

Economic Development and Poverty Reduction in China over 20 Years of Reforms*

Shujie Yao
University of Portsmouth

I. Introduction

When Deng Xiaoping introduced agricultural reform in 1978, more than three-quarters of all Chinese rural people lived in poverty.¹ One of the most important policy objectives of reform was to raise the living standards of the people so that no one would be suffering from hunger or malnutrition by the end of the twentieth century.

Over the past 20 years, the gross domestic product (GDP) of China has more than quadrupled. Real per capita disposable income has more than tripled in the cities and has almost quadrupled in the countryside.² According to official statistics, the number of people in poverty was reduced by over 200 million between 1978 and 1995. By 1995, about 70 million people had a per capita annual income of less than 318 yuan in 1990 prices, the official poverty line.³ Using both parametric and nonparametric methods with rural household survey data, my analysis suggests that the reduction of poverty has been actually far greater than that suggested by official statistics. This is because the Chinese government greatly understated the extent of rural poverty in 1978. Based on my estimation, the incidence of rural poverty was reduced from 75.5%–100% (596–790 million people) to just 6.7%–13.2% (57–114 million people) over the period 1978–96. This record of poverty reduction is unprecedented in world development history.

There are two potential explanations for the government's understatement of rural poverty in 1978. First, there may have been a genuine lack of household survey data before 1978. Second, the government may not wish to acknowledge that a huge proportion of the rural population lived below the poverty line. This would be equivalent to admitting that socialism under Mao's leadership was a total failure so far as poverty reduction was concerned. For political and ideological reasons, rural poverty may have been understated to disguise the failure of Mao's eco-

monic policy. Such face-saving is typical of the communist leadership. It explains why many scholars always double-check the official statistics with great caution, even today. In any event, it is reasonable to believe that the official figure of 270 million rural poor in 1978 was far too low.

Due to rising income inequality, poverty reduction has been much slower than income growth. Without rising income inequality, China would have been able to eliminate poverty more or less by now. With the worsening of income distribution, poverty remains a huge problem despite 20 years of sustained and rapid economic growth.

There is a strong western belief that China may become an economic superpower in this century. For many westerners it would be hard to imagine that in China so many people are still living in poverty. Most foreign visitors, and even Chinese urban citizens, especially the young educated elite who have little idea of what is really happening in the remote countryside, would find it puzzling why in the cities so many people are driving Mercedes and BMWs and spending thousands of yuan on a single meal while the rural poor are struggling for basic survival. For both policy makers and academic researchers, it is important to understand why China still has so many poor people despite the obvious success of its economic growth and the vast improvements in average incomes.

Existing studies on poverty in China during the reform period are few, although numerous studies have analyzed how policy reforms have brought about economic growth and productivity improvement. C. Lin provides a detailed assessment of economic reforms.⁴ Other studies on economic reforms were done by J. McMillan and B. Naughton, D. Perkins, and G. Jefferson and T. Rawski.⁵ The aim of this article is to fill the literature gap by focusing exclusively on the poverty issue. To obtain a comprehensive picture of poverty in China, both spatially and intertemporally, a tremendous amount of data is required, much of which is generally not available. This implies that in addition to making full use of the available data, I will also have to rely on statistical inference and sensitivity analyses.

In the next section of this article, I discuss the relationship of poverty to income growth and inequality. In Section III, I explain the main reasons for rising income inequality in China, and in Section IV, I explain why poverty is predominantly a rural problem. I also estimate the incidence of rural poverty in the reform period and use sensitivity analyses to predict when China may be able to eradicate rural poverty. The last section offers some summary remarks.

II. Economic Growth, Income Distribution, and Poverty

A. The Chinese Economic Miracle under Reforms

From the second half of the nineteenth century to 1949, when the Communist Party took over power from the Nationalist Party, China was

either at war with western imperial powers or battered by warlords at home. During this period, the majority of the Chinese people lived in extreme poverty, and life expectancy was very low. After 1949, some of the important policy objectives of the Communist Party led by Mao Zedong were to make China both politically united and economically strong, and above all, to eliminate poverty and eradicate common diseases throughout the country.

Economic development during 1949–78 was impressive. Apart from the 3 years of great famine in 1959–61, the living conditions of the population were generally much better than they had been in the pre-1949 period. However, due to a variety of political struggles, especially the Great Leap Forward Movement (1958–61) and the Cultural Revolution (1966–76), production incentives were suppressed, and the economy failed to perform up to its potential.⁶ Moreover, the government, although frequently publishing its “agriculture first” policy in the press, had been undercutting agricultural investments to finance urban and industrial development. This, coupled with an urban-biased policy (excessive taxation on agricultural production to prop up urban living standards), meant that by the end of the Cultural Revolution, the majority of the rural population lived in absolute poverty and did not have sufficient food to eat or warm clothing to wear. Although official statistics show that output of grain, meat, vegetables, steel, electricity, coal, cloth, and other agricultural and industrial products increased remarkably from 1949 to 1976, rural per capita disposable income in 1978 was only 285 yuan in 1990 prices. This was significantly lower than the official poverty line of 318 yuan, and it was much lower than the poverty line of 454 yuan applied by the World Bank.

As it had been for his predecessor, an important policy objective for Deng Xiaoping, who took over power from Hua Gaofeng, was to reduce and ultimately eliminate poverty from China. Because most poor people lived in the rural areas and agriculture was the least centralized sector of the economy, Deng decided to reform agriculture first, before moving on to reform the urban and industrial sectors. It needs to be stressed that agricultural reform was spontaneously conducted from the commune level without any explicit government policy or permission in the late 1970s. However, without Deng’s leadership, agricultural reform, particularly the household production responsibility system, would not have spread so rapidly throughout the country. Initially, without breaking up the communes, the household production responsibility system was introduced.⁷ This system allowed farmers to retain a certain proportion of outputs after fulfilling a production quota set by the production team. Such a simple reform method, reinforced by a few farm product price increases, released enormous energy from the peasantry. Grain output increased from 305 to 407 million tons over the period 1978–84.⁸ Real per capita income more than doubled.

With the initial success of these rural reforms, China started to reform the state-owned enterprises (SOEs). From the beginning, owing to ideological barriers imposed by Mao's version of Marxist-Leninist socialist doctrines, SOE reforms did not involve significant privatization of state assets. However, major reforms increased enterprise accountability and autonomy, implementing a flexible wage system to link work efforts more directly with rewards. The introduction of profit retention for enterprises and bonus payments to employees had a positive effect on SOE performance,⁹ but the fundamental problems of low efficiency and loss making have constantly hampered the Chinese economy.

Although existing SOEs were not privatized and they continued to benefit from the state's soft budgets, nonstate enterprises (private, collective, and foreign joint ventures) were greatly encouraged by the new policy that started in 1987.¹⁰ For private firms that had been limited to employing no more than seven people before 1987, the limit was gradually lifted starting in 1988. In the rural areas, nonfarm enterprises, particularly township and village enterprises (TVEs), quickly developed to become a new, dynamic, and powerful economic force. Growing from a negligible base in the late 1970s, the TVE sector had become more important than the agricultural sector in terms of output value by the early 1990s. In 1992, TVEs employed more than a quarter of the total rural labor force and contributed about 40% of per capita rural income.¹¹

The success of such economic reforms is evident in a number of important macroeconomic indicators. Measured in constant 1990 prices, per capita GDP more than quadrupled between 1978 and 1995, growing by 9.3% per annum from 657 yuan to 2,970 yuan.¹² This record of growth is unprecedented in Chinese history and is only matched by some of the fastest growing nations in Southeast Asia.¹³

Economic growth has brought about much higher living standards for China's population. Real per capita disposable incomes almost quadrupled in the rural areas and more than tripled in the cities (table 1). However, the growth of rural incomes has been highly uneven over time. The largest growth occurred in the first 6 years of the reforms (1978–84), when real per capita income more than doubled, rising by about 15% per year. This was also a period when urban-rural inequality was substantially reduced. Income growth in the following 6 years (1985–91) was disappointing, with per capita rural income rising only by 0.7% per annum.

