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**Income Distribution during
the Transition in China**

Zhang Ping

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Income Distribution during the Transition in China

Zhang Ping
Institute of Economics
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ABSTRACT

This paper's goal is to increase the understanding of the inequality trends during the transitional period in China. From 1978 to 1995, China has been undergoing 18 years far-reaching economic system reform and opening to the outside world nationwide. During the transitional periods, the average household income per capita increased substantially and so did income inequality. Using time-series data from SSB, this paper discusses the changing shape of the income distribution for the population as a whole during the 18 years of transitional period, with special reference to the impact of major reform measures with large distributional implications. Also, on the basis of the cross-section dataset in 1988 and 1995, this paper decomposes inequality indices, using two decomposition methods, to separate components of household disposable income and decompose income inequality by sub-group population. The main findings of the paper are, first, the national income inequality, the inequality within and between urban and rural areas, and the regional inequality were widening. Second, household income in urban areas more and more depends on the market rather than the traditional distribution plan. Third, the fastest growing contributor is individual wage from township or village enterprises; on the other hand, the contribution of self-consumption of household products decreased significantly. Fourth, the largest contribution to changes in aggregate inequality is made by changes in within-group inequality rather than between-group. In general, income distribution in urban and rural areas in China is shifted more and more from the course of systematic transition to the course of development.

I INTRODUCTION

Since 1978 the Chinese economy has been undergoing a far-reaching reform process and opening up to the outside world. The process has involved a transition towards a market-oriented system and rapid economic growth during which average household income per capita, as well as income inequality, has increased substantially.

The distribution of income in China has been a subject of great interest to economists and policy makers. The experts wish to identify the trends in income inequality during the transition. Furthermore, they wish to understand the factors affecting income inequality and the extent to which pre-existing inequalities have been improved or aggravated by the institutional transformations and policy interventions linked to the transition.

It is not possible to address these issues systematically because of the lack of adequate statistical information. Fortunately, however, an extensive survey of 20,000 urban and rural households was conducted in 1988 under the sponsorship of the Ford Foundation, and another survey, this time of 15,000 households, was carried out in 1995 with the support of the Ford Foundation and the Asian Development Bank. Both of these surveys were performed by research teams from the Institute of Economics, Chinese Academy of Social Sciences (Griffin and Zhao 1993). The resulting cross-sectional data-sets have furnished more detailed information with which to calculate the decomposition of household incomes. Likewise, through household surveys, the State Statistical Bureau (SSB) has collected time-series data on household incomes from 1978 to 1995. The cross-sectional and time-series data can be used to fill in the gaps in information about income distribution. These data have been employed throughout this paper.

The paper focuses on the changes in income distribution during the transition, the policy framework, the nature of income inequality, and future trends. It is organized into two main parts. The first part analyses the changes in income distribution among the population from 1978 to 1995. Relying on the time-series data of the SSB, this part highlights the effect of major reform measures with large distributional implications. The second part employs the cross-sectional data-sets for 1988 and 1995 provided by the Institute of Economics to decompose inequality indices, using two decomposition methods. The components of household disposable income are identified, and sub-group decompositions are broken down according to rural or urban area, the standard

region, age, education, employment status, ownership, and occupation of head-of-household.

II THE TRANSITION, INCOME DISTRIBUTION AND POLICY CHANGE

1. Initial conditions

In 1954 China started to steer a course towards heavy industrialization through the mechanism of the planned economy. However, an overall reform of the economic system was not launched until the end of the 1970s. The structure of income distribution at the beginning of the reform process was characterized by the existence of a wide gap between urban and rural areas, although within each of these areas income distribution was highly egalitarian at a low income level. According to data produced by the SSB for 1978, the average annual net income per capita in urban areas was 316 yuan and the Gini coefficient was 0.16, while the corresponding figures for rural areas was 133.6 yuan and 0.22 (Table 1). Income distribution within each area was roughly egalitarian, and the Gini coefficient for each area was equal to or less than that in the Soviet Union and Eastern European socialist countries at that time. Thus, even without including in the calculation the effect of welfare subsidies provided to urban residents, the average urban income was 2.37 times greater than the average rural income. This difference in income exceeded that found in countries at a comparatively higher level of development. The income profile of China was deeply marked by this urban-rural divide, a common phenomenon in developing countries. Due to the substantial gap between urban and rural areas, the overall Gini coefficient for China was comparatively high, much higher than that for the Soviet Union and the Eastern European socialist countries, but lower than that for other developing countries.

