	0.5	0.2	0.2
Beijing	0.0	0.6	0.0	0.1	0.0	0.0
Guangdong	0.6	0.9	0.1	0.2	0.0	0.0

Table 11. Indices of urban extreme poverty (unadjusted extreme poverty threshold)

	Head count		Proportionate poverty gap		Weighted poverty gap	
	1988	1995	1988	1995	1988	1995
All China	2.7	4.1	0.4	0.9	0.1	0.4
Shanxi	9.1	11.5	1.5	2.8	0.4	1.0
Henan	4.7	12.7	0.6	3.0	0.1	1.1
Anhui	4.6	2.8	0.7	0.4	0.2	0.1
Yunnan	2.4	1.6	0.5	0.3	0.1	0.1
Hubei	0.8	1.7	0.1	0.8	0.0	0.6
Sichuan	-	3.6	-	0.9	-	0.4
Liaoning	0.5	2.5	0.0	0.3	0.0	0.1
Gansu	2.8	7.6	0.8	1.6	0.4	0.5
Jiangsu	0.6	1.2	0.1	0.3	0.1	0.2
Beijing	0.0	0.0	0.0	0.0	0.0	0.0
Guangdong	0.2	0.3	0.0	0.1	0.0	0.0

Note: See note to Table 6 for explanation.

Furthermore, our survey drew its sample from the registered households, thereby ignoring the "floating migrants". Their number has increased over time. A 1995 survey estimated their number to have grown to 72 million or about 20 per cent of urban population. While nothing precise is known about their living standard, it is virtually certain that the incidence of poverty among them is greater than among the registered urban residents, although their average living standard must have improved as compared to what it was when they resided in rural China, or what it would have been if they had remained in rural China. Had these migrants been included in the estimates, the increase in the incidence of urban poverty would have been substantially higher.

Another important aspect of the trend in urban poverty is that the average income shortfall of the urban poor increased sharply, resulting in a significant rise in the proportionate poverty gap index. Furthermore, the distributionally weighted poverty gap also increased rather sharply, indicating a worsening of distribution of income among the urban poor.

As in the case of rural China, the change in the incidence of urban poverty was not uniform everywhere. In Anhui urban poverty declined rapidly. As in the case of the trend in rural poverty, Anhui is the outlier, with a rate of growth in urban income that was significantly lower than average and a rate of reduction in poverty which was substantially higher than average. Jiangsu, a coastal province, achieved a higher than average growth in per capita urban income. The poverty outcome that it experienced is however mixed: it registered a decline in the head count index of standard poverty but a rise in the proportionate poverty gap index. In Shanxi and Yunnan the proportion of urban population in poverty declined moderately. These provinces also achieved less than average growth in per capita urban income. In six provinces - Gansu, Hubei, Henan, Liaoning, Beijing and Guangdong - there was an increase in the proportion of urban population in poverty. The result is not unexpected for Gansu, Hubei and Henan, which are all poor provinces with less than average growth in urban income during the period under review. For Liaoning, Beijing and Guangdong, the outcome is unusual in view of their high income and a higher than average growth in income during the period. We have no direct information about the trend in urban poverty in the remaining province of Sichuan.

With the exception of Anhui and Yunnan, the proportionate poverty gap increased everywhere. With the exception of these two provinces, the weighted poverty gap also increased or remained undiminished everywhere.

Extreme urban poverty based on unadjusted CPI. Once a lower poverty threshold - 80 per cent of the standard poverty threshold - is used, the *levels* of the estimated indices of poverty become substantially lower. But the rising trend becomes more accentuated: the head count index for urban China as a whole registers an increase of more than 50 per cent while the proportionate poverty gap more than doubles and the weighted poverty gap increases even faster. Poverty of the more extreme kind increased much faster in urban China than did the more moderate kind of poverty. Anhui and Yunnan are the only provinces which experienced a reduction in poverty which increased in every other province for which estimates are available.

Urban ultra poverty based on unadjusted CPI. Once an even lower poverty threshold - 70 per cent of the standard threshold - is used, the *levels* of urban poverty diminish to very low rates. The rising trend in poverty however becomes explosively rapid. The head count index more than doubles while the proportionate poverty gap and weighted poverty gap treble!

Table 12. Indices of urban ultra poverty (unadjusted ultra poverty threshold)

	Head count		Proportionate poverty gap		Weighted poverty gap	
	1988	1995	1988	1995	1988	1995
All China	1.3	2.7	0.2	0.6	0.1	0.3
Shanxi	4.9	7.9	0.7	1.8	0.2	0.7
Henan	1.7	9.0	0.2	1.9	0.0	0.7
Anhui	2.1	1.7	0.3	0.2	0.1	0.1
Yunnan	1.6	0.9	0.3	0.2	0.1	0.1
Hubei	0.2	1.6	0.0	0.7	0.0	0.6
Sichuan	-	2.1	-	0.6	-	0.3
Liaoning	0.0	1.2	0.0	0.1	0.0	0.0
Gansu	1.7	4.4	0.6	0.9	0.4	0.3
Jiangsu	0.1	0.8	0.1	0.2	0.1	0.1
Beijing	0.0	0.0	0.0	0.0	0.0	0.0
Guangdong	0.2	0.3	0.0	0.0	0.0	0.0

Table 13. Indices of urban poverty based on adjusted CPI, 1988
(poverty thresholds based on adjusted CPI)

	Standard poverty			Extreme poverty			Urban poverty		
	HC	PPG	WPG	HC	PPG	WPG	HC	PPG	WPG
All China	6.7	1.1	0.3	2.2	0.4	0.1	1.1	0.2	0.1
Shanxi	20.9	3.8	1.1	8.0	1.3	0.3	4.3	0.6	0.1
Henan	12.6	1.8	0.4	3.7	0.4	0.1	1.4	0.2	0.0
Anhui	11.9	1.9	0.5	3.7	0.5	0.2	1.8	0.2	0.1
Yunnan	6.1	1.1	0.3	2.1	0.4	0.1	1.1	0.2	0.1
Hubei	2.4	0.3	0.1	0.7	0.0	0.0	0.1	0.0	0.0
Liaoning	1.3	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Gansu	5.2	1.3	0.6	2.4	0.7	0.4	1.5	0.5	0.4
Jiangsu	2.0	0.3	0.1	0.5	0.1	0.1	0.1	0.1	0.1
Beijing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guangdong	0.6	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0

Note: HC = Head Count Index; PPG = Proportionate Poverty Gap Index; WPG = Weighted Poverty Gap Index. See note to Table 6 for further explanation.

Urban poverty estimates based on adjusted CPI. Once we use the more realistic estimates of urban CPI to deflate poverty thresholds, an even more dismal trend in urban poverty emerges. This is found by comparing the estimates for 1988 in Table 13 with the corresponding estimates for 1995 shown in Tables 10, 11 and 12. The head count index of standard poverty increases by almost a fifth and the proportionate standard poverty gap increases by more than four fifths. The weighted poverty gap more than doubles. The corresponding indices of extreme poverty and ultra poverty increase at much faster rates.

A Summary of Poverty Trends

There was some reduction in the incidence of rural poverty; but the rate of reduction in rural poverty was far less than what would have been the case if the unfavourable change in the distribution of rural income could be avoided. Also the magnitude of reduction in rural poverty looks much less impressive once the official CPI is replaced by a more realistic, though probably still a conservative, CPI. A redeeming feature of the otherwise modest reduction in rural poverty is that the rate of poverty reduction has been higher for more severe kind of poverty as measured both by progressively lower poverty thresholds and by indices that go beyond mere head count and account for the average and the distributionally weighted poverty gaps. This indicates that, while the distribution of overall rural income worsened, the distribution of income among the poor, especially the population in severe poverty, improved somewhat. Rural poverty increased in many provinces, including the populous provinces in the heartland of China.

There has been an increase in the incidence of urban poverty. The rate of increase was more rapid for more extreme kind of poverty. Indicators for all kinds of poverty show strongly upward trend once more reasonable CPIs are used to deflate poverty thresholds. The rising trend in urban poverty is nearly universal among the provinces for which we have estimates.

How Do these Results Compare with Alternative Estimates?

Except for some estimates made by Chinese scholars and officials - mostly unpublished at the time of writing - there are no estimates of poverty known to the present author for the exact period covered by this study. And yet it is clear that the results of this study are significantly different from the official estimates and the estimates made by independent researchers on the basis of official data. Official estimates of rural poverty claim a faster reduction in poverty than our estimates do while unofficial estimates based on official data (e.g., those in Khan, 1996) suggest a slower reduction between the mid 1980s and 1994.²⁹ As noted earlier, a World Bank study covering the period up to 1990 finds no trend in the head count index of rural poverty after 1984. Estimates of urban poverty based on official data suggest a significant reduction in poverty between the late 1980s and the mid 1990s (for example, Khan, 1996 shows a reduction of more than 20 per cent between 1989 and 1994, estimates for 1988 and 1995 not being available).

Studies made by Chinese scholars - presumably based on official data - often arrive at substantially different results. An example of this is the unpublished study of rural poverty by Xian Zude and Sheng Laiyun, the only study known to the author that covers the years 1988 and 1995.³⁰ According to their estimates, the head count index of rural poverty declined by nearly a half between 1988 and 1995. A Chinese study of urban poverty for the 1990s, by Ren Caifang and Chen Xiaojie, shows no clear trend.³¹

The above two studies by Chinese scholars indicate trends in poverty that are different from the studies made by foreign scholars based on official Chinese data. The reason for the discrepancy is easy to ascertain: it is due entirely to the use by the Chinese scholars of poverty thresholds that can not be justified as income with unchanged purchasing power over time. The rural poverty study by Xian and Sheng uses a poverty threshold of 341 yuan for 1988 and 502 yuan for 1995, implying a 47 per cent increase in CPI for the poor. As we have seen, even the understated official CPI for rural China shows an increase of more than 120 per cent over the same period.³² The study of urban poverty by Ren and Chen uses an implicit CPI that is way higher than the actual increase in CPI.³³ It is therefore not surprising that the Xian-Sheng study shows a much faster reduction in rural poverty and the Ren-Chen study shows a much slower reduction in urban poverty than the other studies *based on official data*.

The point however is that the trends based on the official data are (or would be) also substantially different from the trends established by the present study. As discussed in section I, this is because of the biased income accounting underlying the official household surveys in China.

IV. AN ANALYSIS OF HOUSEHOLD CHARACTERISTICS OF THE POOR

This section looks at the characteristics of the households whose members belong to poverty groups in 1995. To the extent that the effect of public policy on these characteristics can be ascertained, this information can be useful in designing a strategy for poverty reduction. It should however be understood that *changes* in the incidence of poverty depend on many factors other than household characteristics, e.g., the host of circumstances and policies that affect the growth and distribution of personal income.

Locational Characteristics of the Poor

Most of China's poor live in rural areas. Since poverty thresholds in rural and urban China can not be claimed to represent comparable living standards, it is somewhat problematic to aggregate our estimates of rural and urban poor. As we have shown in section II, the urban poverty threshold almost certainly represents a higher living standard than the rural poverty threshold. Even so, almost 90 per cent of China's poor were residents of rural areas in 1995.³⁴ Had we used poverty thresholds representing comparable absolute living standards, the rural poor would have constituted an even higher proportion of China's poor. Not only are the poor a higher proportion of population in rural China than in urban China. The average shortfall of income of the poor, as a proportion of poverty threshold, is greater in rural China than in urban China. The reason for the higher incidence of poverty in rural China than in urban China is the extremely high urban/rural income disparity, much higher than in a typical LDC.