B. Income Inequality and Poverty

On the basis of the current average per capita income, one would expect that by now poverty would be more or less eliminated in China. But it is still a big problem that has been very difficult to eliminate. To find explanations for this problem, I will begin with a detailed definition and

TABLE 1
INCOME GROWTH AND URBAN-RURAL INCOME INEQUALITY, 1978-96

YEAR	RURAL PER CAPITA INCOMES		URBAN PER CAPITA INCOMES		URBAN/RURAL INCOME RATIOS	
	Current Prices	1990 Prices	Current Prices	1990 Prices	Current Prices	1990 Prices
1978	134	285	316	702	2.36	2.46
1980	191	380	439	890	2.30	2.34
1984	355	658	660	1,223	1.86	1.86
1985	398	657	685	1,133	1.72	1.72
1986	424	660	828	1,280	1.95	1.94
1987	463	678	916	1,302	1.98	1.92
1988	545	680	1,119	1,318	2.05	1.94
1989	602	629	1,261	1,277	2.09	2.03
1990	686	686	1,387	1,387	2.02	2.02
1991	709	693	1,544	1,469	2.18	2.12
1992	784	732	1,826	1,600	2.33	2.19
1993	922	757	2,337	1,763	2.53	2.33
1994	1,221	813	3,179	1,919	2.60	2.36
1995	1,578	982	3,893	2,176	2.47	2.22
1996	1,926	1,111	4,377	2,248	2.27	2.02
AVERAGE ANNUAL GROWTH RATE (Geometric Averages in %)						
1978-84	...	14.9	...	9.7	-3.9	-4.5
1984-917	...	2.7	2.3	1.9
1991-96	...	9.9	...	8.9	.9	-.9
1978-96	...	7.8	...	6.7	-.2	-1.1

SOURCE.—State Statistical Bureau, *Statistical Yearbook of China*, various issues, 1980-97.

NOTE.—Incomes at 1990 prices are deflated, respectively, by rural and urban retail price index of consumer goods. Rural incomes include remittances sent by rural migrants who work in urban areas. Rural migrants working in the cities are classified as rural residents not as urban residents in the Chinese official statistics and household surveys.

description of poverty and then present a theoretical framework to describe the relationship between income growth, inequality, and poverty.

Using official Chinese language, the objective of the first phase of economic development from 1978 to 2000 is to solve the so-called *wen bao* problem. In the second stage, from 2000 to 2020, China will aim to achieve a *xiaokan* living standard for the people. *Wen* means to keep people warm with enough clothing. *Bao* means to have enough food to eat throughout the year. An equivalent academic definition of *wen bao* is the poverty line. If people are not *wen* and *bao*, they are considered to be poor. The word *xiaokan* means that people can enjoy a lifestyle similar to the average living standard of a middle-income country.

In Chinese statistics, the poverty line is defined as 318 yuan per capita in 1990 prices. If we were to use the official exchange rate in 1985 and the World Bank's definition of poverty, the poverty line would be

1,773.9 yuan in 1990 prices (exchange rate of 4.83 yuan per dollar).¹⁴ This is certainly an unrealistic figure for China. Instead, the World Bank applies a poverty line of 454 yuan in 1990 prices, which implies a purchasing power parity exchange rate of just 1.24 yuan per dollar.

In most countries, the official poverty line is linked to some political objectives. Hence it may have little to do with the real level of poverty. L. Zhu and Z. Jiang discuss the origin of the official poverty line in China.¹⁵ They suggest that the poverty line has been largely a political decision. As a result, it should be used with due caution. It is likely that it was artificially set low so that fewer people would be classified as poor in the statistics so as to disguise the real level of poverty. Nevertheless, if the same line is used for all years, the reduction of poverty over time should be clear in a comparative sense.

Because the official poverty line may be too low, we should pay more attention to the higher line defined by the World Bank. However, as the difference between the Chinese official and the World Bank poverty lines is substantial, the estimation of poverty incidence is greatly influenced by which level of income is used to define poverty. To have a better understanding of the poverty situation in China, both lines will be used to estimate the incidence of poverty in this article.

Poverty could also be defined in a material context. Absolute poverty in China means that a household does not have enough staple food to eat throughout the year, cannot afford to buy enough warm clothing, and is unable to send its children to school. These households usually live in very poor housing conditions, with many people of different generations crowded together in the same house without clean water and electricity.¹⁶

As it is extremely difficult to measure poverty accurately using material indicators, I have to rely on per capita income as a measure. Throughout this article, I use 318 yuan per capita per year in 1990 prices as the lower poverty line (hereafter, Type I poverty) and 454 yuan per capita per year in 1990 prices as the higher poverty line (hereafter, Type II poverty).¹⁷

It is important to note that the incidence of poverty is determined by two factors: average income and the distribution of income. In the following section, I use household survey data to calculate the Gini coefficient as a measure of income inequality, the incidence of poverty, and average per capita income so that I can quantify the effects of mean income and the Gini coefficient on the incidence of poverty. In theory, if income inequality were held constant, poverty incidence would decline as mean income rises. Alternatively, if mean income were held constant, poverty incidence would increase as the Gini value (hence income inequality) rises. If both mean income and the value of the Gini coefficient were to rise, the net effect would depend on the relative movement of each component.

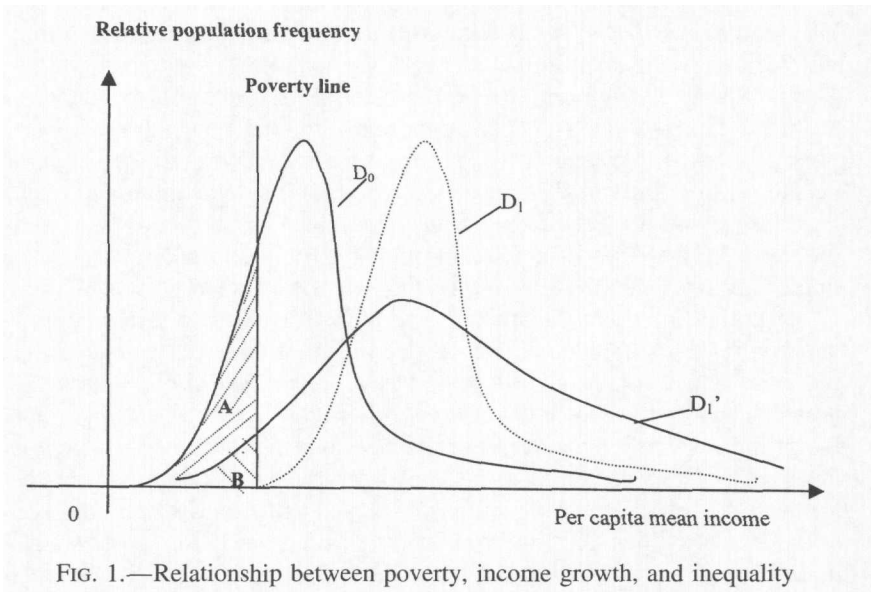


FIG. 1.—Relationship between poverty, income growth, and inequality

The relationship between poverty, income growth, and inequality can be illustrated in figure 1. Assume that D_0 is the income distribution curve in the base period when income is relatively equally distributed but per capita mean income is low. Hence, there is a large proportion of the population living in poverty. The incidence of poverty is equal to $(A + B)/1$ as the total area under D_0 is equal to unity (the area under D_1 , or D_1' , is also equal to unity). If income inequality were held constant, mean income growth would push the distribution curve to the right, say from D_0 to D_1 , by the end of the data period. As a result, the entire population would be enjoying a higher living standard, and all the poor would have been lifted out of poverty. However, if income growth were to be accompanied by an increase of inequality, the distribution curve could still move to the right, but income distribution would become more dispersed. Consequently, some people would still be trapped in poverty. If the distribution became D_1' , the incidence of poverty by the end of the data period would be $B/1$.

Turning to the real situation in China, although per capita income grew rapidly for about 20 years, the nature of economic growth brought about two fundamental problems. One is the unbalanced development among the regional economies, which led to more interregional inequality. The other is the worsening of income distribution within each individual region. As a result, poverty is currently not just concentrated in some remote and backward regions but also prevails in the more prosperous areas.

The relative spatial concentration of poverty corresponds to C. Ris-

kin's ecological model, which supposes that poverty is concentrated in a few regions of great natural adversity.¹⁸ The prevalence of poverty in the prosperous areas (or normal regions in Riskin's terms) corresponds to Riskin's second model—the socioeconomic model that describes how poor people are marginalized in a normal region. In what follows, I suggest that while Riskin's first poverty distribution model is more dominant than his second model in the Chinese case, the existence of the latter model makes the task of eradicating poverty more complicated and difficult than would be the case if just the first model were present.

Another important feature of poverty in China is that it is predominantly a rural phenomenon. This is very different from other developing countries where urban poverty is pervasive. J. Knight and L. Song suggest that the restriction on rural-urban migration has been an important factor in preventing poor people from migrating out of poverty.¹⁹ Here it needs to be stressed that rural-urban migration has been somewhat relaxed in the reform period. Millions of rural workers have been allowed to work in the cities. However, as I have pointed out in an earlier study, massive migration of rural labor to the cities does not resolve the poverty problem for two reasons.²⁰ One is that the economic development of poor areas may be retarded as a result of a massive exodus to the cities of young and more educated farmers, leaving behind the old and less educated people to work the farms, which would reduce local farm productivity. Although people working outside the village can send money home, remittances may not be enough to eradicate poverty. The other reason why massive migration does not resolve the poverty problem is the strict population registration system, which prevents rural migrants from taking formal urban employment or obtaining subsidies (housing, pensions, health care, education, food, and many others) that are solely available to the urban populace. As a result, migrant workers usually end up in low-paid and casual jobs, and many of them become the urban poor. This is why most westerners who study and have visited China find it difficult to understand why there are so few urban poor in official Chinese data, since they can see many poor people living in the cities. In fact, most of these poor are seasonal workers without the right to permanent settlement in the city, and hence they are still classified as rural residents in the official statistics.