TABLE 1. INCOME DISTRIBUTION, 1978

		Urban Gini coefficient	Rural Gini coefficient	Urban/rural income	Total Gini coefficient
CHINA (1978)	SSB	0.16	0.21	2.37	--
	World Bank	0.16	0.31	2.2	0.33
	Adelman and Sunding	0.16	0.22	--	0.32
Developing countries	India (1976)	0.42	0.34	1.9	0.38
	Malaysia (1970)	0.52	0.50	2.2	0.48
	Brazil (1976)	--	--	2.3	0.52
Socialist countries (1986)	Czechoslovakia	--	--	--	0.2
	USSR	--	--	--	0.28

Sources: SSB (1996a), Tang (1994), World Bank (1983), Adelman and Sunding (1987), Atkinson and Micklewright (1992).

Before the reforms, the profile of income distribution was closely related to and coordinated with the government's strategy, adopted in 1954, of favouring heavy industry within the planned economy. While heavy industry was also being promoted in the Soviet Union and in Eastern Europe, in China GNP was extremely low. GNP per capita in China in 1952 was only \$50, while it had been \$125 in the Soviet Union already in 1928 when that country undertook industrialization. By 1978, although China only had a GNP per capita of \$205, manufacturing industries accounted for 51 per cent of the total, or 8.6 per cent more than the corresponding figure for countries with GNPs per capita at around \$1,200 (World Bank 1983). It is thus clear that China achieved a high level of industrialization despite extremely low income.

However, there were development costs. For example, farm prices and average urban incomes were controlled in order to maintain the capital accumulation indispensable to industrialization. A range of measures was employed to accomplish this. (1) Material incentives were criticized on ideological grounds. For instance, bonuses were abolished and replaced by non-material incentives. (2) Public ownership in the form of state ownership and collective ownership took the place of other types of ownership. (3) The free movement of labour was prohibited. (4) Wages were controlled entirely by the state. A unified wage system governed the wages of the employees in urban enterprises and of government workers at various levels. Only minor differences were allowed among regions and sectors. (5) In the rural collective economy, production teams (or production brigades) acted as the basic production units, and farmers were paid according to 'work points', the real value of which was determined by the net income of the production team. Since the revenue of the production teams was determined by the quantity and the prices of farm products that were mostly under the strict authority of the state, the state was able to exercise control over the incomes of rural residents.

By adopting these measures, the state gained decisive control over the incomes of both urban and rural residents and successfully froze urban wages and farm prices from 1956 to 1976. In order to reduce any discontent over the low wages, a relatively egalitarian income distribution was maintained. Moreover, as material compensation, the state offered generous welfare benefits to urban residents, including low food prices, free housing, public medical services, pensions, and employment opportunities. The benefits in rural areas were far fewer. Farm households were organized into community collectives and provided with limited education, medical care and living allowances. Egalitarian income distribution inside the collective was adopted for the survival of the collective, although at a very low standard of living.

Thus, the welfare system was available essentially only to urban residents, and urban and rural areas were differentiated artificially. This urban-rural divide was further consolidated through the residence registration system, and an impassable gap between urban and rural areas was formed. At the beginning of the reform period in China, there was therefore a distinctive dual-system of income distribution that was rather sector where typical for low-income developing countries.