It should however be noted that the rural poor, as a proportion of all poor, has declined somewhat between 1988 and 1995. In 1988 rural poor represented nearly 93 per cent of all poor in China.³⁵ The decline in rural sector's share of China's poor was due to: (a) a decline in rural sector's share of total population (from 74.2 per cent in 1988 to 71.0 per cent in 1995); and (b) a fall in the proportion of rural population in poverty while the proportion of urban population in poverty remained unchanged (rose if the adjusted poverty threshold is used and for extreme and ultra poverty).

Poverty in China is not a phenomenon limited to remote areas, banished from the heartland. Except for a handful of coastal provinces, rural poverty is widely prevalent in most provinces for which we have information. Worse still, its incidence has been rising in China's heartland represented

by contiguous provinces of Sichuan, Hunan, Guizhou, Hubei and Jiangxi. Contrary to widely held belief, China's urban poverty is not a marginal phenomenon either. Again excepting some rich coastal provinces, its incidence is widespread. There has also been an alarming increase in the incidence of urban poverty in many parts of China. Tables 6, 7, 8, 10, 11 and 12 provide more detailed information about the distribution of China's poor among the provinces and between rural and urban areas.

Other Characteristics

Tables 14 and 15 summarize information about the difference among the ultra poor, extreme poor, poor and the non-poor in rural and urban China with respect to their *average* resource endowments and other characteristics. An analysis of these differences provides insights about the circumstances that are associated with poverty and serves as a useful basis for recommending actions for poverty reduction.

Labour endowment. Poorer households have lower labour endowment per member than the non-poor households. The difference between the poor and the non poor is 10 per cent for all labour and 12 per cent for male labour in rural China, with the non poor as the base. For urban China the difference is 10 per cent for all labour and 11 per cent for male labour. For rural China these differences are greater between the ultra poor and extreme poor on the one hand and the non poor on the other hand. For urban China these differences are far less pronounced among households in different intensities of poverty.

Human capital. Poorer households have lower human capital endowment. This means that per capita endowment of the poor is lower than for the non poor in higher levels of education while per capita endowment of the poor is higher than for the non poor in lower levels of education. The cut-off level of education varies between rural and urban China; it is higher for urban China where each group is better endowed with human capital than the corresponding rural group.

In rural China the poor have lower endowment of education at lower middle school level and above than the non poor. One very odd finding however is that the poor have more college and higher educated members per capita than the non poor. Another odd finding is that the level of professional school and vocational training is inversely related to poverty groups of different severity, the ultra poor having a higher endowment of professional school training than the non poor. While all poor categories systematically lag behind the non poor in terms of all levels of education, lower middle school and above, with the above exceptions, there is a lack of systematic variation among different poverty groups in terms of educational endowment. The proportion of illiterates is nearly half as much more for the poor than for the non-poor. On the average the rural poor have a year less of formal education than the non-poor.

In urban China the cut-off level at which the poor begin to lag behind the non-poor is upper middle school. On the whole the difference between the poor and the non-poor in human capital endowment is more striking in urban China than in rural China.

In rural China the human capital endowments of the ultra poor, extreme poor and the poor are by and large similar. In urban China the ultra poor and the extreme poor have a distinctly inferior human capital endowment than the poor.³⁶

Table 14. Characteristics of the rural poor and non-poor

	Ultra poor	Extreme poor	Poor	Non-poor
Labour endowment (per cent of members)				
Male between 15 and 60	31.51	31.82	32.27	36.67
Members between 15 and 60	63.68	64.30	64.91	72.04
Educational endowment (per cent of members)				
College educated	0.28	0.28	0.27	0.18
Professional school	0.52	0.43	0.39	0.50
Middle prof./tech./vocational school	0.81	0.78	0.77	1.61
Upper middle school	5.10	5.14	5.08	7.72
Lower middle school	24.99	25.63	26.77	34.87
4 or more years elementary school	26.12	26.48	27.26	26.39
1-3 years elementary school	15.15	15.05	14.66	12.00
Illiterate or semi-literate	20.72	19.89	19.35	13.38
Average years of education per member	4.07	4.16	4.30	5.29
Occupational category (per cent of labour force)				
Farm labour	86.36	86.50	86.22	70.48
Ordinary worker	1.17	1.48	1.67	7.50
Skilled worker	0.34	0.37	0.32	1.45
Profession/technical worker	0.15	0.24	0.22	0.67
Owner/manager of enterprise	0.04	0.03	0.03	0.22
Village cadre	0.38	0.50	0.60	2.00
Party, govt. or institution off.	0.23	0.24	0.19	1.20
Ordinary cadre in enterprise	0.04	0.05	0.06	0.35
Temporary/short-term contract worker	3.98	3.61	3.26	4.22
Worker in non-farm individual enterprise	0.80	0.74	1.10	3.55

	Ultra poor	Extreme poor	Poor	Non-poor
Sector of primary employment (per cent of labour force)				
Agriculture, forestry, fishery	86.70	86.95	86.84	72.16
Industry, mining	2.92	2.90	2.99	9.71
Construction	1.74	1.79	1.88	3.20
Transport & communications	0.23	0.32	0.43	1.50
Services	2.05	2.17	2.57	6.01
Communist party members (per cent of all members)	1.90	2.12	2.32	4.51
Ethnic minority (per cent of all members)	15.69	14.73	13.23	5.48
Land per person (unirrigated mu equivalent)	1.96	1.94	1.97	2.38
Productive assets per cap. (Yuan)	424.79	447.41	457.69	687.72
Financial assets per cap. (Yuan)	381.78	405.28	439.41	1 355.37
Housing asset per cap. (Yuan)	1 400.65	1 470.69	1 642.48	4 111.15
Per capita debt (Yuan)	100.92	95.20	95.60	157.78
Sources of income (per cent of total income)				
Wages, pensions, etc.	4.32	4.84	4.87	24.35
Receipt from TVE, etc.	2.23	2.80	3.12	6.39
Net income from farming	64.92	65.90	67.12	44.12
Net income from non-farm activities	9.06	8.01	8.11	9.89
Income from property	0.30	0.23	0.22	0.46
Rental value of owned housing	18.86	17.28	15.89	11.12
Net transfer from state & collectives	-4.66	-3.86	-3.56	-0.13
Other income (private transfer, etc.)	4.98	4.80	4.24	3.80
Note: Extreme poor are a sub category of poor and hence are included among them. Ultra poor are a sub category of extreme poor and poor and hence are included among them.				

Table 15. Characteristics of the urban poor and non-poor

	Ultra poor	Extreme poor	Poor	Non-poor
Labour endowment (per cent of members)				
Male between 15 and 60	32.02	31.18	32.14	36.25
Members between 15 and 60	67.12	66.10	66.76	73.90
Educational endowment (per cent of members)				
College educated	0.17	0.91	1.26	6.37
Professional school	2.74	3.85	4.08	10.55
Middle prof./tech./vocational school	4.45	5.67	7.41	13.09
Upper middle school	17.98	17.69	18.31	19.62
Lower middle school	34.76	32.77	32.03	27.79
Elementary school	22.77	22.56	21.35	14.55
Below elementary school	17.12	16.55	15.56	8.02
Occupational category (per cent of labour force)				
Owner of private individual enterprise	7.05	6.51	5.01	1.11
Owner/manager of private enterprise	0.0	0.22	0.10	0.19
Profession/technical worker	4.70	6.07	7.09	21.33
Head of institution	0.67	1.08	1.98	4.16
Division head of institution	3.36	3.25	3.55	8.09
Office worker	16.44	17.57	19.92	19.18
Skilled worker	19.80	19.96	20.75	20.80
Unskilled worker	31.88	29.28	28.47	16.25
Sector of primary employment (per cent of labour force)				
Agriculture	0.00	0.22	1.15	1.56
Industry, mining	42.62	41.21	39.93	38.92
Construction	3.69	3.47	3.23	2.69
Transport & communications	3.36	4.12	4.28	4.47
Govt. & party	8.72	8.24	10.74	10.38
Services	35.92	35.59	33.48	31.36

	Ultra poor	Extreme poor	Poor	Non-poor
Communist party members (per cent of all members)	7.19	7.14	8.73	19.22
Ethnic minority (per cent of all members)	5.99	7.37	6.49	4.28
Per capita assets and liabilities (Yuan)				
Productive fixed assets	7.36	67.35	89.85	154.08
Financial assets	798.99	927.54	1 080.46	3 979.98
Housing assets	2 125.33	2 408.80	2 784.62	5 366.65
Other assets	126.27	157.41	202.80	583.35
Debt	215.17	225.37	210.59	263.36
Sources of income (per cent of total income)				
Cash wages	69.26	69.55	73.69	60.99
Income of retirees	10.30	11.36	8.94	11.76
Receipt from enterprises	6.44	4.75	3.00	0.47
Income from property	0.27	0.34	0.54	1.28
Housing subsidy in kind	4.42	4.24	3.84	9.89
Other net subsidies	0.96	1.19	1.25	1.25
Rental value of owned housing	5.08	5.47	6.09	11.53
Other income	3.28	3.09	2.65	2.84
Note: Extreme poor are a sub category of poor and hence are included among them. Ultra poor are a sub category of extreme poor and poor and hence are included among them.				

Occupational category. There are differences in the composition of occupational categories of the poor and the non-poor groups. In rural China the poor are more concentrated in farm labour while the non-poor are *relatively* more concentrated in every other category of employment, especially non-farm work and skilled labour. The occupational patterns of the ultra poor, extreme poor and the poor are however broadly similar.

In urban China the main differences in occupational categories of the two groups are as follows: (a) a much higher proportion of the poor than of the non-poor are unskilled workers; (b) a much higher proportion of the non-poor than of the poor are professional and technical workers; and (c) a much higher proportion of the poor than of the non-poor are owners of private and individual enterprises. In each case the difference between the (ultra) extreme poor and the non-poor is greater than the difference between the poor and the non-poor. The last of the differences noted above is

almost certainly explained by the predominance of rudimentary self-employment categories in individual enterprises. Also this finding is not robust in view of the relatively small number of observations in the category. It is also somewhat surprising that the proportions of the poor and the non-poor are similar for "office work" and "skilled work". Whether this simply is due to rather broad definitions of "skill" and "office work" or whether this indicates that reward for labour in China still does not make sufficient differentiation among skill levels is something that is impossible to ascertain.

Sector of employment. In rural China the poor (and the ultra and extreme poor) are much more concentrated in agriculture and related sectors while the non poor have a much greater relative concentration in industry, construction and mining. In urban China, the poor and the non-poor have far greater similarity of sectoral composition of employment. Even the ultra poor and the extreme poor have sectoral compositions of employment that are different from that of the non-poor in only minor ways.

Resource endowment. In rural China poor households have smaller per capita endowment of land than the non-poor households; the latter have about a fifth more of land per person.³⁷ The difference among the ultra poor, the extreme poor and the poor is negligible in this regard. Non-poor households have 50 per cent more productive assets per capita than poor households in rural China and 71 per cent more in urban China. The difference is far greater in the case of financial assets: respectively 208 per cent and 268 per cent for rural and urban China. Non-poor households also have far more housing asset than poor households: 150 per cent more in rural China and 93 per cent more in urban China.