To fully understand poverty in China, three important factors need to be examined: income inequality for the whole country, especially for the rural population (including those working in the cities but classified as rural people); rural-urban income inequality; and regional income inequality.

III. Income Inequality, the Urban-Rural Divide, and Regional Inequality

Rapid income growth in China has been accompanied by rising inequality. According to World Bank statistics, the Gini coefficient rose from 28.8 in 1981 to 38.8 in 1995.²¹ Before economic reform, China was a

TABLE 2
GINI COEFFICIENTS FOR SELECTED REGIONS

Region	1980s	1990s
China (1981 and 1995)*	28.8	38.8
Eastern Europe†	25.0	28.9
High-income countries	33.2	33.8
South Asia	35.0	31.8
East Asia and the Pacific	38.7	38.1
Middle East and North Africa	40.5	38.0
Sub-Saharan Africa	43.5	47.0
Latin America and the Caribbean	49.8	49.3

SOURCES.—World Bank, “Sharing Rising Incomes: Disparities in China” (World Bank, Washington, D.C., 1997); Vinod Ahuja, Benu Bidani, Francisco Ferreira, and Michael Walton, *Everyone's Miracle? Revisiting Poverty Reduction and Inequality in East Asia*, A Direction in Development Book (Washington, D.C.: World Bank, 1997); and Klaus Deininger and Lyn Squire, “A New Data Set Measuring Income Inequality,” *World Bank Economic Review* 10, no. 3 (1997): 565–91. The figures are given in table 1 of the World Bank work, which also derives data from the latter two sources.

* The figures for China are for 1981 and 1995 only. The figures for the other countries are averages for the decade of the 1980s and 1990s, respectively.

† High income countries are predominantly Organization for European Economic Cooperation (OECD) countries.

rather egalitarian economy, but 20 years later, income inequality in China is on a par with the income inequalities of her neighboring countries in East Asia and the Pacific Region (table 2).

In China, income inequality and the growth of inequality under economic reforms can be explained by two major factors: urban-rural inequality and interprovincial inequality. Urban-rural inequality is a common feature in all provinces, rich or poor, inland or coastal, but interprovincial inequality is more of a rural phenomenon than an urban one. A recent World Bank study concludes that the urban-rural income gap has been responsible for a third of the total inequality in 1995 and a half of the increase in inequality since 1985.²²

Rural incomes grew rapidly at a rate of 14.9% per annum between 1978 and 1984, but they began to trail the increases in urban incomes in the following decade, a trend that was not reversed until 1995 and 1996 (table 1). China's urban-rural income inequality is large by international standards. Using data for 36 countries, D. Yang and H. Zhou show that urban incomes are rarely more than twice rural incomes. In most countries, the urban-rural income ratios are below 1.5.²³ The official income data show that urban-rural income ratios peaked at 2.36 in 1978. As a result of fast growth in farm incomes from 1978 to 1984, the ratio dropped to 1.72 in 1985. The ratio climbed to 2.6 by 1994 as urban incomes grew much faster than rural incomes did in the following decade.

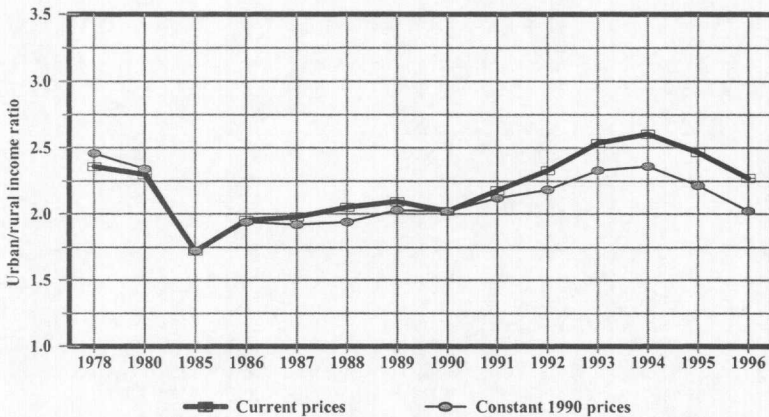


FIG. 2.—Urban-rural per capita income ratios, 1978–96

Even after adjusting for rural and urban price inflation, urban-rural inequality was clearly still the trend (fig. 2 and table 1).

The World Bank argues that official income data greatly underestimate the urban-rural income gap. It suggests that urban people benefit from various kinds of subsidies, including health care, pensions, education, transportation, utilities (water, electricity, and fuel), and housing benefits. These subsidies are exclusive to urban residents and may amount to as much as 80% of cash incomes (table 1). This is similar to the estimate made by N. Lardy,²⁴ which did not include the pension subsidy, although it has been a significant component of the remuneration package to urban employees. It is likely that the total subsidies were even greater than 80% in the late 1970s and early 1980s. From 1985 on, however, most indirect subsidies (e.g., low food prices and housing rents) were gradually reduced, and urban workers were paid a higher cash salary to compensate for the loss of subsidies. Hence, while the World Bank may have overestimated the amount of urban subsidies since the mid-1980s, urban subsidies are still large, and the real urban-rural difference of living standards is still much more significant than shown by official income data.

Another important dimension of inequality is interprovincial. The World Bank estimates that almost a quarter of total inequality in 1995 and a third of the increase in inequality since 1985 is explained by interprovincial inequality. Two recent studies by myself and by A. Hussain et al. confirm this conclusion.²⁵

Large urban-rural income inequality has been caused by political and social policies that have been urban biased. Despite massive rural to urban migration during the reform period, the Chinese labor market has been heavily regulated to the disadvantage of rural labor. Lack of invest-

TABLE 3
RURAL GINI COEFFICIENTS AND INTERPROVINCIAL AND
INTERZONAL INEQUALITY

Year (1)	Rural Gini Coefficient (2)	Share of Interprovincial Component (%) (3)	Share of Interzonal as a Proportion of Interprovincial Inequality (%) (4)
1978	21.2
1980	23.7
1986	28.8	54.2	71.8
1987	29.2	54.1	75.3
1988	30.1	53.5	76.4
1989	31.0	50.6	77.1
1990	29.4	51.7	75.7
1991	30.3	55.1	73.7
1992	31.4	55.4	76.4

SOURCES.—Yao Shujie and Liu Jirui, "Economic Reforms and Spatial Income Inequality in China," *Regional Studies* 32, no. 8 (1998): 735–46, tables 5–7; Ministry of Agriculture, *China's Agricultural Development Report* (Beijing: Agriculture Press, 1995).

ment in agriculture and government interventions in the marketing and pricing of agricultural commodities have also contributed to the rising urban-rural income gap. Development experiences in the past 2 decades show that allowing massive rural-urban migration is not an effective means of reducing urban-rural inequality, although one may argue that without migration, the urban-rural standard of living difference may have been worse than it is today. Rural migrants face many constraints when looking for jobs in the cities, such as the costs of relocation, lack of job information, limited access to social services in urban areas, and so forth. Meanwhile, the state continues to support urban living standards as urban residents are still subsidized in a variety of ways: soft budget constraints on SOEs, priority or exclusive rights to formal employment, low-cost housing or housing subsidies, pension provisions, and low-cost medical care and education. By contrast, farmers working in the villages and those who have moved to work in the cities have been denied these benefits. Moreover, most migrant workers have to do the very harsh and poorly paid jobs that are usually unwanted by urban residents.²⁶

From an examination of income inequality for the rural population, a similar picture emerges. First, overall inequality rose significantly. The rural Gini coefficient rose from 21.2 in 1978 to 32.0 in 1994. Second, much of the rural income inequality is explained by interprovincial inequality, which, in turn, can be explained primarily by interzonal inequality.²⁷ Over 50% of the rural Gini coefficient is explained by interprovincial inequality, and over 70% of the interprovincial inequality is explained by interzonal inequality (table 3). Not only has interprovincial

inequality been a large component in overall rural inequality, but the rural economy can also be divided into three distinctive geographical zones. The coastal (eastern) zone is much better off than the central zone, which in turn, is much better off than the western zone. In 1992, for example, per capita net income was 895 yuan in the east, 606 yuan in the center, and only 484 yuan in the west. Third, nonfarm income has been rising rapidly. In 1978, the share of nonfarm income in total rural income was only 7%. By 1992, it had risen to almost 40%.²⁸ Nonfarm incomes are generated by production activities of the TVEs.²⁹

The greatest achievement of China's economic reforms is probably the successful development of TVEs. In 1978, the total number of TVEs was just 1.6 million; by 1993, it had risen to 24.5 million. The real gross output value of TVEs rose by an average of 25.6% per year over the period 1978–93.³⁰ In 1978, TVEs employed only 9.2% of the rural labor force. By 1993, they employed 28%. Rapid production growth has enabled TVEs to make a significant contribution to the state revenue. The share of TVE taxes as a proportion of total state tax revenue rose from 2.2% in 1978 to 23.1% in 1993. Township and village enterprises have also become a powerful and dynamic force in international trade. In the early years, the majority of TVEs produced low-technology and low-valued products for the domestic market. Over the years, many TVEs began to produce a variety of export products. By 1993, about one-third of national exports were accounted for by TVEs, and this share has continued to rise since 1993.³¹ In less than 20 years, TVEs have grown from a negligible production sector to one that is comparable to SOEs and agriculture.