2. Reform and income distribution, 1978-95

Since 1978 the Chinese economy has been undergoing reform and has been opening up to the outside world. The focus of economic strategy has shifted from the development of heavy industry to balanced industrial development. The importance of fostering economic development and making adjustments to the industrial structure by raising the incomes and level of consumption of the population has been emphasized. Guided by this approach, the state has decreased the ratio of accumulation gradually and tilted income distribution towards households and enterprises. Between 1978 and 1995, the share of government income in GNP fell from 33.5 per cent to 13.2 per cent, while the share of household income in GNP rose by 18.1 per cent (Table 2).

TABLE 2. THE SHARE OF GOVERNMENT, ENTERPRISE AND HOUSEHOLD INCOMES IN GNP (%)

	Government	Enterprises	Households
1978	33.5	16.1	50.4
1995	13.2	18.3	68.5

Source: SSB (1996b).

The systematic reform involved the transfer of administrative powers, which had been highly centralized under the planned economy, to local governments, departments, enterprises and farm households. Material incentives were reinstated, and the price system was adjusted.

The importance of collective ownership of the basic means of production, including land, was emphasized as the fundamental feature of the gradual reform in rural areas. The output-related system of contractual responsibilities was promoted from 1978 to 1983. The household-output contract system was approved by the state in October 1981. Through this system, households were allotted means of production – including land, which was still considered the property of the collective – according to certain criteria (such as the number of family members or the number of employed household members). The land

could be redistributed by the village collective if, for instance, the contract had expired or there had been a change in the size of the household because of a birth or the movement of a family member. However, the purchase or sale of the land was strictly prohibited. In practice, farmers thereby acquired the right to allocate economic resources.

This altered the basic economic relationship among the state, the collectives and individual farmers. The labour incentives of farmers were greatly enhanced. Households replaced collectives as the basis for rural incomes (Table 3). In 1978, 66.3 per cent of annual net income per capita in rural areas came from collectives. By 1983, the figure had dropped to 11.6 per cent. In the same year, 79 per cent of net income per capita was accounted for by households. In later years, this share grew even higher.

TABLE 3. CHANGES IN INCOME STRUCTURE IN RURAL AREAS (ROUNDED %)

Income from	1954	1956	1965	1978	1979	1980	1981	1982	1983
Collectives	3.8	62.4	58.9	66.3	63.7	56.6	52.0	51.9	11.6
Households	87.9	23.3	31.1	26.8	27.5	32.7	37.8	38.1	79.0

Source: SSB (1996c).

By 1983 the reform of the contract system had been completed in most of the countryside. Meanwhile, the rural industrial sector became the primary path for rural income distribution. From 1979 to 1983, the relative prices of farm and industrial products were adjusted. With the rise in the prices of farm products, the output and income of farmers climbed significantly. The income gap between urban dwellers and rural residents rapidly narrowed, and inequality in income distribution was eased nationwide.

In 1984, the focus of the reforms began to turn towards urban areas. That year the following important principles were adopted to govern urban income distribution. (1) The experience acquired in the implementation of the rural system of contractual responsibilities should be applied to urban areas. (2) The incomes and bonuses available to workers in enterprises should depend on the economic results achieved by the enterprises for which they work. (3) Additional measures should be undertaken to encourage income distribution among enterprises according to output. (4) The wage system for government departments and state-owned institutions should be reformed in order to link closely income with the responsibilities held and with productivity. (5) Based on productivity and output, some sectors, enterprises and individuals should be permitted to enjoy certain advantages.

Guided by these principles, the following steps were taken in urban income policy. (1) Reforms were initiated in the unified administration of wages in state enterprises. Incomes were linked to worker productivity, that is, the sum of the wages available to an enterprise was to be set in proportion to output. The state would no longer interfere in the adjustment of the enterprise wage system. Workers could be paid differently in accordance with the output and productivity of the enterprise for which they worked. (2) The incomes of a government worker or the employee of a state-owned institution consisted of four components: a base component to satisfy basic needs, a position component which depended on the responsibility shouldered and the position held and which represented the major part of the total income, a length-of-service component, and a supplementary component (mainly used to adjust the incomes of teachers). (3) Individual income taxes were instituted in 1986.