Per capita productive assets for rural households, both poor and non-poor, are greater than for the corresponding urban groups while the latter have far greater amounts of all other kinds of assets. The ultra poor and the extreme poor have a lower endowment of each type of asset than the poor and this difference is greater in urban China than in rural China for each kind of asset.

The non-poor also have more debt per capita in both rural and urban China. The difference among different categories of poor is much less than the difference between the poor and the non poor in terms of per capita debt. These results are very difficult to interpret. It is likely for the poor to have a higher amount of "distress" debt while it is also likely that the non poor have greater access to, and need for, credit for productive purposes. The interaction of these divergent forces that resulted in the particular outcome in China is impossible to fathom without a great deal of additional information.

Sources of income. For rural China access to wage employment seems to be a key element in escaping poverty: each category of poor households derives less than five per cent of their income from wages which account for almost a quarter of the income of non-poor households. Both supply and demand factors may be in operation here. Poor households have lower endowment of both labour and human capital. Together these factors limit their access to wage employment. Also the incidence of rural poverty may be greater in locations with low opportunities for wage employment.

Poor rural households have a much greater dependence on farming as a source of income. This finding is quite consistent with the findings reported above about the occupational and sectoral employment characteristics of the poor. Property income as a proportion of total income for the poor rural households is half of what it is for the non-poor rural households; but this source contributes a small proportion of income for the latter as well. Although the poor have per capita housing assets that are only two-fifths of the housing assets of the non poor, rental value of owned housing as a proportion of income is higher for the poor than for the non poor. The difference between the extreme poor and the non poor is greater on all these counts.

A truly surprising finding is that the rate of net taxes (negative net transfer from the state and the collectives) is 27 (30) times higher for the poor (extreme poor) than for the non poor in rural China. Thus public finance and the system of transfers very strongly discriminate against the rural poor in China. The discrimination is progressively stronger against the extreme poor and the ultra poor.

Unlike their rural counterparts, the urban poor in China derive a significantly higher proportion of their income from wages than do the urban non poor. The ultra poor and the extreme poor, on the other hand, derive a lower share of income from wages than the moderate poor. Unlike rural China, net subsidies to households from the state and the collectives is positive and substantial, though much lower in 1995 than in 1988. Their distribution is however highly regressive and discriminatory against the poor of all categories. Net subsidies as a proportion of income is more than twice as much for the non-poor households as for the poor households of all categories. Poor urban households derive a much smaller proportion of income from property which is a small source of income on the average for urban households as a whole. Rental value of owned housing, as a proportion of income, is almost (more than) twice as high for the non-poor urban households than for the poor (ultra and extreme poor). This almost certainly indicates that the poor households have a much lower proportion of home ownership than the non-poor households.

Other differences. Poor households have fewer members of the Communist Party per capita than non-poor households. This difference is greater between the ultra poor and the extreme poor on the one hand and the non-poor on the other than between the poor and the non-poor both in rural and urban China. Poor households also have more ethnic minorities per capita than the non-poor households.

A Logit Model of Probability of Being Poor

To get a clearer picture of how the variables discussed above contributed to the probability of being poor, a Logit model was estimated to explain the probability of a rural household being in *extreme poverty* and a similar model was estimated to explain the probability of an urban household being in *poverty* in 1995.³⁸ The explanatory variables consisted of all the variables in Tables 14 and 15 and regional dummies (one for each province except Anhui so that the incremental probability of a dummy can be interpreted as the change in probability of being poor if the location of a household changes from Anhui to the province concerned).

Table 16 only shows the variables for which the estimated parameters are significant at least 5 per cent level. On the whole, household level characteristics exert a stronger influence on being poor or not in urban China than in rural China. Marginal probabilities - showing estimated changes in probability of being poor due to a unit change in the explanatory variables - are exceedingly low for rural China. Labour endowment, gender composition of labour force, occupational categories, sectors of employment, Communist Party membership and ethnicity do not significantly contribute to the poverty status of a household in rural China. While there are differences between the poor and the non poor with respect to these characteristics, these differences are too small to make a significant difference in the probability of falling into poverty.

All the educational variables up to upper middle school have significant coefficients for rural China; but one must be careful in interpreting this result. The three highest levels of education have no significant effect on the probability of being poor. Illiteracy is about as significant as any of the other educational levels and has the same negative sign. It is possible that educational levels are merely capturing the effect of labour endowment.

Table 16. Coefficients of maximum likelihood logit equation for the probability of being in poverty
(only the variables with coefficients significant at 5% level shown)

Variable	Parameter estimate	Standard error	Marginal probability
<i>Rural China: Extreme poor</i>			
Proportion of labour with education at:			
Upper middle school	-1.637	0.635	-1.05 (E-05)
Lower middle school	-1.750	0.492	-1.18 (E-05)
4 year elementary school	-1.564	0.457	-9.64 (E-06)
1 - 3 year elementary school	-1.253	0.479	-6.40 (E-06)
Illiterate	-1.460	0.468	-8.49 (E-06)
Per capita land (mu)	-0.116	0.041	-2.60 (E-07)
Per capita asset/debt (Yuan):			
Housing asset	-0.005	-	-
Debt	0.001	-	-
Proportion of income from:			
Wages	-1.994	0.698	-8.02 (E-07)
Receipts from enterprises	-1.854	0.727	-6.94 (E-07)
Non-farm income	-1.411	0.640	-4.003 (E-07)
Rental value of house	57.572	2.185	0.0009
Locational dummy:			
Shanxi	1.178	0.366	3.54 (E-09)
Shaanxi	0.787	0.333	1.58 (E-09)
Gansu	1.008	0.333	2.59 (E-09)
<i>Urban China: Standard Poor</i>			
Per cent between age 15-60	-0.614	0.289	-0.0011
Per cent employed	-0.501	0.157	-0.0010
Per cent CP members	-1.295	0.352	-0.0043
Proportion of labour with education at:			
College	-4.753	0.834	-0.0367
Professional school	-4.127	0.612	-0.0298
Vocational school	-3.042	0.507	-0.0186
Upper middle school	-2.426	0.414	-0.0129
Lower middle school	-1.928	0.370	-0.0087
Elementary school	-0.932	0.338	-0.0023

Variable	Parameter estimate	Standard error	Marginal probability
Proportion of labour force with occupation:			
Private enterprises	1.391	0.485	0.0116
Professional/technical	-0.835	0.272	-0.0026
Skilled	-0.615	0.184	-0.0015
Per capita assets (Th. Yuan):			
Financial	-0.360	0.040	-1.26 (E-06)
Housing	-0.050	0.012	-2.00 (E-08)
Other	-0.420	0.119	-1.71 (E-06)
Housing subsidy as % of income	-4.082	0.809	-0.0016
Locational dummies:			
Shanxi	1.796	0.232	4.52 (E-06)
Liaoning	0.869	0.269	1.06 (E-06)
Henan	1.763	0.233	4.36 (E-06)
Guangdong	-1.054	0.507	-1.56 (E-06)
Gansu	0.785	0.273	8.65
Note: Marginal probability shows the estimated change in probability of being poor due to a unit change in the explanatory variable. Thus, for example, the addition of college level education for one more member in urban China will reduce the probability of being poor by 3.67 per cent. The figures within parentheses in the last column show the numbers by which the coefficient preceding it must be multiplied to arrive at the estimated marginal probability (for example, E-05 means a multiplier equal to 10 raised to the power minus 5). - means that the value of the figure is too small by the standard of the smallest of the coefficients reported in the category.			

Per capita land endowment has a highly significant, though quantitatively very small, negative effect on the probability of being poor. The effect of housing asset is the same although the effect of rental value of housing as a proportion of income is quite the opposite. This is quite consistent with the finding reported earlier that the poor have lower housing assets but higher income share from rental value of housing, as compared to the non poor. The poor are simply even more poor with respect to the other sources of income.

There are three sources of income that have a significantly negative effect on the probability of being poor in rural China: income from wages; non-wage receipts from enterprises; and income from non-farm activities. Higher debt on balance increases the probability of being poor in rural China although the effect, like that of most explanatory variables, is tiny.

Relative to being located in Anhui, the location in only three provinces - Shanxi, Shaanxi and Gansu - significantly affects the probability of being poor. All these effects are negative. These three provinces are among the poorest in terms of per capita rural income. It is worth reminding that Anhui has well below the national average incidence of poverty. It achieved a sharp reduction in poverty between 1988 and 1995 due to a very modest rise in inequality despite a rather low rate of growth. It

is interesting to note that location in the other 15 provinces, relative to that in Anhui, does not significantly increase the probability of being poor.

The Logit model sheds better light on the probability of being poor in urban China. The marginal probabilities associated with the variables with significant coefficients are far greater for urban China than for rural China. Higher labour endowment reduces the probability of being poor. Human capital endowment has the same effect. The marginal probability of getting out of poverty is systematically higher for higher levels of educational endowment. Higher skills, especially of professional/technical variety, significantly reduces the probability of being poor. Asset endowment, except the endowment of productive assets, has the same effect.

While the above findings have positive implications for public policy, the effects of certain special variables have very different implications. Thus Communist Party membership significantly reduces the probability of being poor in urban China. This does not suggest that the expansion of Communist Party membership should be considered as an effective policy for poverty reduction; rather the bureaucratic privileges of party members should be reduced to make the playing field more even. A higher proportion of income derived from housing subsidies significantly reduces the probability of being poor. Once again, the policy implication is not to expand housing subsidies; but to reduce it, thereby reducing the privileged access of the non poor to this subsidy. Another peculiar result, foreshadowed by earlier discussion, is that a higher proportion of labour force engaged in private entrepreneurial activities significantly increases the probability of being poor. The adverse effect of productive asset endowment on the probability of being poor in urban China is related to this phenomenon. As noted earlier, the number of observations in the category is too small to make this result robust. Even if this result were reliable, it would not indicate that a reduction of opportunity for private entrepreneurship would help reduce poverty. Instead, it would indicate the need to end the possible bimodal growth of this sector by improving the access of the small entrepreneurs to resources.

Location, relative to that in Anhui, has a significant effect on the probability of being poor in urban China. Being located in Shanxi, Henan, Gansu and Liaoning significantly increases the probability of being poor while being located in Guangdong, the province in the sample with the highest per capita urban personal income, significantly reduces the probability of being poor. While Shanxi and Henan have lowest per capita urban personal incomes in the sample, and Gansu is one of the poorest provinces overall, Liaoning is one of the high income coastal provinces.

A Summary of the Main Policy Implications of Household Characteristics

One can summarize the principal policy implications of the analysis of household characteristics of the poor for poverty reduction. In rural China it is important to improve access to land, wage employment and non-farm activities. Improved access to human capital will need to be backed by additional measures - e.g., greater access to wage employment and a better system of incentives tying earnings more closely to educational endowment - to be effective in reducing poverty.

In urban China, improved labour endowment and, most critically, greater access to human capital and skills are important. Access to assets also helps. A reduction of bureaucratic privileges, an end to unequal access to subsidies and an improvement of access to resources on the part of small private enterprise are some of the other important elements of a poverty reduction policy package.

The disadvantage of being located in very poor provinces - and in poor locations within provinces - needs to be offset in both rural and urban China.