Fast development of TVEs has helped raise rural incomes substantially. However, due to uneven development across the country, the distribution of TVE outputs has a distinct spatial pattern. In 1992, for example, the proportion of TVE employment was 30% of the total rural labor force in the eastern zone, but it was only 24% in the central area and 15% in the western zone. Per capita TVE gross output value was 1,798 yuan in the east, compared to 734 yuan in the center and 413 in the west.³²

Uneven development of TVEs across regions is also reflected in the uneven contribution of TVE incomes to total rural incomes. Figure 3 shows the average per capita rural incomes and their TVE and agricultural components. It is interesting to note that the distribution of agricultural incomes shows less inequality than TVE income distribution.

The per capita income ratio between the richest and the poorest provinces was 4.5 for total incomes, only 2.0 for agricultural incomes, but 13.4 for TVE incomes. When the Gini coefficient for total incomes and the respective concentration ratios for TVE and agricultural incomes are calculated for provincial per capita incomes for the period 1990–92, it becomes apparent that TVE income was then disequalizing while agricultural income was equalizing.³³ The share of TVE income in total ru-

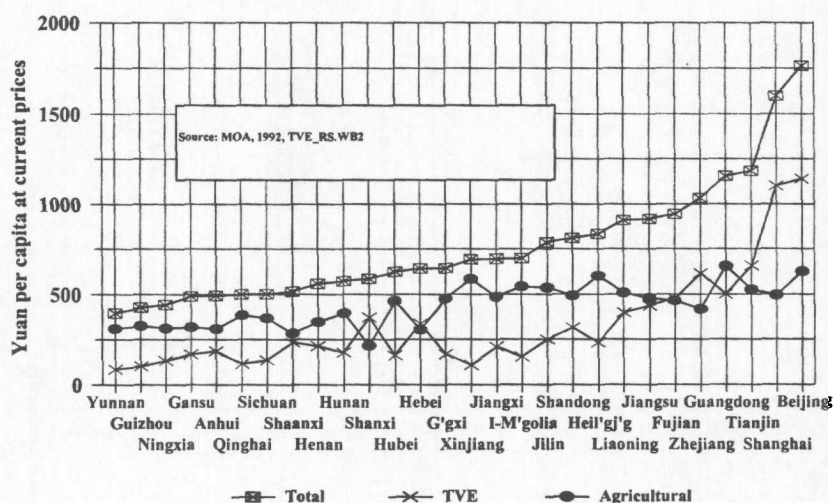


FIG. 3.—Agriculture and TVE per capita incomes in rural China, 1992

ral income was 34%–39%, but its share in the rural Gini coefficient was 55%–64%.³⁴

Before economic reform, there was little inequality among urban residents. The urban Gini coefficient was as low as 18 in 1981. Economic reforms allowed some people to earn higher wages and bonuses and to obtain other sources of income. As a result, inequality started to grow. However, given the large size of the urban population and the extent of geographical diversity, inequality within the urban population, even today, is still low by international standards. The urban Gini coefficient reached a peak of 28 in 1994, but then dropped to 26 in 1995.³⁵ Urban inequality has been significantly lower than rural inequality, especially when the wide variety of urban subsidies is taken into account. This is apparent not only in the sizable differences between rural and urban Gini coefficients, but also in the per capita income ratios between the richest and the poorest provinces. In 1996, for example, the urban ratio was only 2.5 (7,721 yuan in Shanghai vs. 3,102 yuan in Inner Mongolia), but the rural ratio was 4.4 (4,846 yuan in Shanghai vs. 1,101 yuan in Gansu). Higher incomes together with less inequality have led to a lower incidence of poverty in the cities than in the rural areas.

IV. How Should One Measure Poverty in China?

To measure both urban and rural poverty as well as changes in the poverty incidence, we need a large volume of household survey data by year and by region. Most of the required data are generally not available to independent researchers. However, I had access to the urban household survey data for two provinces, Sichuan and Liaoning, for the period

TABLE 4
INCIDENCE OF URBAN POVERTY WITH PER CAPITA INCOME
LESS THAN 454 YUAN IN 1990 PRICES

Region	1986	1987	1988	1989	1990	1991	1992	1993
Liaoning	.00	.00	.25	.33	.26	.00	.10	.25
Sichuan	.80	.66	.67	.71	.77	.71	.52	.43

SOURCE.—State Statistical Bureau, unpublished urban survey data for Liaoning and Sichuan (Beijing, 1986–93).

1986–93, and to the rural household data for three provinces, Sichuan, Liaoning, and Jiangsu, for the period 1988–90.³⁶ Making full use of these data, I will attempt to present a consistent picture of poverty during the economic reforms.

A. Poverty as Mainly a Rural Phenomenon

The incidence of urban poverty (measured as a percentage of the proportion of people living below the respective poverty lines) is presented in table 4. The World Bank reports that only 0.3% of China's urban population lived below the lower poverty (Type I) line in 1981 and no one lived below that line by 1995.³⁷ According to the survey data, no one was found to live below the Type I poverty line in the sample period. In Liaoning, the proportion of the urban population living below the higher poverty line (Type II) was less than 0.33%. The data show that in Sichuan urban poverty (Type II) was more apparent, but the incidence was still low, ranging from 0.43% to 0.80%. It is interesting to note that urban poverty was gradually reduced in Sichuan over the sample period, implying that income growth continued to eliminate urban poverty in that province. In Liaoning, urban poverty (Type II) did not exist in 1986 and 1987, but it rose to a considerable level during 1988–90 and persisted up to 1993. The fluctuations in poverty in Liaoning may reflect the growth cycle of the local economy. The urban economy in Liaoning was, and still is, dominated by SOEs. Hence, any change of macroeconomic policies set by the central government (such as those related to credit, bankruptcy, and the deepening of SOE reforms) would inevitably have had a significant effect on the livelihood of low-income families.

The official urban survey data have some limitations as they do not include rural people working in the cities. If these people were included, the incidence of urban poverty would be higher. Moreover, as a result of recent SOE reforms, millions of factory workers were laid off.³⁸ Some of those workers found alternative employment shortly after leaving the factories, but many did not, and these workers may have to end up living in poverty, especially in households where both the husband and wife became redundant in their jobs at the same time. Unfortunately, our sur-

vey data do not cover the recent period during which urban unemployment has been high, and further research needs to be conducted to examine the effects of rising unemployment on urban poverty over the next few years.

Based on the available data, there is no doubt that poverty in China is predominantly a rural phenomenon, unlike the situation in many other developing countries, where urban poverty is pervasive. Assuming that the incidences of poverty in all Chinese cities had been similar to those in urban Liaoning and Sichuan, in 1993 there would have been fewer than 1 million urban residents in all of China living below the World Bank poverty line (Type II) and no people living below the official poverty line (Type I). This number is negligible compared to the number of the rural poor.

B. The Extent of Rural Poverty

According to official Chinese data (quoted by the World Bank in a 1997 publication), China had 270 million rural poor in 1978. By 1995, the number of such poor was reduced to 70 million.³⁹ In the literature, there is no other comparable study on the incidence of rural poverty over the reform period. I believe that this official figure is at best inconsistent. It is most likely a gross understatement of the real poverty situation, one which was provided by the government to cover up the failure of Mao's economic policy. For example, recent information in the *People's Daily* (the national official newspaper of the Communist Party) implies that there were only 30 million rural poor in 1998 and suggests that, by the end of this century, China aims to eliminate rural poverty by means of various poverty reduction programs.⁴⁰

Therefore, it is important to have a consistent estimate of rural poverty over time in order to have a better understanding of the extent of poverty and of how it has evolved under economic reform. Without all the necessary household survey data, I am relying on the calculation of poverty incidence and its relationship with the Gini coefficient and per capita mean incomes using available 1988–90 household survey data for rural Jiangsu, Liaoning, and Sichuan to run a simple regression in order to estimate the multiplier effects of the Gini coefficient and per capita income on rural poverty. With these two estimated coefficients and with national Gini coefficients and per capita mean incomes for the entire 1978–96 period, I can estimate the levels of rural poverty for China throughout the reform period.