The successful experience gained through the rural system of contractual responsibilities was applied to urban enterprise reform. The contract system adopted in enterprises motivated managers to seek perquisites by shouldering contractual responsibilities and encouraged workers to be more productive in order to raise the earnings and the economic health of their enterprises.

However, the contract system and the related incentives failed to solve the problems in the urban economic sector, though they had succeeded in rural areas. (By 1988, 80 per cent of state and collective enterprises in the countryside had adopted the system.) Because of controlled prices – a ‘soft budget constraint’ (Kornai 1980) among state enterprises – and, in particular, because contractors and managers were still designated by the government, the state continued to exert administrative power and interfere in enterprise operations. Thus, it was difficult to determine whether an individual enterprise was being run properly. Moreover, state enterprises were expected to shoulder all the risk of their operations, though they were also expected to fulfil their contractual obligations. In effect, contractors could share in profits, but the state bore any losses.

Nonetheless, due to the contract system, enterprises were able to retain some of the profits which once had to be turned over as taxes to the state. Likewise, enterprises could establish their own wage and bonus arrangements. Meanwhile, piece-rate wages and bonuses were adopted in urban areas, and this, plus the fact that enterprises began to raise wages meant that urban incomes increased.

At the same time, the rural economy was being subjected to adjustments, and farm incomes climbed only slightly. Thus, the urban-rural income gap tended to widen further.

From 1989 to 1991, the government strengthened its macroeconomic control over the economy. Only minor modifications were implemented in the urban and rural economic systems, and the differences in income distribution between the two sectors remained almost unchanged.

In 1992 the establishment of a socialist market economy was identified as the aim of the reform process. The guidelines for the reform goals in terms of income distribution were as follows. (1) The principle of 'to each according to his work' must still occupy the leading position, although other methods of income distribution would be employed. (2) While preference would be assigned to efficiency, fairness would also be fostered as much as possible. (3) The policy of allowing some sectors, enterprises and individuals which achieve high levels of productivity and output to have certain advantages would be continued in order to encourage the efforts of all people to attain prosperity. (4) Together with a straightforward mechanism for implementing wage-increases, a wage system which would conform to the respective characteristics of state enterprises, state institutions and government departments should be established. (5) The lawfully acquired income and property of enterprises and individuals should be protected, and private means of production, including private capital, should be permitted to share in profits. (6) Appropriate social security measures should be adopted at various levels so as to avoid polarization between the rich and the poor.

The nationwide reform of the structure of ownership stood out as a component of the transition to a socialist market economy during this period. This was evident in the rapid development of the non-state sector of the economy. By 1992, the share of state-owned enterprises in the net value of gross industrial output had dropped below 50 per cent. State- and collective-owned enterprises in urban areas and collective-owned enterprises in townships began to experiment with new types of companies, including stock companies, privatization and joint ventures. The reform of the structure of ownership became the norm. By 1995 the output of state-owned enterprises represented only around 31 per cent of the output of all types of enterprises (Table 4).

TABLE 4. THE SHARE OF VARIOUS TYPES OF ENTERPRISES IN TOTAL ENTERPRISE OUTPUT (%)

	State	Collective	Private	Others
1978	77.6	22.4	--	0.5
1984	69.1	29.7	0.1	1.0
1988	56.8	36.2	4.3	2.7
1991	52.9	35.7	5.7	5.7
1992	48.1	38.0	6.8	7.1
1993	43.1	38.4	8.3	10.2
1994	34.1	40.9	11.5	13.5
1995	30.9	42.8	13.2	13.1

Source: SSB (1996c).