V. EXPLAINING THE DECLINE IN THE RATE OF POVERTY REDUCTION IN THE PERIOD OF GLOBALIZATION

The growth in per capita GDP that China experienced during the period under review - 8.1 per cent per year or 72 per cent compounded over seven years according to official estimates - is unprecedented. This should have contributed to broad poverty reduction in China. Instead we find a remarkably unflattering poverty trend. The head-count index of overall rural poverty declined by less than a fifth, probably by only an eighth. While overall rural poverty declined, there was an increase in rural poverty over the vast heartland of central China as well as in more remote and resource-poor regions. Overall urban poverty increased. Even among the rich coastal provinces there are examples of increasing incidence of poverty.

The Lag Between Growth in GDP and Growth in Personal Income

One of the reasons why poverty has persisted, in spite of rapid overall growth, is that GDP elasticity of personal income was relatively low, i.e., the growth in personal income - the variable in terms of which poverty thresholds are measured - was much slower than the growth in GDP, at most 4.71 per cent per year for rural China and 4.48 per cent per year for urban China.³⁹ In the period of rapid decline in poverty, i.e., between 1978 and 1985, the growth in personal income was much faster. We do not have estimates of these growth rates according to our comprehensive definition; but according to the SSB definition per capita personal income increased at 13.1 per cent per year in rural China and over 5 per cent per year in urban China.

The large divergence between aggregate growth rate on the one hand, and the growth in personal income on the other, during the period 1988-95, is mainly due to macroeconomic policies concerning the distribution of incremental GDP among households, government and "corporate" sectors and between consumption and accumulation. Prominent among the instruments that were used to bring this about were policies concerning subsidies, taxes and the system of remuneration by the state and collective enterprises. In urban China, net subsidies and transfers from the collectives as a proportion of per capita income declined from 39 per cent in 1988 to only 11 per cent in 1995. The failure on the part of official data to take much of these subsidies into account leads to a serious overestimation of urban income growth by them. In rural China there was both a decline in the growth rate of agricultural output and, for about six years after 1988, a decline in agriculture's terms of trade. In 1994 agriculture's terms of trade improved sharply and retained its gain in the two following years.⁴⁰

It is quite possible that the relatively favourable trend in the incidence of rural poverty between 1988 and 1995 was substantially due to the belated improvement in agriculture's terms of trade beginning in 1994.

Clearly the main reason behind these macroeconomic policies, driving a wedge between the rates of growth in GDP and personal income, was the preoccupation of the policy makers with the achievement of an ever higher rate of saving. Financing of improved terms of trade for agriculture in the early years of reform, with subsidies and transfers remaining unchanged, had led to a precipitous decline in the rate of domestic saving (Table 17). This must have led the Chinese policy makers, pursuing a strategy of high growth through a high rate of investment, to bring about changes in macroeconomic policies that were responsible for reduced savings. By 1985 the saving rate had caught up with the rate prevailing in the immediate pre-reform year. But the relentless drive for ever higher accumulation continued: between 1988 and 1995 the domestic saving rate increased from an already high 37.5 per cent to a staggering 42 per cent of GDP.⁴¹

Table 17. Domestic saving rate

1978	34.1	1986	36.3
1979	31.7	1987	38.0
1980	30.0	1988	37.5
1981	27.9	1989	36.5
1982	31.6	1990	37.3
1983	31.3	1991	37.0
1984	32.0	1992	37.0
1985	34.7	1993	40.2
		1995	42.0

Source: World Bank, 1995 and 1997.

One could argue that it was perhaps less urgent for China to push for a further rise in its already high rate of saving and instead to concentrate on a more efficient use of its investment and other resources. Had China followed such a strategy, the growth in personal income would have been higher with a greater reduction in the incidence of poverty.

Increasing Inequality in Income Distribution

The large lag in the growth in personal income, behind the growth in GDP, at most explains a part of the unsatisfactory performance in poverty reduction. A much larger part of it was due to an increase in the inequality of personal income distribution. Had the distribution of personal income in rural and urban China in 1995 remained exactly the same as in 1988, the head-count index of rural poverty would have declined by half and the head-count index of urban poverty would have been virtually eliminated.

The rise in inequality has taken many forms. Increased inequality among provinces and regions is one aspect of it. Poorer provinces by and large grew at a slower rate than the richer provinces. Inequality within provinces also rose. The change in the incidence of poverty is determined by the growth in per capita personal income and the change in the distribution of personal income. The latter should in this case be measured by the relevant change in Lorenz distribution affecting the poor, rather than by the change in summary inequality measures, e.g., the Gini ratio.⁴² But it is reasonable to hope that changes in Gini ratios would by and large capture the effect of redistribution on the poor so that a rise (fall) in the Gini ratio, other things remaining unchanged, would lead to an increase (fall) in the incidence of poverty. Tables 18 and 19 show growth rates in per capita incomes and changes in Gini ratios for rural and urban China and their provinces, along with changes in head-count poverty, between 1988 and 1995.

Table 18. Poverty, growth and inequality in rural China
(change between 1988 and 1995)

	Per cent change in head-count poverty index	Annual growth in per capita income	Per cent change in Gini ratio
All China	-18.6	4.71	23.1
Gansu	-1.0	1.25	36.5
Shaanxi	-3.2	3.65	37.7
Guizhou	6.0	0.72	3.1
Henan	-61.7	6.45	-8.0
Shanxi	-4.6	0.85	1.3
Yunnan	-3.6	1.26	4.2
Anhui	-44.4	3.79	9.2
Jilin	-55.9	7.26	-4.5
Sichuan	32.6	0.62	28.3
Jiangxi	5.1	1.68	24.8
Shandong	-31.8	7.89	51.6
Hubei	23.2	1.98	34.6
Hebei	-24.1	2.54	-0.4
Liaoning	-18.9	2.02	2.1
Hunan	186.3	-3.30	18.4
Jiangsu	-83.1	11.66	2.1
Guandong	8.3	7.11	27.5
Beijing	-85.1	9.33	-1.0
Zhejiang	-31.0	4.86	26.2

Note: Change in the head-count index of poverty refers to the estimates of standard poverty without any adjustment in the CPI. Income changes are estimated by deflating 1995 per capita income by the unadjusted CPIs and comparing them with 1988 estimates in Khan, et al., 1993. Per cent changes in Gini ratios are estimated by comparing the Gini ratios for 1995 from the survey with the 1988 Gini ratios reported in Khan et al., 1993.

For rural China as a whole the rate of growth in per capita income was quite high (though much less than the rate of growth of per capita GDP) and the rate of increase in inequality was moderate. The result was a modest reduction in the incidence of poverty, though by much less than what it would be in the absence of a change in income distribution.

For urban China as a whole income increased less rapidly than in rural China while the increase in inequality was far greater than in rural China. The result was a rise in poverty (though not in the most favourable of the indicators shown in Table 19 but in the indicators of extreme poverty and the indices based on a more realistic CPI shown in section III).

Changes in poverty in individual rural provinces are much better explained by income growth than changes in the Gini ratio (Table 18). Variation in income growth explains 60 per cent of the variation in the head-count index of poverty among provinces. Adding the change in Gini ratio as an additional explanatory variable increases the proportion of explained variation in changes in poverty to 63 per cent.⁴³

Even though high growth seems to be the decisive factor in achieving a reduction in poverty in rural China, the rise in the Gini ratio was modest in all the five provinces with rapidly declining poverty (negative in the case of Jilin). The province with the most rapid increase in poverty, Hunan, not only had a large fall in per capita income, but also a moderately high increase in the Gini ratio. The other provinces with relatively high rates of increase in poverty - Sichuan and Hubei - experienced moderately large increases in inequality in addition to low growth.

Variation in the rate of change in poverty among urban areas of China's provinces is explained much better by the change in the Gini ratio than by the growth rate of income (Table 19). Change in the Gini ratio explains 63 per cent of the variation in the rate of poverty reduction among urban provinces. Adding growth of income as an additional explanatory variable does not add to the explained variation at all.⁴⁴

Table 19. Poverty, growth and inequality in urban China
(change between 1988 and 1995)

	Per cent change in head-count poverty index	Annual growth in per capita income	Per cent change in Gini ratio
All China	-2.4	4.48	42.5
Shanxi	-14.1	2.51	23.7
Henan	32.5	2.37	46.4
Anhui	-50.0	3.41	17.9
Hubei	43.2	3.34	42.9
Yunnan	-22.8	2.81	18.6
Liaoning	216.7	4.94	106.2
Jiangsu	-30.8	5.53	45.7
Gansu	104.8	3.94	124.2
Beijing	Increase	7.84	41.9
Guandong	50.0	6.86	26.9

Note: Changes in head-count poverty are based on estimates of standard poverty without any adjustment for CPI. Any of the other alternative measurements would make the changes look more unfavourable and would show a rise in poverty for urban China as a whole. For Beijing the rate of change can not be calculated because the head-count index for 1988 was zero. For methods of estimating growth rates in income and changes in Gini ratio see note to Table 18.

Liaoning is an example of a province with an explosive increase in poverty in spite of a higher than average growth in per capita income; the explanation lies in the more than doubling of the Gini ratio. Poverty increased in Beijing and Guangdong in spite of very high growth due to moderately large increases in inequality. Anhui achieved a substantial reduction in poverty in spite of a significantly less than average rate of growth in income because it experienced a very modest increase in inequality, the lowest among the provinces.

Sources of Increased Inequality

To explain China's poor performance in poverty reduction in a period of unprecedented overall growth, we need to explain increases in three kinds of inequality: (1) the relatively slow growth in personal income due to an inadequate transmission of overall GDP growth to growth in incomes of households; (2) the unequal rates of growth among regions; and (3) the increased inequality within each region.⁴⁵ We have already discussed the first phenomenon. We shall now turn to an explanation of increasing inequality within regions and unequal growth among regions.

The Distribution of Land and the Composition of Sources of Income in Rural China

Many of the reforms and institutional changes in China have been disequalizing at the level of the distribution of household income. The replacement of collective agriculture by peasant farming was by far the most important institutional change in China in the reform period. Its disequalizing effect was however limited by numerous strict measures to ensure an egalitarian access to land. Over the years, researchers and policy makers have wondered whether the egalitarianism of the initial distribution of access to land has held or given way to increasing polarization. Our surveys have provided a reasonably conclusive, if surprising, answer to this question.

Table 20 shows the distribution of land and the contribution of land distribution to income inequality in China in 1988 and 1995. Between these two years the distribution of land has become more equal as is shown by the estimated Gini ratios. The concentration ratio, estimated in the same way as the Gini ratio from the Lorenz distribution of per capita land holding that *ranks individuals according to per capita income*, rather than per capita land holding, is a measure of the contribution of landholding to income distribution.⁴⁶ Even in 1988 land distribution had a strongly egalitarian effect on rural income distribution: its concentration ratio was a tiny proportion of the Gini ratio of income distribution. By 1995 the concentration ratio for unadjusted land had become zero - indicating that land was absolutely equally accessible to all income groups - while the concentration ratio of adjusted land had fallen further from the already low value in 1988. Contrary to the concern expressed by many, the evolution of land distribution in rural China since decollectivization has been one of the few positive aspects of income distribution in rural China.⁴⁷ The equality of access to land has been the main reason that income from farming is the most equalizing component of income in rural China as is shown by its low concentration ratio of 0.281.⁴⁸

Table 20. Distribution of per capita land holdings

	1988	1995
Gini Ratio:		
Unadjusted land	0.489	0.430
Adjusted land	0.463	0.413
“Concentration Ratio”:		
Unadjusted land	0.014	0.000
Adjusted land	0.063	0.051
Note:	Unadjusted land is total land area irrespective of the proportion irrigated while adjusted land counts an irrigated mu as equivalent of 2 mus of unirrigated land. Gini ratio is estimated from the Lorenz distribution of per capita land in which individuals are ranked according to per capita land holding. Concentration ratio is estimated from the Lorenz distribution of per capita land in which individuals are ranked according to per capita income. These estimates are from Mark Brenner, 1998.	