Using the Type I poverty line, the incidence of rural poverty ranged from 2% in Jiangsu to about 12% in Sichuan. An economic recession and high inflation in 1989 and 1990 caused a much higher incidence of poverty across the whole country. This implies that the incidence of poverty is highly sensitive to income changes even in the richest province

TABLE 5
INCIDENCE OF RURAL POVERTY, 1988–90

REGION (Years)	GINI INDEX	MEAN INCOME (Yuan/Per Capita)	PERCENTAGE OF POPULATION		NUMBER OF POOR (Thousands)	
			Type I	Type II	Type I	Type II
Jiangsu:						
1988	30.5	1,152	1.92	7.70	990	3,971
1989	31.2	1,024	3.20	11.79	1,652	6,086
1990	30.9	955	4.83	14.72	2,546	7,759
Liaoning:						
1988	30.2	984	5.01	12.80	1,118	2,857
1989	31.9	895	8.70	18.41	1,958	4,144
1990	27.5	836	5.07	15.13	1,152	3,438
Sichuan:						
1988	24.8	635	8.75	29.57	7,909	26,728
1989	24.5	589	11.37	35.79	10,372	32,648
1990	23.2	560	11.72	38.81	10,805	35,779

SOURCE.—State Statistical Bureau, unpublished official rural household survey data (Beijing, 1988–90).

NOTE.—Type I poverty = 318 yuan per capita; Type II poverty = 454 yuan per capita at 1990 constant prices. Household incomes are deflated by the provincial rural retail price indexes for each province.

(Jiangsu). The results in table 5 suggest that poverty in the low-income province (Sichuan) was quite pervasive.⁴¹ There were as many as 36 million rural people living below the Type II poverty line and over 10 million people living below the Type I poverty line in Sichuan alone. However, poverty is not exclusively a problem of the low-income provinces. In 1990, one of China's richest provinces, Jiangsu, had almost 8 million and 2.5 million people living below the Type II and the Type I poverty lines, respectively. This occurred partly because high-income provinces tend to have greater income inequality.

It is clear that poverty incidence is closely related to both mean income and income inequality. By running a log-linear regression of poverty incidence against per capita mean incomes and the provincial Gini coefficients, I can estimate the elasticities of poverty incidence with respect to mean incomes and the Gini coefficients. The estimated results and related statistical tests are presented in equations (1) and (2) below.

$$\begin{aligned}
 \ln(\text{poverty I}) &= 13.16 + 5.77 \ln(\text{Gini coefficient}) \\
 (t\text{-values}) &\quad (6.50) \quad (4.91) \\
 &\quad -4.57 \ln(\text{mean income}) \\
 &\quad (-8.32)
 \end{aligned} \tag{1}$$

$$R^2 = 0.96, N = 9.$$

$$\begin{aligned} \ln(\text{poverty II}) &= 15.64 + 2.41 \ln(\text{Gini coefficient}) \\ (t\text{-values}) &\quad (10.50) \quad (7.21) \\ &- 3.10 \ln(\text{mean income}) \quad (2) \\ &\quad (-19.87) \end{aligned}$$

$$R^2 = 0.96, N = 9.$$

“Poverty I” and “poverty II” denote, respectively, the percentages of rural population living below the Type I and Type II poverty lines. As the adjusted R^2 is equal to 0.96, poverty incidence is almost perfectly explained by the two explanatory variables. The incidence of poverty measured by the Type II line is less elastic to mean income and inequality changes than that measured by the Type I line. The elasticities of poverty incidence at the Type I line are 5.77 and -4.57 with respect to the Gini coefficient and mean income. This implies that, *ceteris paribus*, a 10% rise in per capita mean income would reduce poverty incidence by 45.7%, but a 10% rise in the Gini coefficient would raise poverty incidence by more than 57.7%. When poverty is measured by the Type II line, a 10% rise in mean income would reduce poverty by 31%, while a 10% increase in the Gini coefficient would raise poverty by 24.1%. The results in equations (1) and (2) suggest that although income growth is important in reducing poverty, rising inequality has a critical countereffect.

Since poverty incidence has an almost perfect relationship with mean income and the Gini coefficient, I can use the results of equations (1) and (2) to estimate with reasonable confidence and accuracy national levels of poverty. Based on my national rural Gini coefficients estimates and those of the Ministry of Agriculture and per capita mean incomes at 1990 prices, the incidences of both Type I and Type II poverty are presented in table 6.

In 1978, over three-quarters of the rural population (596 million people) lived below the official poverty line (Type I poverty), and 100% (790 million people) lived below the World Bank poverty line (Type II poverty). This level of poverty is very different from the official estimate of just one-third of the rural population (270 million people) living in poverty. Rapid income growth between 1978 and 1984, together with stable and relatively low income inequality, lifted the majority of people out of poverty. By 1984, the incidence of Type I poverty was reduced to just 7.3% and that of Type II poverty to 25.6%. It is obvious that economic reforms in 1978–84 had the most critical effect on poverty reduction in rural China.

However, in 1985, things began to change. As the effects of rural reforms on agricultural income weakened, further income growth depended on nonagricultural or TVE income growth. The distribution of TVE income was much less equal, causing income inequality to rise

TABLE 6
ESTIMATED RURAL POVERTY IN CHINA, 1978-96

YEAR	POPULATION (Millions)	RURAL GINI INDEX	INCOME AT 1990 PRICES (Yuan Per Capita)	ACTUAL GINI COEFFICIENTS				GINI COEFFICIENT FIXED AT 21.24			
				Type I		Type II		Type I		Type II	
				%	Millions	%	Millions	%	Millions	%	Millions
1978	790	21.2	285	75.5	596	100.0	790	75.5	596	100.0	790
1979	791	22.5	339	64.8	513	100.0	791	56.6	448	100.0	791
1980	796	23.7	380	53.6	427	100.0	796	38.3	305	100.0	796
1981	799	23.9	442	37.7	301	81.7	653	19.2	153	61.6	492
1982	802	23.2	524	14.6	117	44.9	360	8.8	71	36.3	291
1983	807	23.9	589	10.2	82	33.5	271	5.2	42	25.3	204
1984	803	24.6	658	7.3	58	25.6	205	3.1	25	18.0	144
1985	808	25.8	657	9.6	77	28.8	232	3.1	25	17.8	144
1986	811	28.8	660	18.0	146	37.2	302	3.1	25	16.4	134
1987	816	29.2	678	16.9	138	35.1	287	2.7	22	16.2	134
1988	824	30.1	680	20.2	166	37.7	311	2.7	22	17.2	133
1989	832	31.0	629	22.5	187	38.5	320	3.8	32	20.7	133
1990	841	29.4	686	16.8	141	34.6	291	2.6	22	15.8	130
1991	853	30.3	693	19.1	163	36.0	307	2.5	21	15.3	130
1992	848	31.4	732	18.1	154	33.0	280	1.9	16	12.9	109
1993	852	33.0	757	20.9	178	33.6	287	1.6	14	11.6	99
1994	855	32.0	813	12.6	108	25.0	214	1.2	10	9.3	80
1995	859	34.8	982	8.6	74	17.0	146	.5	4	5.2	45
1996	864	36.7	1,111	6.7	57	13.2	114	.3	2	3.5	31

SOURCES.—State Statistical Bureau, *Chinese Statistical Yearbook* (Beijing: Statistical Press, 1997) for rural population. For Gini coefficients 1978-92, see table 3. Gini coefficients 1993-96 estimated by the World Bank and the author. Income data are explained in table 1.

NOTE.—Type I poverty = 318 yuan per capita; Type II poverty = 454 yuan per capita at 1990 constant prices. Poverty incidence is based on the estimated results in equations (1) and (2).

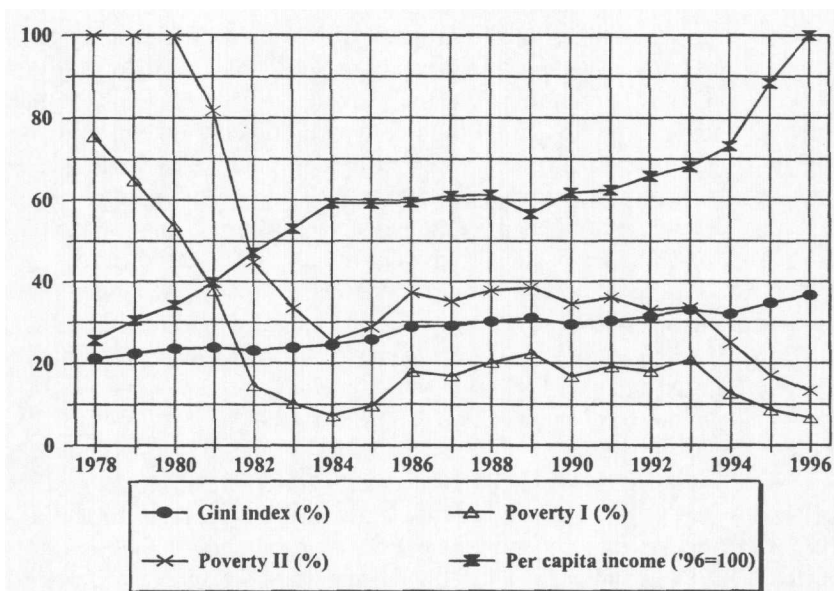


FIG. 4.—Indexes of income, inequality, and poverty in rural China, 1978–96

sharply after 1985. The growth of per capita income also slowed down considerably (see the discussion in Sec. IIA), and the negative effect of inequality growth on poverty reduction outweighed the positive effect of income growth in the following 4 years. By 1989, the incidence of Type I poverty rose to 22.5% and that of Type II poverty to 38.5% of the rural population. Although the incidence of rural poverty declined from 1990 on because of higher income growth and lower income inequality growth, the level of Type I poverty did not return to its 1984 level until 1996, while that of Type II poverty did not return to its 1984 level until 1994 (fig. 4 and table 6).