The adjustments in the structure of ownership and the rapid pace of privatization were generating imbalances in income distribution during this period. With the loosening up of restrictions on access to urban welfare systems, migrant labour could obtain food and housing on the open market. Thus, more and more farmers moved to cities to seek jobs, and their remittances to family members remaining behind represented a new source of income in rural areas.

III THE CHANGING SHAPE OF INCOME DISTRIBUTION, 1978-95

In terms of the profile of income distribution, the transition from 1978 to 1995 can be roughly divided into three periods (Table 5): the narrowing of income differences between 1978 and 1983, the moderate widening of income differences between 1984 and 1988, and the speeding up of this widening process between 1992 and 1995.

The successful rural reforms and rising farm prices contributed to the narrowing of income differences between 1978 and 1983. The incomes of farmers climbed rapidly, and the urban-rural income ratio accordingly fell from 2.37:1 in 1978 to 1.69:1 in 1983, while the overall Gini coefficient dropped from 0.317 to 0.284.

Rural structural adjustment and urban reform were accompanied by a moderate widening of the urban-rural income gap between 1984 and 1988. By 1988 the urban-rural income ratio stood at 2.05:1. Meanwhile, the income gap within each of the two sectors also widened, and the overall Gini coefficient was 0.382 in 1988. During the period of adjustment from 1989 to 1991, the urban-rural income gap increased only slightly. The changes within each of the two sectors were also only minor.

TABLE 5. CHANGES IN THE PATTERN OF INCOME DISTRIBUTION DURING THE TRANSITION, 1978-95

Period of reform	1978-83	1984-88	1992-95
Focus of reform	rural	urban	rural and urban
Reform strategy	Household output-related system of contractual responsibilities	Enterprise system of contractual responsibilities	Socialist market economy
Essentials of reform in income distribution	<ol style="list-style-type: none"> 1. System of contractual responsibilities 2. Price adjustments for farm products 3. Readoption of piece-rate wages and bonuses in urban areas 	<ol style="list-style-type: none"> 1. Urban enterprise system of contractual responsibilities 2. Income linked to economic performance 3. Salary adjustments for government workers 4. Structural adjustments in rural income distribution 	<ol style="list-style-type: none"> 1. Rapid development of non-state sector, output of this sector exceeded that of state enterprises 2. Development of capital markets, property ownership and private incomes 3. Decreasing importance of urban welfare systems 4. Structural adjustments in rural areas; more income from non-agricultural sector 5. Labour migration from rural to urban areas creating new sources of rural income
Influence of reform on income distribution	A rise in incomes, narrowing income differences between urban and rural areas, and narrowing income differences among regions	Accelerating rise in urban incomes, gradually widening once more the gap between cities and the countryside	Widening income gaps within and among population groups

On the whole, inequality in income distribution gradually became larger during the transition (Table 6).

TABLE 6. CHANGES IN INCOME INEQUALITY, 1978-95*

	Per Capita GNP (yuan)	Overall Gini	Urban Gini	Rural Gini	Urban Income/Rural Income
1978	379	0.317	0.16	0.212	2.37
1983	582	0.284	0.15	0.246	1.70
1988	1,355	0.382	0.23	0.301	2.05
1991	1,882	--	0.24	0.307	2.18
1995	4,757	0.43	0.28	0.340	2.47
Difference (1978-95)		0.113	0.12	0.128	0.1

Source: SSB (1996c).

* The overall Gini for 1988, 1995 is calculated by the Institute of Economics, CASS (1988, 1995)

In 1992 the income differential began to widen once more. By 1995 the overall Gini coefficient had reached 0.43, and the urban-rural income ratio was 2.47:1. The difference between urban and rural incomes in China had become similar to that characteristic of other developing countries in Asia. Meanwhile, the income gaps within both urban and rural areas had also widened.

Future changes in income distribution between urban and rural residents will be determined mainly by the level of income inequality within both urban and rural areas, the level of income inequality between rural and urban areas and the differences in income distribution among regions, especially that among various rural regions. These last differences are directly related with problems in achieving balanced economic development and in efforts to relieve poverty.