While farm income is highly equalizing, income from wages is highly disequalizing a component of rural income. Between 1988 and 1995 wages have not only become more disequalizing a component of income (its concentration ratio rising from 0.710 to 0.738), its share in rural income has increased sharply from 8.7 per cent to 22.4 per cent. Unequal access to wage income has been the single most important source of increased rural inequality in China during the period under review.

Wages and Employment in Urban China

In urban China, the structure of wages, long kept highly egalitarian at the cost of fostering widespread disincentive to work, was gradually differentiated. The expansion of private and foreign enterprise allowed rewards to entrepreneurship and skill to be differentiated from rewards to ordinary labour. Reform in state and collective enterprises also gradually allowed a greater differentiation of the structure of wages. The concentration ratio of wages in urban China increased sharply from 0.178 in 1988 to 0.247 in 1995. Despite its adverse effect on the distribution of urban income, this must be considered a desirable change, leading to a more efficient structure of labour remuneration. Furthermore, wages in 1995 were still an equalizing source of urban income in so far as its concentration ratio was lower than the urban Gini ratio.

It was hoped that rapid expansion of employment, due to labour-intensive industrialization, would offset a good deal of the greater inequality of wage distribution in ensuring protection from poverty if not from increasing inequality. Unfortunately industrialization in the period of globalization has so far been remarkably employment hostile. Contrary to the theoretical expectation that freer trade, leading to greater integration with world economy, should increase the employment intensity of growth, and considerable empirical evidence that the export industries that grew rapidly were indeed largely labour intensive, the output elasticity of employment in China's industries fell drastically.

Output elasticity of employment for all industries was only 0.27 during the decade 1984-94, far lower than what it was in the past in China and what it is in contemporary East Asian developing countries.⁴⁹ But this includes all kinds of industries including the ones in rural China. The extreme employment hostility of China's industrial growth during the period under review is much better illustrated by the output elasticities in different categories of urban industries (manufacturing, mining, power, water and gas) shown in Table 21.

Table 21. Output elasticity of employment in urban industries, 1988-95

All industries	0.037
State enterprises	0.032
Collective enterprises	-0.176
Enterprises under private and other ownership	0.874
Note: Elasticities are b coefficients in the fitted regression equation: $\text{Log Employment} = a + b \text{ Log Output Index}$, for each category. Data have been obtained from SSB, 1989, 1990 and 1997. The estimated elasticity coefficients are significant at 1 per cent level for collective enterprises and enterprises under private and other ownership; 5 per cent level for all industries; and no reasonable level of probability for state enterprises. In other words, the elasticity for state enterprises is not significantly different from zero at any reasonable level of probability. Note that for private and other forms of enterprises employment data are comprehensive; but the output index refers to private industries only. Since the growth in output of private industries was broadly similar to the growth in output of industries under other forms of ownership, this should not have a large effect on the estimated elasticity.	

The output elasticity of employment has been dismally low for urban industries as a whole. This is in spite of a very high output elasticity of employment in industries under private and other new forms of ownership which has been outweighed by the significantly negative elasticity for collective enterprises and the insignificant elasticity for state enterprises. The overall elasticity is very low due to the still dominant share of state and collective enterprises in total employment.

The explanation of this phenomenon must be that, in the process of greater integration with world economy in an environment of increased competition with private enterprises, China's state and collective enterprises began to reduce the concealed unemployment that they had in the past as a consequence of the policy of guaranteed employment to all. The observed low output elasticity of employment in the period of integration with the global economy conceals two divergent trends: (a) a high output elasticity of employment at constant intensity of employment per worker; and (b) a rise in the intensity of employment per worker due to a reduction of "concealed unemployment". Once the transition is completed and the concealed unemployment in state and collective enterprises is eliminated, China's industries will become more efficient and thereafter the observed output elasticity of employment may rise. But the process of transition is characterized by a very slow growth of employment that prevents the dissemination of the benefits of growth among broader masses of population with the consequent adverse effect on the incidence of poverty. It is also not clear how long the transition process will last.

Public Finance and Access to Services

It has already been discussed that public finance - state taxes and subsidies, including those levied and paid by collectives - is highly regressive and a major source of inequality in both rural and urban China. While the magnitude of urban subsidies has declined sharply in recent years, the estimates based on the survey shows that the remaining net subsidies mainly benefit the non-poor due to poor targeting. In recent years, changes in the volume and distribution of public and collective

resources for education and health have resulted in a substantial reduction of access of the poor to these basic services (Khan, 1996).

Migration

One further factor contributing to China's increasing inequality relates to the "floating migrants". Strictly speaking, these migrants are not legal urban residents whose number is rigidly regulated by residence permits. While their presence in urban areas has been tolerated, they have been excluded from the benefits received by the registered urban residents, e.g., access to (subsidized) public housing, social services and public schooling for children. Their number was estimated by a Labour Ministry survey to be about 72 million in 1995, about a fifth of the officially registered urban population. As this study has argued, they are excluded from the estimates of urban poverty which would have been higher, showing a faster rate of increase between 1988 and 1995, if they had been included. If these migrants had remained in rural China, the incidence of rural poverty would have been greater due to greater rural unemployment and underemployment and the deprivation of the rural areas of the income remittance that these migrants appear to make. Thus the tolerance of the presence of these migrants in cities has helped alleviate overall poverty in China. The end of official discrimination against them would have benefited the process of poverty alleviation even more by reducing the incidence of poverty among them. This might of course encourage a greater flow of migration out of rural China. But that too should help reduce overall poverty, if not urban poverty, by reducing the urban/rural income inequality from its extraordinarily high level.

Regional Inequality

Another major cause of the increase in inequality is the increased regional inequality that has been a concomitant of the strategy of greater integration with the global economy. China's eleven coastal provinces, with 40 per cent of the country's population, account for 80 per cent of its exports. Of these eleven provinces and Beijing, eight are ranked as the richest eight provinces in China, the other four of them being well above average in terms of per capita income. According to official estimates, these 12 provinces grew at an average rate that was 78 per cent faster than the rate at which central and western provinces grew during the 1990s. This was largely due to the export-led development strategy of which the inflow of direct foreign investment, primarily located in the urban areas of these twelve provinces, was an integral part. To facilitate the success of the strategy public resources and incentives were sharply tilted in favour of these richest and fastest-growing provinces. Most of China's poor live outside these provinces.⁵⁰

While the above goes a long way to explain increased inequality, policy makers in China need to deepen their understanding of the phenomenon by analyzing the reasons why the rate of change in inequality varied so much among provinces. Why did Gini ratio fall in rural Henan, Jilin, Hebei and Beijing while it increased in the rest of rural China? Why was the rise in the Gini ratio in urban Anhui so much lower than the rise in the urban Gini ratio elsewhere in China? Unfortunately, the information processed from the survey itself does not illuminate these issues. Explanations for these phenomena are not suggested by differences in the composition of sources of income among provinces or some other similar information processed from the survey. One needs to go beyond the survey data to find answers to these important questions.

VI. POLICIES FOR POVERTY REDUCTION

The analysis of the preceding two sections can serve as the basis for the formulation of a comprehensive strategy for poverty reduction in China. The cross-sectional analysis of section IV identifies the aspects of household characteristics that are critical in enhancing the capabilities of the households to pull themselves out of poverty. The analysis of dynamic changes in section V helps focus on the aspects of development policy that shape the pattern of growth and distribution that determine these capabilities. A comprehensive strategy for poverty reduction must include *consistent* actions on a broad front involving macroeconomic and institutional policies that determine the overall pattern of development as well as microeconomic interventions to directly enhance household capabilities. Before outlining the elements of such a strategy it would be useful to begin with a brief overview of China's official poverty reduction strategy.

China's Poverty Reduction Strategy⁵¹

China's official poverty reduction strategy is based on the assumption that poverty is a rural problem. It identifies 592 rural counties that are poor, on the basis of their per capita income⁵² and focusses on the improvement of the average living standard of these poor counties through a package of micro interventions rather than on targeted interventions to improve the condition of the poor households themselves.

In January 1994 the State Council put into effect the National 8-7 Plan for Poverty Reduction with the objective of lifting the officially estimated 80 million rural poor out of poverty in the remaining seven years of the current millennium.⁵³ The plan sets the goal of bringing the average income of these counties - and of the overwhelming majority of the households therein - to 500 yuan or more at 1990 prices.⁵⁴ In addition, the plan sets poverty alleviation goals for infrastructure development, education, vocational and technical training, sanitation and family planning.

The state provides funds for poverty reduction activities through three main channels: the Ministry of Finance, The State Planning Commission and the Agricultural Development Bank (ADB). Poverty reduction funds are available for use only in the designated 592 poor counties. The largest part of the funds consists of low interest loans from the ADB for a variety of production activities. The planning commission funds are used for Food For Works programme for the construction of infrastructure and drinking water projects. Appropriations through the Finance Ministry are mainly directed to training activities.

Simultaneously, all government departments are called upon to allocate a part of their own budget to help the development of the designated counties. By now both domestic and international NGOs have also started operating in the poor counties. Recently the Institute of Rural Development of the Chinese Academy of Social Sciences has pioneered a micro-credit programme, modeled on Bangladesh's Grameen Bank, which has been implemented as a pilot programme in some poor counties in Hebei.

It is impossible to judge to what extent the targeted programme of improving the productivity of the poor areas has benefited the poor. The focus is on the development of the average income and productivity of these counties even though some of the programmes are ostensibly more specifically targeted to the poor households. Systematic evaluation of the impact of these programmes on the poor is not available. Official sources claim that the number of rural poor has declined at an annual rate of 5 million as a result of the implementation of the programme during the first two years. There is no

way to judge the validity of this claim or to separate the effect of the 8-7 programme from the effect of other economic trends.

There are two main inadequacies of the official Chinese strategy for poverty reduction. First, quite apart from the question whether these programmes adequately look after the needs of the poor in the designated counties, there are two other large groups of the poor that appear to have been left out of the official poverty alleviation programme. The SSB estimates that a third of the rural poor live outside the officially designated poor counties while some outside studies suggest that this ratio is as high as half.⁵⁵ The other group that has been left out of the scope of the programme are the urban poor, a group that, according to our estimates, has been rapidly rising. The second major inadequacy of the programme is the lack of complementarity between the micro interventions under the 8-7 programme and overall development policies. As our analysis in the preceding section shows, many development policies may actually have produced an outcome that was contrary to the objectives of the micro interventions.

The Need for a Comprehensive Strategy

As has been documented above, poverty is not a marginal problem in China. It is impossible to deal with the problem with a plan that is separated from the overall development strategy. Components of development policy - e.g., policies concerning regional balance in growth, macroeconomic policies for capital accumulation, sectoral terms of trade and public finance - can affect household welfare far more powerfully than the kind of microeconomic interventions promoted by the 8-7 Plan. It is therefore essential to ensure that the major components of development policy are consistent with the target of poverty reduction. China's poverty reduction strategy must also break the artificial barrier of the designated rural counties and target the poor in other rural locations and in urban China. In this section we highlight the major changes in development policy and the urgent targeted interventions that should constitute the core of a comprehensive strategy for poverty reduction in China.