Between 1984 and 1995, China lost at least 1 decade of development efforts to reduce poverty. This is attributable to the slow growth in rural income, caused by the sudden slowdown of agricultural production that started in 1985 and by the failure to contain growing income inequality.⁴² In an earlier article, I point out that price reform in 1985 to replace the previous two-tier price system (1979–84) with a single mixed procurement price for grain crops represented a strong disincentive to grain producers from 1985 to 1989 before the government decided to raise again the real prices of farm products.⁴³ Compared with 1984, in 1985 the total area sown with grain declined by 3.5%, and grain output per hectare declined by 3.73%.⁴⁴ As a result, total grain output declined from its record high of 407.30 million tons in 1984 to just 379.10 million tons in 1985. It did not rise again to the 1984 level until 1989. According

to T. Sicular, the depression of grain output was partly due to the negligence of government policy.⁴⁵ Because poor households were largely dependent on grain production for their living, depressed grain output coupled with (and partly caused by) a low procurement price had a detrimental effect on their incomes. This, in part, explains why there was a sudden upturn of poverty from 1985 to 1989—the positive effect of income growth was outweighed by the negative effect of rising inequality.

From 1985 to 1995, increased income inequality was an important factor responsible for rising rural poverty. If inequality had been held constant at its 1978 level (even with low income growth in the late 1980s and early 1990s), by 1996 Type I poverty would have been virtually eliminated (fig. 5a) and Type II poverty would have been reduced to a low 3.5% of the rural population (see fig. 5b and the last four cols. in table 6).

Relatively high income growth from 1994 to 1996 was partly helped by government efforts to raise agricultural prices and to abolish illegal farm taxes imposed by regional governments and village leaders. In the late 1980s and early 1990s, persistent and widespread poverty in many rural areas sparked numerous angry protests throughout China. In response, in 1993 the central government issued decrees forcing local rural leaders to abolish 60 taxes imposed on the peasants.⁴⁶ The sharp increase of farm incomes in the following years made a significant contribution to poverty reduction.

However, further income growth and poverty alleviation are not guaranteed. For example, local taxes may emerge again as farm incomes continue to rise. This has been a normal pattern in China's rural politics during the last 20 years of reform. The recent Asian economic crisis and the devastating floods along the Yangtze River and in northeast China in 1998 will inevitably have detrimental effects on rural income growth, aggravating the poverty situation in the next few years. Moreover, many of the poor people who live in remote and mountainous areas have little prospect of benefiting from economic growth. These areas lack the basic transportation and communication infrastructures necessary for sustained economic development. Local human capital is poor, and firms from the more prosperous regions are reluctant to set up operations there to create nonfarm employment for the local population. Not only would it be too costly for the government to move people out of these impoverished areas, but it is likely that many people would not want to leave their hometowns for noneconomic reasons.

C. Sensitivity Analyses on Future Poverty Reduction

It needs to be stressed that poverty is defined as "absolute" poverty in this article. The poverty lines (Type I and Type II) are set so low that the required income level can only satisfy the very basic needs of a low living standard. The exact meaning of poverty in China according to this

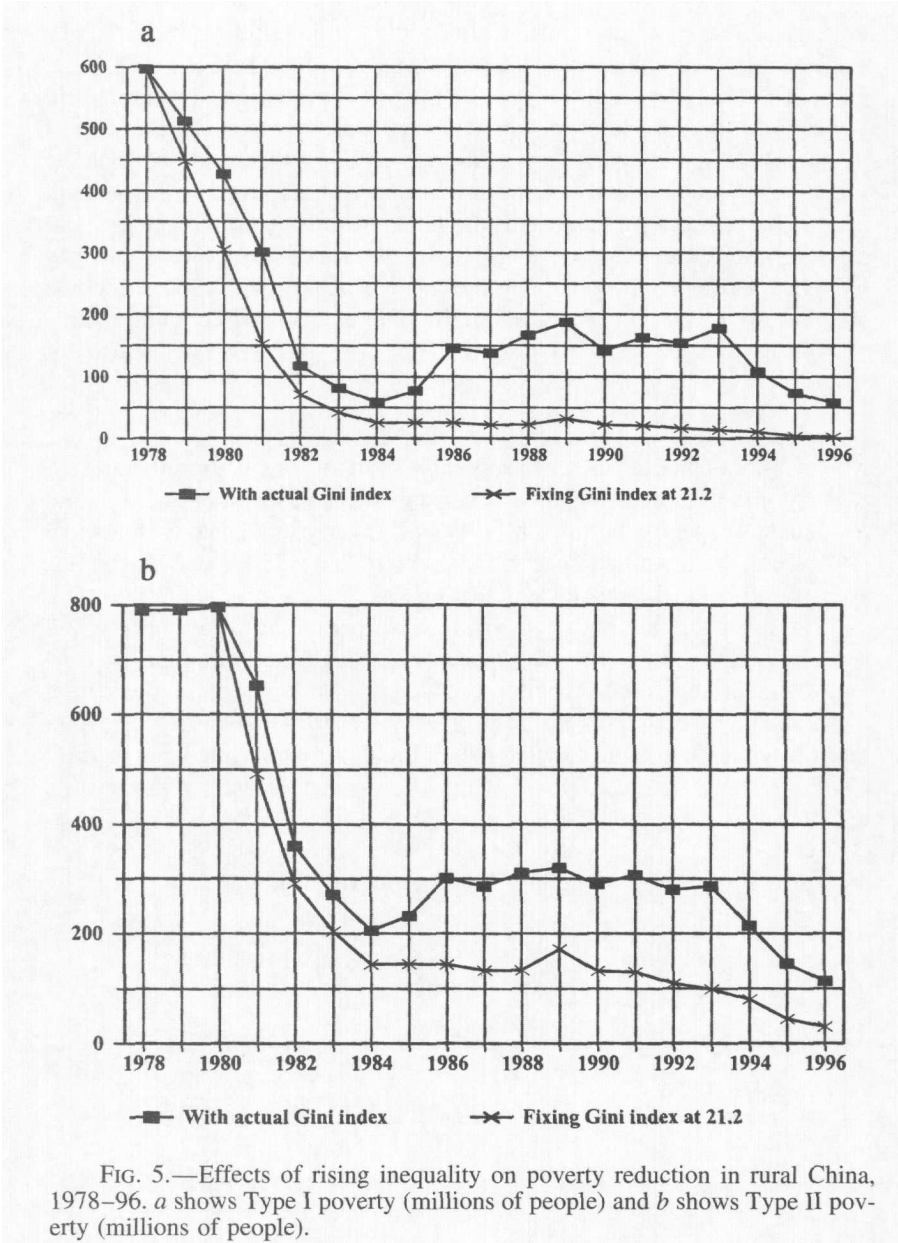


FIG. 5.—Effects of rising inequality on poverty reduction in rural China, 1978–96. *a* shows Type I poverty (millions of people) and *b* shows Type II poverty (millions of people).

definition is very different from that in the United States, Japan, or other industrial countries where poverty is a relative definition. For example, it is likely that people who are considered to live in poverty in the United States could be much better off than some people in China who are not considered as living in poverty. My aim now is to project whether, and

when, absolute poverty in rural China could eventually be eliminated. To achieve this, I conduct three sensitivity analyses based on the following. First, it is assumed that the Type II poverty line defined by the World Bank is the correct definition of poverty; thus I do not use the Type I poverty line in the sensitivity analyses. Second, it is assumed that the growth in inequality, or the Gini coefficient, is determined by the growth of per capita mean income, with the latter following the historical trend of 1978–94. Third, I assume that the growth rate of Type II rural poverty incidence is determined both by the growth of per capita mean income and the growth of the rural Gini coefficient, as shown in equation (3):

$$R_p = E_{pG}R_G + E_{pI}R_I, \quad (3)$$

where R_p , R_G , and R_I denote, respectively, the annual growth rates of poverty, the Gini coefficient, and per capita mean income, and E_{pG} and E_{pI} denote, respectively, the elasticities of poverty incidence with respect to the Gini coefficient and per capita mean income. These two elasticities are derived from the results in equation (2).