1. Income distribution among urban residents

Between 1978 and 1995, urban incomes rose rapidly, and the annual per capita disposable income of urban households jumped by 187 per cent, an average annual increase of 6 per cent (Table 7). As urban incomes mounted, income inequality among urban dwellers widened, and the Gini coefficient climbed by 87.5 per cent, from 0.16 in 1978 to 0.30 in 1994.

TABLE 7. INCOME INEQUALITY AMONG URBAN RESIDENTS

	Disposable Income	Gini Coefficient	Highest Income/Lowest Income
1978	316	0.16	--
1980	439.4	0.16	--
1981	458.04	0.15	2.32
1982	494.52	0.15	2.29
1983	525.96	0.15	2.27
1984	607.56	0.16	2.37
1985	685.34	0.19	2.92
1986	827.9	0.19	3.02
1987	916	0.2	3.00
1988	1,119.4	0.23	3.16
1989	1,260.7	0.23	3.29
1990	1,387.27	0.23	3.20
1991	1,544.3	0.24	3.01
1992	1,826.1	0.25	3.41
1993	2,336.54	0.27	3.81
1994	3,179.15	0.3	4.48
1995	3,892.94	0.28	3.92

Source: SSB (1996a), (1996c).

In 1995 the Gini coefficient dropped back a bit, to 0.28, as the government adopted a policy of assuring a minimum income among urban residents. Nonetheless, the basic causes of the income differences among urban residents remained. For instance, urban state enterprises were encountering serious problems. During 1996 many state enterprises suffered a net loss, and some were on the verge of bankruptcy. More unemployment was expected. However, with the weakening of the state's financial capacity, it was not possible to expand the social security network in urban areas, and the unemployed risked being marginalized. Likewise, income inequality was bound to grow as the incomes of private entrepreneurs, joint ventures, fully-owned private companies and state monopolies continued to gain relative to other incomes.

An inverted U-shaped model can be used to imitate the relationship between the Gini coefficient and income. However, in this case the variables are not significant, and the model is clearly inappropriate. In other words, it is not clear when the income gap will stop widening in China.

$$G = -12.73 + 3.177\ln(y) + 0.24\ln(y)^2 \quad (1)$$

(-0.4) (0.35) (0.37)

G = Gini coefficient of urban incomes in 1978-95, $R^2 = 0.939$, $F = 108$, y = average urban income in 1978-95.

Through a linear regression of the Gini coefficient of income, we get a new model. All parameters are significant, and R-squared reaches 0.939, which means that the Gini coefficient and log income are linear related. With an increase in the average income, income inequality will widen.

$$\text{Gini coefficient} = -24.53 + 6.57\ln(y)$$

(-8.16) (15.16)

$R^2 = 0.939$, adjusted- $R^2 = 0.935$, $F = 230$, $D.W. = 1.24$.

2. Rural income distribution, 1978-95

Net annual per capita income among rural households rose by 375.4 per cent between 1978 and 1995 (Table 8). As the economy developed, the inequalities in income distribution in the countryside were widening. The Gini coefficient jumped from 0.21 in 1978 to 0.34 in 1995, for an increase of around 60 per cent. Rural income inequality was basically due to changes in the rural industrial structure and the mobility of the labour force. The fact that land was

not privatized acted as a damper on income inequality and to certain degree helped maintain rural social stability.