Reduction in Urban/Rural Gap

While, the poverty trend during 1988-95 was more favourable in rural China than in urban China, poverty still is an overwhelmingly rural problem. Well over 90 per cent of China's poor would be found in rural areas for any uniform urban and rural poverty threshold. China can not win its war against poverty without a decisive strategy for the reduction of rural poverty.

In this context the first target for action is China's intolerably high difference between urban and rural income. The ratio of urban per capita income to rural per capita income was 2.42 in 1988 and 2.47 in 1995.⁵⁶ This ratio is well below 2 in most developing Asian countries and often as low as 1.5.⁵⁷ As noted in section I, China's remarkable success in reducing poverty in the early years of reform was associated with a sharp reduction in urban/rural income gap. Starting in 1984 however this gap rose sharply and steadily until 1994. This period of rising urban/rural income gap witnessed a sharp reduction and ultimate halt in the rate of poverty reduction in rural China. We have also noted that the relatively favourable rural poverty trend during 1988-95 may largely be due to the fact that 1995 was the first year in more than a decade in which the urban/rural income gap declined according to official estimates, a change that may have been due largely to an improvement in agriculture's terms of trade beginning in 1994.

The high urban/rural inequality in China was largely due to the discriminatory policies against the rural sector. Official procurement prices were highly unfavourable, resulting in an adverse terms of trade for agriculture. Strict control of migration from rural to urban China, on the other hand, deprived rural China of relief that migration provides in many developing societies in the form of reduced demographic pressure and income remittances.

The growth of agricultural output also slowed down since the mid 1980s. The decline in agricultural growth is partly explained by the failure of the terms of trade to continue to improve. In addition there appears to have been an inadequacy of resources for investment. The latter is hard to quantify with precision due to the lack of information. It is however known that government expenditure on agriculture, as a proportion of total government expenditure, fell from 13.6 per cent in 1978 to 8.3 per cent in 1985 and stayed there until the mid 1990s (SSB, 1995 and 1997).

One notes with some concern that official policy in China merely aims at a reduction in the *rate of increase* in urban-rural disparity, not a reduction in the disparity itself. Thus Prime Minister Li Peng's report on the Ninth Five-Year Plan delivered at the National People's Congress on March 5, 1996 states (emphasis added):

During the Ninth Five-Year Plan period, the urban residents' *per capita* income spent on living expenses after allowing for price rises is expected to increase by about 5 per cent annually and the *per capita* net income of the peasants is expected to increase by about 4 per cent annually.

China must put a decisive end to the vacillation of its attitude towards the rural sector by a package of policies of which the following should be the major elements: (a) allowing the terms of trade of the sector to be determined by economic forces without depressive public intervention; (b) improving agriculture's share of public resources; (c) promoting rural non-farm activities; and (d) liberalizing migration out of rural areas.

Terms of Trade for Agriculture

As noted above, in recent years public policy has sought to improve agriculture's terms of trade in an attempt to reduce the inequality between urban and rural China. In 1994 agricultural purchase prices were sharply adjusted upwards resulting in a significant improvement in the terms of trade of the sector. It is however essential that economic forces, rather than artificial public intervention, be allowed to determine agriculture's terms of trade. By now a large majority of agricultural prices are determined by market forces; but substantial public control is still retained in the determination of grain prices. These controls should be ended by creating an impetus for a further improvement in agriculture's terms of trade. This should also have the added benefit of improving income in poorer central and western provinces which have a comparative advantage in grain production.⁵⁸

Resources for Agriculture

Growth of agricultural output has also improved in the early 1990s. There is however no evidence that public resources for agriculture has increased. Government expenditure on agriculture, as a proportion of total government expenditure, has continued to be at the level to which it fell in 1985. The recovery of agricultural growth may not be sustained without an increase in agriculture's share of investment and other resources.

Access to Land

As analyzed in the preceding sections, access to land has a powerful effect in lifting rural households out of poverty. So far China has succeeded in retaining the egalitarianism of access to land. Attention should be given to maintain this valuable feature of China's rural economy in order to limit the rise in rural inequality.

Non-Farm Rural Activities

As established in section IV, access to non-farm economic activities and wage employment are powerful factors enabling rural households to escape poverty. This has assumed increased urgency in view of the fact that employment in farming peaked in absolute terms in 1991 and started a decline thereafter. Little information is available about trends in non-farm rural employment outside the township and village enterprises (TVEs). Employment in TVEs grew rapidly and steadily during the 1980s, at an average annual rate of 12 per cent. In 1993 there was a net decline in TVE employment of 2.7 per cent. Thereafter, employment growth in TVEs has recovered; but only to half the rate of growth that was achieved in the 1980s (SSB, 1989, 1995, 1997).

Support for rural non-farm activities, includes TVEs and small private enterprise, should be strengthened within the limits of actual and/or potential comparative advantage of rural China for these activities. Access to credit, technical knowledge and marketing facilities are some of the important forms that such support should take. Investment in infrastructure in poor areas is a precondition for the creation of healthy linkage between the rapidly growing modern industries in the coastal provinces and "infant" subcontracting in the rural areas of the poor provinces.

Regional Balance in Development

Increasing disparity among regions has been an important source of increasing inequality in China. Slow growth of the poorer areas have been a hindrance to China's capacity to reduce poverty. Regional disparities in China have mainly taken the form of disparity among the rapidly growing eastern (coastal provinces and Beijing) region and the slow growing central and western regions.⁵⁹ It is not that this was entirely or mainly due to higher profitability of investment in the eastern region. A good part of it has been due to policies that were discriminatory to the poor regions. In the absence of comprehensive research on this subject, one can only give illustrations of what is believed to be a widespread phenomenon. Thus, for example, artificially depressed producers prices for grain has been detrimental to the growth of the rural areas of the central and western regions which have a comparative advantage in grain production. Another example is the pricing of natural resources. Vast quantities of coal are taken out of poor areas in Shanxi at ex-factory prices that are extremely low.⁶⁰ These discriminatory policies need to be comprehensively catalogued and immediately ended.

Fiscal decentralization, implemented in recent years as a part of the reform process, has greatly reduced the capacity of China's fiscal system to promote spatial redistribution. Investment in infrastructure has been concentrated in richer regions. This needs to be remedied with a combination of instruments, e.g., increasing the role of the central government budget in promoting spatial redistribution; directed credit to support "infants" in poor regions; and redirection of public investment for infrastructure development. Time-bound fiscal incentives to help foreign and domestic investors overcome the transitional disadvantage of being located in poor areas should induce them to decentralize to poor areas.

There are signs that Chinese policy makers have become aware of the severity of the problem of regional concentration of growth. In the autumn of 1995 the Plenary Session of the Central Committee of the Communist Party of China decided to make adjustment in the policy of extreme concentration of incentives in the coastal/eastern provinces. It has been decided to shift the focus of the incentive system and public expenditure to attract foreign direct investment to central and western provinces as well.

Reversing the Desequalizing Effect of the Fiscal System and Transfer Payments

Data from our surveys show that the fiscal system in China is highly disequalizing and one of the factors that aggravate poverty. The element of income that is under consideration consists of net transfer between households on the one hand and the state and collectives on the other. For simplicity we call this net taxes (if negative) or net subsidies (if positive). One of the standard objectives for the state to resort to a system of transfers is to improve the distribution of income. A targeted transfer to the poor, i.e., a higher than average rate of net subsidies or a lower than average rate of net taxes for the poor, is often recommended and used as an instrument for poverty reduction. In China this instrument has paradoxically aggravated poverty.

In rural China the poor (ultra poor) pay "net taxes" at a rate that is 27 (36) times higher than the "net tax" rate paid by the non poor (Table 14). Merely making these taxes proportional would improve the condition of the poor significantly. For example the reduction of the tax rate on the poor to an average of 0.48 per cent of income from the existing 3.56 per cent of income would reduce the average income gap of those in poverty in rural China by 11 per cent. The effect would be more dramatic if the net tax rate could be made progressive with, for example, a positive net transfer for the very poor.

In urban China the Gini ratio of income distribution rose from 0.233 in 1988 to 0.332 in 1995.⁶¹ Between these years net subsidies from the state and the collectives to the households was drastically reduced. But the ones that were reduced included the most equalizing subsidies, namely, the ration-coupon subsidies. The remaining subsidies, dominated by in-kind housing subsidies, are highly disequalizing. The weighted average concentration ratio for the remaining urban net subsidies is 0.492, way above the Gini ratio. Had the distribution of all net subsidies been just equal among all households on a per capita basis - i.e., had their concentration ratio been zero - the Gini ratio of urban income distribution would have been 0.278 instead of 0.332. It would have reduced the incidence of urban poverty very substantially.

The redistributive outcome of the fiscal system is perhaps the most outstanding anomaly of China's poverty strategy. It offsets much of whatever positive results might derive from the targeted interventions to reduce poverty. The reform of the fiscal system is completely within the grasp of the government. It should however be recognized that a reform of the redistributive outcome of the fiscal system is unlikely to be politically or fiscally painless.

Urban Employment

Perhaps the most complex issues of China's current poverty problem relates to the extreme employment hostility of urban growth. We have argued that although in the long run it may prove to have been merely transitional, the period of transition has already been long enough to justify compensatory action. We have further argued that the perpetuation of the past system of social

protection, by permitting concealed unemployment in state and collective enterprises, would be highly undesirable.

Compensatory public action must be designed on a broad front. There are three types of action that stand out as obvious candidates for high priority. The first is the institution of a transparent system of unemployment insurance. Given China's current low level of development, the scope of this system must be limited. Secondly, an urban public works programme of substantial magnitude, with a focus on the improvement of infrastructure, should be implemented. Thirdly, a programme of micro-enterprise development - by combining the provision of training, credit and possibly simple technology - should be implemented to encourage self-employment. These programmes should be carefully designed to avoid an increase in the incentive for rural to urban migration. Thus the wage rate in public works programme and the "subsidy" in micro-enterprise development should be kept low.

Some action along these lines are already under way. A programme of training for the urban unemployed was instituted some years ago along with the provision of placement services. These programmes need to be strengthened and weaved into a coherent overall policy to deal with urban unemployment comprehensively. Remedies must be found for the very limited availability of retraining facilities and labour market services. Most of the redundant workers need to acquire new skills before becoming eligible for re-employment and most of the retrained workers need help from job placement agencies.

While we have argued that the observed low output elasticity of employment is due to the initial circumstances of state and collective enterprises, we would also urge that attention be given to ensure that the incentive system itself is not getting distorted in the direction of promoting technologies that have a socially undesirable degree of capital intensity. In the scramble for collaboration with foreign direct investors, the danger of indiscriminately adopting the technologies that these investors are used to is very real.