To estimate the annual growth rates of per capita mean income and the Gini coefficient, two more regressions are required. Equation (4) estimates the elasticity of the Gini coefficient with respect to per capita mean income, and equation (5) estimates the growth rate of per capita mean income. The Gini coefficients and real per capita incomes in rural China are taken from 1978–94 data. The ordinary least squares results indicate that for every 10% rise in per capita mean income, the Gini coefficient increases by about 4.2%. Over the data period, the average annual growth rate of per capita mean income rose by 5.26%.⁴⁷

$$\ln(\text{Gini}) = 0.6402 + 0.4174 \ln(\text{mean income}) \quad (4)$$

(7.85) (6.27)

$$R^2 = 0.724, N = 17.$$

$$\ln(\text{mean income}) = -95.5 + 0.0513 (\text{time period}) \quad (5)$$

(-7.31) (7.51)

$$R^2 = 0.790, N = 17.$$

Assuming the income elasticity of the Gini coefficient and the average annual growth rate of per capita income remain the same as those estimated from equations (1) and (2), it is possible to predict the level of Type II poverty in the year 2010, the year when the Chinese government aims for a *xiaokang* living standard.

The basic projected results are presented in the third and fourth col-

TABLE 7
PREDICTIONS OF RURAL POVERTY TO THE YEAR 2010 (Type II Poverty)

YEAR	PREDICTED TOTAL RURAL POPULATION (Millions)	SCENARIO I POVERTY INCIDENCE		SCENARIO II POVERTY INCIDENCE		SCENARIO III POVERTY INCIDENCE	
		%	Number	%	Number	%	Number
1997	868.3	11.75	102.0	12.47	108.3	11.05	95.9
1998	872.7	10.45	91.2	11.79	102.8	9.25	80.7
1999	877.0	9.30	81.6	11.14	97.7	7.74	67.9
2000	881.4	8.27	72.9	10.52	92.7	6.48	57.1
2001	885.8	7.36	65.2	9.94	88.1	5.42	48.0
2002	890.2	6.55	58.3	9.39	83.6	4.54	40.4
2003	894.7	5.83	52.2	8.88	79.4	3.80	34.0
2004	899.2	5.19	46.6	8.39	75.4	3.18	28.6
2005	903.7	4.62	41.7	7.93	71.6	2.66	24.0
2006	908.2	4.11	37.3	7.49	68.0	2.23	20.2
2007	912.7	3.65	33.4	7.08	64.6	1.86	17.0
2008	917.3	3.25	29.8	6.69	61.3	1.56	14.3
2009	921.9	2.89	26.7	6.32	58.2	1.30	12.0
2010	926.5	2.57	23.9	5.97	55.3	1.09	10.1

NOTE.—Rural population growth follows the trend of 1978–96 at .5% per year. Scenario I assumes the following: average income growth follows the trend of 1978–94, which is 5.26% per annum. The growth of the Gini coefficient is the growth rate of mean income times the income elasticity of the Gini coefficient, which is 0.417. The growth rate of poverty incidence is calculated by equation (4). Scenario II assumes that the mean income grows half as fast as in 1978–94, or at 2.63% per annum. Other assumptions are the same as in Scenario I. Scenario III assumes that mean income growth follows the trend in 1978–94, but the Gini coefficient is fixed at its 1996 level of 36.7.

umns under Scenario I in table 7. With an average annual growth rate of 0.5%, the total rural population will be 926.5 million, and 2.57% or 23.9 million people will still live below the Type II poverty line by the year 2010. As 1978–94 was a period of very fast economic growth, China may not be able to maintain the same high growth rate over the next 10–15 years. The possibility of a lower growth rate is supported by the recent economic crisis in Asia and the frequent occurrences of devastating natural disasters (e.g., the prolonged flooding along the Yangtze River in 1998). Hence, Scenario II assumes that rural per capita income will grow half as fast from 1997 to 2010 as it did in 1978–94, just 2.63% per annum. Consequently, the growth of inequality will also be slower. As a result, the poverty incidence will be 5.97%, or 55.3 million people. Scenario III predicts poverty incidence under the most optimistic and probably the least likely assumptions. It assumes that per capita income will grow as fast as in the data period but that the Gini coefficient is fixed at its 1996 level of 36.7. In other words, high growth in the future would be proportionally distributed among the population. The results of this

scenario are astonishing, with the incidence of poverty falling to just 1.09%, to 10.1 million people.

The simulation results presented in table 7 have important implications regarding poverty reduction in rural China. First, poverty alleviation is a long and painstaking process. It is almost impossible to totally eradicate rural poverty (in an absolute sense) because relative poverty can never be eradicated in the next 15 years, even under the most optimistic scenario. Many people may think that China will become an economic superpower in this century, but they have to bear in mind that many Chinese, probably as many as the entire population of the United Kingdom, will still live in absolute poverty by the year 2010. Second, continuous income growth is a necessary condition for poverty reduction, but it is not a sufficient one. More effective poverty reduction requires continuous income growth coupled with a fairer distribution system.

V. Conclusions

The estimations and calculations of poverty incidence in this research are based on a relatively small sample of household survey data and need to be interpreted with caution. However, since there are no other comparable studies on the same issue, the results in this article present a useful picture of poverty reduction in China over the past 2 decades. Further research needs to be conducted to improve the accuracy of the estimates, but the estimated trend of poverty incidence in this article is consistent with theoretical expectation in three respects. First, rapid rural income growth with stable inequality between 1978 and 1984 had the most dramatic effect on poverty reduction. Second, slow income growth with rising inequality between 1985 and 1991 caused a significant upturn of poverty. Third, significant income growth in the 1990s reduced poverty down to the 1984 level or below.

One striking finding in this article is that the incidence of poverty before economic reforms was substantially higher than was acknowledged by the government. I estimated that in 1978, three-quarters of the Chinese rural people (596 million) lived below the official poverty line, but the government always insisted that there were only 270 million rural poor in 1978. This official understatement concerning poverty was most likely a political decision because the discrepancy between my estimate and the official figure is too large to be reconciled by the lack of statistical information. The government was unlikely to present the world with the grim fact that a huge proportion of the rural population lived in extreme poverty after 3 decades of socialist revolution and construction. To signify the pace of poverty reduction under economic reform, the government set a poverty line that is far too low by international standards. Nevertheless, the record of poverty reduction over the past 20 years is impressive even if the Type II poverty line as defined by the World Bank is used.

Poverty reduction is important both economically and politically for the Chinese government. Economically, China has to spend large sums of money each year to reduce the suffering of the poor. In 1998 alone, the government allocated 18.3 billion yuan to targeted areas in the form of direct cash support, investments on education and infrastructure, microfinance, and subsidies to investment projects.⁴⁸ This kind of poverty support is costly and subject to the uncertainty of government policies. Politically, China needs to reduce poverty to maintain social stability at home and to raise her political status abroad. People in the West are unlikely to be impressed by the overall strength of the Chinese economy if pervasive poverty exists in that country. The West has constantly criticized China's human rights record, the corruption of its government officials, and its lack of a multiparty democracy. The Chinese government, however, has insisted that these conditions have greatly improved since economic reform was initiated, arguing that the fact that it lifted its population out of poverty is the best measure of how it has improved human rights over the past 2 decades. Hence, if China fails to eradicate poverty, the government may have less credibility in defending its human rights record.

Eliminating poverty has proved to be a difficult task. At the time I was writing this article, up to 114 million people in China were still living in poverty. To lift a greater proportion of the population out of poverty may prove even more difficult in the future because of the strong possibility that rural income will grow more slowly than it has in the past 20 years. The recent Asian economic crisis, the frequent occurrences of natural disasters, the uncertainty of SOE reforms, and the widespread corrupt practices and behavior of local governments and village leadership all add to the complexity of any further poverty reduction. Moreover, most poor people are concentrated in the remote and mountainous areas where economic development is hampered by the lack of basic transportation and communication infrastructures, poor human resources, and adverse natural and climatic conditions. Also, poor people have become ever more marginalized in the prosperous regions in the new economic environment. Finally, the most recent SOE reforms may bring about a significant increase in urban poverty. This is an issue that has not been covered in this article due to lack of data, but one which will certainly become very important in the coming years. As urban citizens are politically more powerful and more organized than their rural counterparts, rising urban poverty may lead to social and political instability, which, in turn, may seriously distract the course of economic development.

Notes

* I am grateful for the valuable comments made by Andy Thorpe, D. Gale Johnson, and an anonymous reviewer. For any errors or omissions, I remain solely responsible.

1. The incidence of urban poverty was negligible compared to that of rural poverty because urban residents were highly protected by the government. However, because urban residents accounted for less than 20% of the total population, it can be said that the majority of the Chinese people lived in poverty in 1978.

2. State Statistical Bureau, *Chinese Statistical Yearbook*, Chinese ed. (Beijing: Statistical Press, 1978–97, various issues).

3. World Bank, "Sharing Rising Incomes: Disparities in China" (World Bank, Washington, D.C., 1997).

4. Cyril Z. Lin, "The Assessment: Chinese Economic Reform in Retrospect and Prospect," *Oxford Review of Economic Policy* 11, no. 4 (1995): 1–23.