TABLE 8. INCOME INEQUALITY IN RURAL AREAS

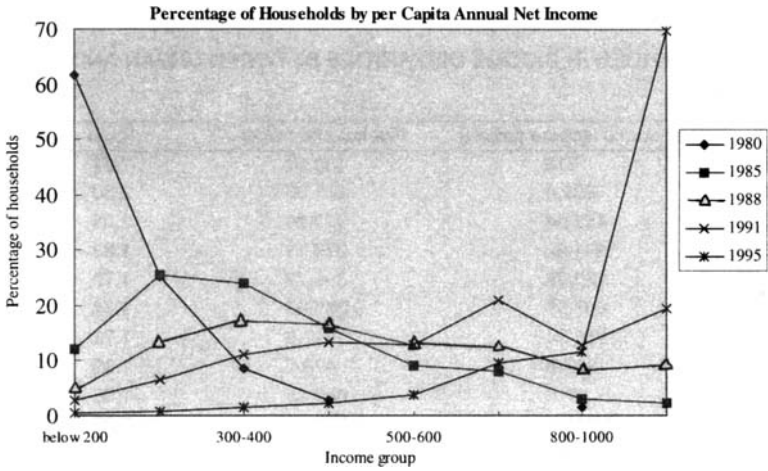
	Net income per capita	Gini
1978	133.57	0.21
1979	160.17	0.24
1980	191.33	--
1981	223.44	0.24
1982	270.11	0.23
1983	309.77	0.25
1984	355.33	0.26
1985	397.6	0.26
1986	423.8	0.29
1987	462.55	0.29
1988	544.94	0.30
1989	601.5	0.30
1990	686.3	0.31
1991	708.55	0.31
1992	783.99	0.31
1993	921.62	0.32
1994	1,221	0.33
1995	1,577.7	0.34

Sources: Tang (1994), SSB (1996c).

Based on the data in Table 8, we have performed a regression of the Gini coefficient of average rural incomes. The result is the same as that for urban areas. There is a high correlation between income and the Gini coefficient. The R-squared is 0.96. The result shows that the inequalities in rural income distribution are also widening.

China's rural reform proved very successful. In general, all social groups benefited from the rapidly rising incomes. This is clear from the changes in the share of households according to annual per capita income (Figure 1). In 1980, 61.6 per cent of all rural households received a net income per capita at or below 200 yuan per year. By 1995, most households had a net income per capita of over 1,000 yuan per year. Moreover, the share of low-income households had decreased significantly. Households with a net income per capita under 500 yuan per year represented only 5.3 per cent of the total rural population.

Figure 1



3. Income differences between urban and rural areas

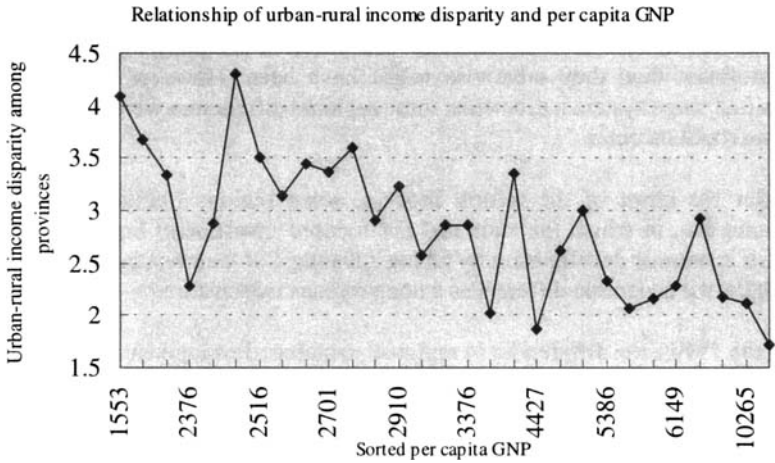
The differences in income between rural and urban residents at the beginning of the reform process were the result of the policy of promoting heavy industrialization in the planned economy. For a while, after the onset of the reforms, the relationship between incomes in urban and rural areas was adjusted, and the income differences gradually narrowed. However, because of the subsequent focus on urban economic reform, the gap between urban and rural areas widened again. This trend can be easily observed in time-series data (Table 9). The urban-rural income gap in 1993 even exceeded that in 1978. The data show that the difference between urban and rural incomes was in direct proportion to the level of income. Thus, the urban-rural income gap becomes greater with a further overall rise in incomes.