Migration Policies

In section V the adverse effect of China's residence permit law (hukou), strictly limiting migration, on overall distribution of income and poverty has been discussed. It is understandable that the policy makers in China are unwilling to risk the disorder that might follow a sudden and wholesale removal of these controls. But an orderly move away from this system is very important for both poverty alleviation and a more efficient system of labour allocation in China. In recent years China has indeed made major de-facto changes in its policy of restricting migration from rural to urban areas. Official poverty alleviation programme encourages migration of workers out of ecologically fragile regions, although these programmes have a strong preference for the location of the migrants within rural China and smaller cities. Temporary residence permits are reported to have been given to many of the migrants to urban areas while the presence of the remainder in urban areas has been tolerated. Without these policies the problem of poverty in China would have been more acute than it is. These changes should be speeded up. The existing migrants should all be given residence permits to end the duality in the urban labour market. Also the benefits of temporary residence permits are far less than the benefits of permanent residence permits. The difference should be gradually eliminated.

It should also be recognized that physical restrictions are an ineffective method of stemming the flow of migration as has been amply demonstrated by the large-scale violation of these restrictions in recent years. Physical restrictions on migration are in contradiction to the numerous other physical interventions that have made the urban/rural income disparity in China one of the highest in Asia, creating a strong incentive to migrate out of rural areas. Policies should concentrate on the reduction

of the difference in earnings between rural and urban areas by shifting investment and jobs to rural locations and by reducing the subsidies and benefits in kind that urban employees are entitled to. The policies recommended for an enhanced flow of resources to the rural economy, especially for the development of non-farm employment opportunity, and for keeping the rewards for urban workers realistic should help in this regard. The most important benefit of the urban residence permit seems to be the entitlement to heavily subsidized housing. An orderly elimination of this subsidy will both reduce the incentive of the rural population to migrate and create the fiscal capability to undertake other urban programmes for poverty reduction.

Targeted Support to the Poor

An important feature of China's official poverty reduction strategy is its rejection of a targeted income subsidy approach. According to the information provided by the office of The Leading Group for Development of Poor Areas, in 1995 the central government alone provided 10.8 billion yuan for poverty alleviation programmes. This amount of resources would eliminate half the ultra poverty in rural China according to our estimates and all the rural poverty according to official estimates in a perfectly targeted programme of income transfer.⁶²

The reason that this did not happen is, first, these so-called poverty alleviation funds are often meant for productive investment rather than transfer and, secondly, China has rejected the policy of targeted income transfer. Whether the information base and the organizational capability of the government are adequate for the implementation of a reasonably well-targeted income subsidy programme is something on which one must reserve ones judgement. What is known is that China's poverty reduction strategy rejects the income subsidy approach (the "relief approach") and instead focuses on the development of the capacity to produce income in poor areas. In doing so, targeting of poor households is not used as a criterion. The 8-7 Plan encourages the creation of groups consisting of non-poor and poor - and led by the non-poor - to engage in income enhancing activities in poor areas. That the gain made by the non-poor may exceed the gain made by the poor, both absolutely and in percentage terms, is not a consideration that discourages public support for projects of this kind. Both the overall development strategy, and the directly poverty reduction programmes in China seem to be premised on a strong endorsement of the "trickle-down approach".

Chinese policy makers' rejection of targeted income subsidy appears to be an extreme reaction to the past "iron rice bowl" policy of artificial egalitarianism through guaranteed income and employment. They however need to realize that a minority of the poor - especially the poor households with a low labour endowment - will fail to benefit significantly from most of the poverty reduction programmes proposed above. The only way to pull them out of poverty may be to have a targeted programme of income subsidy.

Access of the Poor to Health and Education

It is particularly important to reverse the unfortunate trend of reduced access of the poor to health and education services. Targeted intervention may be an effective method of dealing with this phenomenon. Once again, one can detect signs of change in the orientation of public policy. Recently the government has decided to revive the rural co-operative medical insurance system of the collective era. From the current 10 per cent level, its coverage is planned to rise to 80 per cent of the rural population by the year 2010 (*China Daily*, July 16, 1996, p.2). This is intended to improve the access of the rural population, especially the poor, to health service.

Macroeconomic Policy

Many of the above policies will divert resources away from capital accumulation to what is conventionally defined as consumption, although in each case the need to reduce the demand for resources has been strongly emphasized. If these policies are implemented, China may find itself unable to continue to have a large wedge between growth in GDP and growth in personal income. This would be good for future poverty reduction unless the rate of growth in GDP declines as a result of a substantial reduction in the rate of investment due to all these measures.

While the marginal saving rate will stop continuing its rise, there is no reason to believe that the average saving rate will decline - or decline significantly - if these measures are implemented. After all, the improved terms of trade for agriculture since 1994 has not led to a halt in the rise in the rate of accumulation. Several of the measures - e.g., the reduction of urban subsidies for the non poor - should contribute to public savings. Finally, many of the measures would enhance productivity and savings in the private sector. Finally, there is considerable scope for China to replace its preoccupation with an ever increasing rate of accumulation with a concentration of effort for a higher productivity of investment and a more efficient use of resources.

Endnotes

1. These growth rates are based on the data in World Bank, 1995 and 1997.
2. State Statistical Bureau (SSB), 1996. As we shall argue later, the SSB estimates of personal income are biased due to the exclusion of important components. This however does not affect the conclusion that urban/rural income inequality declined sharply in the early years of reform.
3. SSB, 1995. As will be discussed later, the extent of rise in this ratio turns out to be somewhat different once one accounts for personal income more comprehensively than the SSB does. The general conclusion however remains unchanged.
4. The ratio was 2.47 in 1995 and 2.27 in 1996 according to the SSB definition. See, SSB, 1997.
5. The above estimates are based on World Bank, 1995, 1997 and other World Bank sources and SSB, 1997.
6. For an analysis of the factors behind the shift and sources of the above data on the saving rate, see Khan 1996.
7. These results are reported in World Bank, 1992. The extraordinarily low urban poverty according to these World Bank estimates is due to the use of a very low poverty threshold for urban China, 30 per cent below the actual expenditure on food alone for the poorest 5 per cent of the urban households. See Khan 1996, annex.
8. These estimates, and the methodology underlying them, have been reported in Khan, 1996.
9. These indices are defined as follows:

Head count Index: $HC = h/n$

where h = the number of persons belonging to households with per capita incomes below poverty threshold in terms of income); and n = total population.

Proportionate Poverty Gap Index:

$$\begin{aligned}
 PG &= (1/n) \sum_{i=1}^h [(PIT - Y_i)/PIT] = [\sum_{i=1}^h (PIT - Y_i)]/[n(PIT)] \\
 &= (h/n) (1/h) \sum_{i=1}^h [(PIT - Y_i)/PIT] = (HC)(I)
 \end{aligned}$$

where I = average of the poverty gaps (i.e., proportionate income shortfalls) of the poor only.

The "Weighted Poverty Gap" index (our alternative to the more usual, if unmanageable, name "Foster-Greer-Thorbecke P_2 measure of poverty"), is defined as the mean of squared proportionate poverty gaps:

$$WPG = (1/n) \sum_{i=1}^h [(PIT - Y_i)/PIT]^2$$

The squaring of the proportionate poverty gap is a special formulation of the more general case of raising it to a non-negative power α . With α replacing 2, the measure represents a generic class of poverty indices. For $\alpha = 0$ the measure collapses to the HC index and for $\alpha = 1$ it becomes the PPG index.

10. The differences in the *levels* of head count poverty as estimated by the World Bank and Khan, 1996 are due to the differences in the poverty thresholds that have been used in the two studies. Khan, 1996 also uses a relatively much higher poverty threshold for urban China than for rural China. More will be said on the level of the poverty threshold later.

11. Until very recently, the official view was that poverty in China was a rural phenomenon.

12. According to the SSB, the proportion of rural population in poverty fell from 31 per cent in 1978 to 15 per cent in 1984, remained almost unchanged thereafter until 1987 (14 per cent) and then began to fall again (to become 7 per cent in 1995). According to the SSB, 11 per cent of the rural Chinese were in poverty in 1988. Thus according to the SSB the head-count index of rural poverty declined by 36 per cent between 1988 and 1995.

13. The implicit consumer price index (CPI) underlying SSB's poverty threshold was lower than the rural CPI for the years between 1985 and 1988 but higher than the rural CPI for the period between 1988 and 1995.

14. See, for example, page 5 of World Bank, 1992.

15. For a detailed discussion of the bias of income accounting underlying the SSB estimates, see Khan, Griffin, Riskin and Zhao, 1993.

16. The basic features of the survey for 1988 have been analyzed in Khan et al., 1993.

17. These problems have been widely observed in other countries as well. For example, see Behrman and Deolalikar, 1987. In China, the difficulties seem to have been compounded by the incompleteness of food consumption data and the aggregated form in which the data are available.

18. Let us briefly outline the method of estimating the unit cost of a calorie and the ratio of food consumption to total consumption on the basis of the available official data from SSB sources. For rural China the unit cost of a calorie refers to the average cost of a calorie for all rural households. This is because the SSB data on rural household expenditure do not provide separate information for different income groups; only average values are available (see China, SSB, 1996). The eight broad categories of food consumption that are shown in the SSB data provide a daily consumption of 2066 kilocalories per capita per day. Even this estimate

is subject to uncertainty as units of consumption data are not always unambiguous and for some categories of food it is hard to judge the appropriateness of international data on nutrition content that have to be used for want of corresponding Chinese data. From the information of a detailed 1993/94 survey for Cambodia (see Cambodia, 1995), a country with broadly similar food consumption pattern, we estimate that these eight categories of food provide 87 per cent of total food energy. On this assumption, average daily kcalories consumed by a rural Chinese person in 1995 was 2375. This appears to be a reasonable estimate of average food energy consumption in rural China in 1995. Using per capita rural expenditure on food from SSB sources, we get the unit cost of a kcalorie per day (i.e., a total of 365 kcalories) to be 0.323 yuan. For a daily requirement of 2150 kcalories per capita, this gives a food poverty threshold of 694 yuan. For an average rural consumer 58.6 per cent of expenditure was on food according to the SSB. We do not know what it would be for our estimate of rural income, which is substantially higher than the SSB estimate. But we note that our higher estimate of income is partly due to a higher valuation of the consumption of self-produced food. We therefore settle for 60 per cent as the proportion of expenditure on food for an average household at the poverty threshold. Finally a word needs to be said to allay any overt concern that the use of the average consumption pattern to determine the value of the parameters would lead to an overstatement of the rural poverty threshold relative to the urban poverty threshold for which the parameters are based on the consumption pattern of low income groups. First, we should reiterate that these procedures were unavoidable due to data constraint. Secondly, in rural areas the household at poverty threshold would be closer to the average in terms of income, expenditure and consumption pattern than in urban areas. Finally, as we shall show later, the difference between the rural and the urban poverty thresholds is still rather high in spite of the possible bias due to the above procedure. It seems altogether unnecessary to worry that we are adopting a procedure that overstates the rural poverty threshold relative to the urban poverty threshold.

19. The unit cost of a kcalorie for urban China is estimated according to the same method that is used for rural China. The 25 items of food consumption reported by the SSB for the poorest decile of urban consumers account for 1612 kcalories per person per day. Using the ratio of food energy supplied by these items to the total food energy from the detailed information available from the Cambodian survey (79 per cent), we arrive at a daily per capita consumption of 2041 kcalories, which seems to be roughly the right order of magnitude for food energy consumption of the *poorest* decile of the urban Chinese. Given the annual expenditure on food for this decile group from SSB source, we estimate the unit cost of supplying a kcalorie per day for a year to be 0.60 yuan. Using a daily food energy requirement of 2100 kcalories, this gives a food poverty threshold of 1260 yuan. For the poorest decile group, food accounted for 59.5 per cent of expenditure according to SSB data. Our definition of urban income catches more non-food components than food components that are missing in the SSB definition. Thus it should be a lower proportion of income/expenditure than is the case for SSB data. We use a ratio of 55 per cent which gets us an urban poverty threshold of 2291 yuan.