5. Gary H. Jefferson and Thomas G. Rawski, "Enterprise Reform in Chinese Industry," *Journal of Economic Perspectives* 8, no. 2 (1994): 47–70; John McMillan and Barry Naughton, "How to Reform a Planned Economy: Lessons from China," *Oxford Review of Economic Policy* 18, no. 1 (1992): 130–43; Dwight Perkins, "Completing China's Move to the Market," *Journal of Economic Perspectives* 8, no. 2 (1994): 23–46.

6. N. Lardy, *Agriculture in China's Modern Economic Development* (Cambridge: Cambridge University Press, 1993).

7. D. Gale Johnson, "Economic Reforms in the People's Republic of China," *Economic Development and Cultural Change* 36, no. 3 (1988): S225–S245; Justin Yifu Lin, "The Household Responsibility System in China's Agricultural Reform: A Theoretical and Empirical Study," *Economic Development and Cultural Change* 36, no. 3 (1988): S199–S224.

8. Shujie Yao, *Agricultural Reforms and Grain Production in China* (London: Macmillan, 1994).

9. Theodore Groves, Yongmiao Hong, John McMillan, and Barry Naughton, "Autonomy and Incentives in Chinese State Enterprises," *Quarterly Journal of Economics* 109, no. 1 (1994): 183–209; Shujie Yao, "Profit Sharing, Bonus Payment, and Productivity: A Case Study of Chinese State-Owned Enterprises," *Journal of Comparative Economics* 24 (1997): 281–96.

10. Donald Hay, Derek Morris, Guy Liu, and Shujie Yao, *Economic Reform and State-Owned Enterprises in China, 1979–1989* (Oxford: Clarendon, 1994).

11. Shujie Yao, "Industrialization and Spatial Income Inequality in Rural China, 1986–1992," *Economics of Transition* 5, no. 1 (1997): 97–112.

12. State Statistical Bureau, *The Chinese Regional Economies in 17 Years of Economic Reforms and Opening* (Beijing: Statistical Press, 1996).

13. The average annual growth rate of total Gross Domestic Product (GDP) in South Korea was 9.6% in the period 1970–91. It was 9.2% in Hong Kong and 8.3% in Singapore in the period 1970–80. See World Bank, *World Development Report 1993* (Oxford: Oxford University Press, 1993).

14. The poverty line defined by the World Bank is US\$1 in its 1985 value per day per capita. However, the purchasing power of US\$1 in different countries varies considerably. In order to have the same purchasing power, when the dollar is converted into local currencies, the purchasing power parity exchange rates should be used.

15. L. Zhu and Z. Jiang, "Yigong-Daizhen in China: A New Experience with Labor-Intensive Public Works in Poor Areas," in *Employment for Poverty Reduction and Food Security*, ed. Joachim von Braun (Washington, D.C.: International Food Policy Research Institute, 1995), pp. 75–107.

16. Among the many indicators of well-being, food consumption is probably the most important one reflecting the degree of poverty. To provide a rough idea of how the poor people might live, the average rural household budget in 1990 is used as an example. At the national average, 85% of household income

was used for consumption; 58% of that consumption was food. If we assume that the poor spent 90% of their income for consumption and 70% of such consumption was of food, then, if we use the official poverty line, the poor could only consume 58% of the national average food consumption, equivalent to 148 kilograms of unprocessed rice. If we use the World Bank poverty line, the poor could consume 84% of the national average food consumption, equivalent to 214.2 kilograms of unprocessed rice (State Statistical Bureau, *China Rural Statistical Yearbook*, Bureau of Rural Social and Economic Statistics [Beijing: Statistical Press, 1993], pp. 208–13). To meet the international minimum nutritional standards, each person requires at least 200 kilograms of unprocessed rice. Hence, the official poverty line would imply that the poor were 28% short of the international minimum nutritional requirement. The World Bank poverty line would imply that the poor would have a slightly higher nutritional level than the minimum requirement.

17. Because China's official poverty line may be too low (see Zhu and Jiang, pp. 80–85), we should pay more attention to the World Bank poverty line.

18. Carl Riskin, "Chinese Rural Poverty: Marginalized or Dispersed?" *American Economic Review* 84, no. 2 (1994): 281–84.

19. J. Knight and Lina Song, "The Spatial Contribution to Income Inequality in Rural China," *Cambridge Journal of Economics* 17 (1993): 195–213.

20. Shujie Yao, "Industrialization and Spatial Income Inequality in Rural China," pp. 109–111.

21. The World Bank's estimates of the Gini coefficients may not be precise and should be used with caution (see World Bank, "Sharing Rising Incomes" [n. 3 above], p. 2, table 1). However, various calculations, including those based on household survey data in this article and those made by the Ministry of Agriculture show that the trend of widening income inequality during economic reforms is unmistakably clear. See Ministry of Agriculture, *China's Agricultural Development Report* (Beijing: Agriculture Press, 1995).

22. World Bank, "Sharing Rising Incomes," pp. 2–3.

23. Dennis Tao Yang and Hao Zhou, "Rural-Urban Disparity and Sectoral Labor Allocation in China" (paper presented at the annual meeting of the Association for Asian Studies, Honolulu, Hawaii, April 1996).

24. See Lardy (n. 6 above).

25. See Yao, "Industrialization and Spatial Income Inequality in China" (n. 11 above), pp. 97–112; A. Hussain, P. Lanjouw, and N. Stern, "Income Inequalities in China: Evidence from Household Survey Data," *World Development* 22, no. 12 (1994): 1947–57.

26. See World Bank, "Sharing Rising Incomes," pp. 15–25.

27. Provinces and cities are classified into three economic zones: east, central, and west. For detailed classification, see Shujie Yao and Jirui Liu, "Economic Reforms and Spatial Income Inequality in China," *Regional Studies* 32, no. 8 (1998): 735–46.

28. *Ibid.*, p. 742, table 3.

29. Ministry of Agriculture, *Chinese TVE Yearbook*, and *Chinese Agricultural Statistical Data* (Beijing: Agriculture Press, various issues, 1978–87, 1988, 1989, 1990, 1991, 1992, and 1993).

30. Following the 1995 industrial census, total TVE outputs and their growth rates were adjusted downward. So the growth rate of 25.6% may be higher than the actual growth rate. Despite such potential statistical errors, the growth of TVE output was impressive by any standards.

31. Ministry of Agriculture, *Chinese TVE Yearbook*, and *Chinese Agricultural Statistical Data* (Beijing: Agriculture Press, various issues, 1978–87, 1988, 1989, 1990, 1991, 1992, and 1993).

32. See Yao and Liu, p. 745, table A3.
33. See Yao, "Industrialization and Spatial Income Inequality," for more detail.
34. See Yao and Liu, p. 742, table 3.
35. See World Bank, "Sharing Rising Incomes" (n. 3 above), p. 17.
36. Household survey data by province and by year exist but they are held by the State Statistical Bureau (SSB). It is almost impossible to get hold of such data because they are not officially published. Independent researchers have to negotiate with the SSB. Through an international collaborative research project with the SSB, I was able to obtain the data presented in this article.
37. See World Bank, "Sharing Rising Incomes," pp. 15–25.
38. The most recent data show that about 10 million SOE employees have been laid off, which is equivalent to about 9% of total SOE employment and about 5% of total urban employment (see G. Parkins, "China Struggles with Job Crisis," *Times Higher Education Supplement* [London], August 14, 1998, p. 9).
39. See World Bank, "Sharing Rising Incomes," p. 45.
40. "My Country Sets a Target to Support the Poor This Year: Solving the Wen Bao Problem for 10 Million People," *People's Daily*, June 13, 1998, p. 1.
41. The data in table 5 are derived directly from the household survey data available to me. All of the household incomes are deflated using the provincial rural retail price indexes obtained from official statistics. The price indexes are different for different provinces. In addition, the mean incomes obtained in this table are slightly higher (by about 3%–7%) than those published by the SSB—see State Statistical Bureau, *China Regional Economies* (n. 12 above) for both Liaoning and Jiangsu. This may be due to the difference of sample coverage between the different data sources. However, this data discrepancy has little effect on the regression results presented in this article.
42. T. Sicular, "The Quest for Sustained Growth in Chinese Agriculture," in *Current Issues in Agricultural Economics*, ed. A. J. Rayner and D. Colman (London: Macmillan, 1993), pp. 127–153. Also see Yao, "Industrialization and Spatial Income Inequality in China" (n. 11 above).
43. See Yao, *Agricultural Reforms and Grain Production in China* (n. 8 above), pp. 58–60.
44. *Ibid.*, pp. 93–94 and table 2.11.
45. See Sicular, pp. 127–53.
46. Joyce Barnathan, "Now, Even Peasants Hate Beijing," *Business Week*, July 5, 1993, p. 47.
47. The average annual growth rate is the exponent of the estimated coefficient of time period in eq. (5) minus one.
48. See "My Country Sets a Target to Support the Poor This Year" (n. 40 above), p. 1.