20. A "constraint" on consumer preference refers to a pattern of living that commits consumers to a higher unit cost of food. An example is the form of work organization that compels an individual to receive a higher proportion of food energy from food purchased in prepared form (as distinct from home-cooked food). This is far more widely prevalent in urban China than in rural China.

21. Ideally one should measure a "constant-utility price index" rather than a "constant-bundle-of-goods price index" of which both Laspeyre and Paasche indices are examples. Usually, the Paasche index understates the rate of increase in the constant-utility price index (for given utility in current year) while the Laspeyre index overstates the constant-utility price index (for given utility in base year). For a demonstration see, Allen, 1975.

22. What we have is (CPI for 1995)/(CPI for 1988). For rural China this gives us:

$$[3P^{95}Q^{95}/3P^{85}Q^{95}]/[3P^{88}Q^{88}/3P^{85}Q^{88}] \text{ whereas we want (if we are measuring the Paasche index)} \\ 3P^{95}Q^{95}/3P^{88}Q^{95} \text{ or (if we are measuring the Laspeyre index)} 3P^{95}Q^{88}/3P^{88}Q^{88}.$$

As is easy to see, there is no a priori basis to argue what relationship the "indices" shown in Table 4 (i.e., the values of the CPIs estimated by the SSB for 1995 as indices of their values in 1988) have to Paasche or Laspeyre indices of consumer prices for 1995 with 1988 as base. There is no simple way to conceptualize the indices shown in Table 4. Had the CPI of the SSB been based on the Laspeyre method, this would have a clear

meaning, namely the proportionate change in expenditure between 1988 and 1995 on the given bundle of 1985 goods: $[\mathbf{3P}^{95}\mathbf{Q}^{85}/\mathbf{3P}^{85}\mathbf{Q}^{85}]/[\mathbf{3P}^{88}\mathbf{Q}^{85}/\mathbf{3P}^{85}\mathbf{Q}^{85}] = \mathbf{3P}^{95}\mathbf{Q}^{85}/\mathbf{3P}^{88}\mathbf{Q}^{85}$.

It is of course possible that it would still be a biased estimate of the desired constant-utility CPI.

23. The rural poverty threshold used by the SSB is 236 yuan for 1988 and 540 yuan for 1995, implying a deflator of 228.8 between those years. The SSB's poverty threshold is based on a normative bundle of food providing 2393 kcalories per capita per day valued at the weighted average of "planned" and market prices (only market prices since 1990) which is assumed to be 60 per cent of total expenditure of an average household at poverty threshold. The lower SSB poverty threshold, in spite of a higher level of food energy than ours, may appear puzzling. It is principally due to the assumption that 88.4 per cent of kcalories in the SSB's normative food bundle for the poor is supplied by grain whereas the SSB's own survey (which is the basis for our composition of food) shows that it is just over 70 per cent. Grain remains a far cheaper source of food energy than the average for the remaining sources even after the upward adjustment in food prices.

24. Note that for 1988 estimates for overall rural China include households from additional nine provinces that are not shown in the Table because they were not included in the 1995 survey.

25. This correlation is for poverty estimates based on the standard poverty threshold without any adjustment in the CPI.

26. This is based on the unadjusted CPI.

27. This is estimated by simulating the head-count ratio of poverty by combining the Lorenz distribution fitted to the decile group shares of income in 1988 with per capita income of 1995 at 1988 prices and the 1988 poverty threshold (which is the same as the 1995 poverty threshold at 1988 prices).

28. To remind the reader, the benchmark year for the estimation of poverty thresholds is 1995. The CPI is used to deflate them to derive poverty thresholds for 1988. That is the reason why adjustments in CPI result in a second set of poverty thresholds for 1988 rather than for 1995.

29. Khan, 1996, which does not have an estimate for 1995, shows that the reduction in head-count index of poverty between 1988 and 1994 was 15 per cent.

30. Xian Zude and Sheng Laiyun, *The Measurement and Decomposition of Rural Poverty of China* (forthcoming) quoted in Zhu Ling, 1997. This is in addition to the official SSB estimates to which reference has been made in section I.

31. Ren Caifang and Chen Xiaojie, 1996 shows the following head count ratios:

1991	5.8 per cent
1992	4.5 " "
1993	5.1 " "
1994	5.7 " "
1995	4.4 " "

The absence of an estimate for 1988 makes it impossible to compare their trend with ours.

32. It may be noted that the official SSB estimates also show a decline in the head-count index of rural poverty between 1988 and 1995 although their poverty thresholds do not use an understated CPI. In the absence of information on their method of estimates, it is impossible to guess what this outcome is due to.

33. The Ren-Chen study uses a poverty threshold of 752 yuan for 1991 and 1547 yuan for 1995 implying a rise in CPI for the poor of 106 per cent over the period. The official urban CPI increased by 84 per cent over the same period. It is unlikely that the understatement of the official CPI was of the order of the difference between the two indices.

34. For the standard poverty thresholds, there were 246 million rural poor and 28 million urban poor in 1995. The rural extreme poor constitute 91 per cent of all extreme poor.
35. In 1988 there were 289 million rural poor and 23 million urban poor below the standard poverty thresholds.
36. Since the (ultra) extreme poor are included among the poor, this means that the difference between the (ultra) extreme poor and the (non-ultra) non-extreme poor (the "moderate poor") is greater, a point that needs to be remembered throughout this section.
37. Land is in unirrigated units. One mu of irrigated land has been counted as two mu's of unirrigated land.
38. The choice of standard poverty, rather than extreme poverty, in the case of urban China was due to too few households being in the latter category to provide sufficient observations for all explanatory variables.
39. These growth rates are based on the increase in the official CPI as the deflator of personal income. If the adjusted CPIs are used, the growth rates turn out to be lower. It is not our intention to suggest that personal income growth should have been as high as the growth in GDP. All that is being suggested is that the gap between the two might have been lower.
40. Agriculture's terms of trade is the ratio of the "general purchasing price index of farm products" and "general rural retail price index of industrial products", both shown in SSB, 1997. Very little is known about the method of estimating them and their accuracy in reflecting the relative purchasing power of the sectors.
41. It should be noted that the World Bank estimates of saving rate, reported in Table 17 are based on official GDP estimates. The results of our survey suggest that GDP is significantly underestimated. An upward adjustment of the GDP estimate, based on the survey data, suggests that the saving rate in 1995 was lower, probably about 37.5 per cent rather than 42 per cent of GDP. But this revised saving rate is still one of the highest of the rates ever attained by any country.
42. This is because some changes in distribution affecting the poor may not be captured by the Gini ratio. Consider, for example, a redistribution between the bottom decile and the second poorest decile which is exactly offset by an opposite redistribution between the ninth decile and the top decile so that the Gini ratio is unchanged. If the bottom decile represents the poor, then this redistribution will affect poverty estimates.
43. The adjusted R^2 is 0.60 for the fitted regression $POV = 36.89 + 2.36 \text{ GROWTH}$ (the coefficient of GROWTH being significant at 1 per cent level) while the adjusted R^2 is 0.63 for the fitted regression $POV = 23.21 - 11.93 \text{ GROWTH} + 0.48 \text{ GINI}$ (the coefficient of GROWTH being significant at 1 per cent level while the coefficient of GINI is not significant at 10 per cent level).
POV is per cent change in head-count poverty, GROWTH is the rate of income growth and GINI is per cent change in Gini ratio.
44. The adjusted R^2 is 0.63 for the fitted regression equation $POV = -50.95 + 0.46 \text{ GINI}$ (the coefficient of GINI being significant at 1 per cent level). The adjusted R^2 falls to 0.60 for the fitted regression equation $POV = -82.06 + 8.58 \text{ GROWTH} + 0.49 \text{ GINI}$. The coefficient of GINI is significant at 1 per cent level. Not only is the coefficient of GROWTH insignificant at any reasonable level of probability, its sign is opposite of what is expected. Note that in these regressions for urban provinces, Beijing was excluded because the rate of reduction in head-count poverty index can not be estimated due to the fact that its value for 1988 is zero. Variables have the same meaning as in the case of rural China (see the preceding end note).
45. Note that inequality increased in urban areas of all provinces in the survey and in rural areas of all but four provinces. The rate of increase in inequality in rural areas of five other provinces was very modest.
46. For an interpretation of the concentration ratio see Khan et al., 1993.

47. The present writer is among those who expressed such concern in the past. See, for example, Khan et al., 1993.
48. As the interpretation of the concentration ratio in Khan et al., 1993 shows, a component of income with a concentration ratio less (greater) than the Gini ratio is equalizing (disequalizing). Thus any rural component with a lower (higher) concentration ratio than the rural Gini ratio of 0.416 is equalizing (disequalizing). Similarly any urban component with a lower (higher) concentration ratio than the urban Gini ratio of 0.332 is equalizing (disequalizing). All the concentration ratios have been estimated from the survey data.
49. See Khan, 1996 for details and for comparative data for the Republic of Korea, a country with far scarcer relative endowment of labour.
50. See Khan, 1996 for evidence for the statements made in this paragraph.
51. Information reported in this section have been derived from Riskin and others, 1996, Zhu Ling, 1997, and interviews at the Beijing office of The Leading Group for Development of Poor Areas.
52. The standard is however allowed to vary depending on other characteristics of counties. Thus, for example, a higher cut-off income is used for the ethnic minority areas and old revolutionary base areas.
53. In China the most commonly used numerical units are 10,000 (wan) and 10,000,000 (yichen wan or a thousand wan). The figure 8 in 8-7 programme is in thousand wan units, i.e., it means 80 million.
54. At 1995 prices this target average income for the poor counties would be approximately 882 yuan. Given that household income according to our survey definition is 46 per cent higher than according to the official definition, this would imply a level of about 1288 yuan for 1995, about 11 per cent higher than our standard poverty threshold.
55. This is discussed in Riskin and others, 1996.
56. These ratios are at current prices. At constant purchasing power of 1988, using the unadjusted official CPIs, the ratio in 1995 would be 2.39.
57. See Khan et al., 1993 for evidence for other Asian countries.
58. This argument is made in Lin, Cai and Li, 1997.
59. Lin, Cai and Li, 1997 shows that during the reform period inequality among these three regions has grown while inequality among provinces within each of these three regions has actually diminished.
60. Riskin and others, 1996.
61. The 1988 estimate is from Khan et al., 1993 and the 1995 estimate is based on the survey data.
62. According to our estimates there were 104 million ultra poor and on the average each ultra poor has a shortfall of 208 yuan from poverty threshold. This makes the total resources needed to bring all of them out of ultra poverty 21.63 billion yuan. Assuming that the official estimate of 65 million poor is correct; assuming further that the average income gap of the poor is 25 per cent (which is close to the average income gap of different categories of poor according to our estimates); and using the official poverty threshold of 540 yuan for 1995, only 8.8 billion yuan was necessary to eliminate poverty through a perfectly targeted income subsidy programme. Given that funds were also available from local government sources, a targeted income subsidy approach would have removed poverty, as officially defined, even with very substantial leakages.

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