TABLE 9. CHANGES IN INCOME DISPARITIES BETWEEN URBAN AND RURAL AREAS

	Disposable Income (urban)	Net Income (rural)	Ratio
1978	316	133.57	2.37
1980	439.4	191.33	2.30
1981	458.04	223.44	2.05
1982	494.52	270.11	1.83
1983	525.96	309.77	1.70
1984	607.56	355.33	1.71
1985	685.34	397.6	1.72
1986	827.9	423.8	1.95
1987	916	462.55	1.98
1988	1,119.4	544.94	2.05
1989	1,260.7	601.5	2.10
1990	1,387.27	686.3	2.02
1991	1,544.3	708.55	2.18
1992	1,826.1	783.99	2.33
1993	2,336.54	921.62	2.54
1994	3,179.15	1,221	2.60
1995	3,892.94	1,577.7	2.47

Some interesting trends appear from cross-sectional data on the income differences between urban and rural areas. If we define the urban-rural income gap as the difference between disposable urban household incomes and net rural household incomes and then use cross-sectional data on provincial GNPs per capita in 1995 to observe the relationship between income difference and GNP, we see that as GNP rises, the income differences gradually decline (Figure 2).

Figure 2



By making a regression of urban-rural income disparity with GNP per capita, we get:

$$\text{Diff} = 34.036 - 6.500977\ln(\text{GNP}) + 0.328229\ln(\text{GNP})^2$$

(1.89)
(-1.52)
(1.296)

R-squared = 0.57955, adjusted R-squared = 0.547, F-statistic = 17.9, Prob = 0.00013, Diff = income difference between urban and rural residents, GNP = GNP per capita.

The coefficients of $\ln(\text{GNP})$ are significant. The symbol is negative, indicating that, when GNP increases, the income gap between urban and rural residents will decrease. However, the coefficients of $\ln(\text{GNP})^2$ are not significant ($1.296 < 1.96$).

There exists a deviation between the results using the cross-sectional data and the results using the time-series data, because the GNPs in the more well off provinces are higher according to the cross-sectional data than they are according to the time-series data. In other words, the level of economic development of the more well off provinces may represent the future level of economic development of the entire country.

4. Income differences among regions

By the late 1970s, because the development of heavy industry had been promoted in certain areas, the economic differences among regions were more significant than they otherwise might have been. However, because of the unified wage system nationwide, these regional differences were not reflected in household incomes.

After the onset of the reform process, some regions (including those, like Guangdong, in which the state had not focused investment) began to speed up their economic development by taking advantage of their resources. Thus, in the 1980s, the economic differences among regions narrowed.

In the 1990s, the differences in regional economic development have once again been widening (Table 10). This tendency is directly reflected in increasing gaps in income distribution among regions.

TABLE 10. CHANGES IN INCOME INEQUALITY AMONG REGIONS

	Rural Gini Coefficient	Highest/Lowest	Urban Gini Coefficient	Highest/Lowest	Overall Gini Coefficient	Highest/Lowest	GDP Gini Coefficient	Highest/Lowest
1981	0.134	2.8	0.062	1.81	--		0.367 (1980)	12.62
1985	0.153	3.16	0.077	1.59	0.149	2.96	0.297	9.22
1990	0.197	4.17	0.109	2.03	--	--	0.288 (1991)	7.5
1995	0.23	4.82	0.14	2.34	0.225	4.75	0.31 (1994)	9.79
difference	0.096	2.02	0.078	0.53	0.076	1.79	-0.058	-2.83

Source: SSB (1996c).

Regional income differences in both urban and rural areas were apparently also widening. The urban Gini coefficient rose from 0.062 in 1981 to 0.077 in 1985 and 0.14 in 1995. Despite the widening trend, the regional differences among urban areas obviously remained relatively small. The income differences among rural areas were more significant. The interprovincial rural Gini coefficient reached 0.23 in 1995. The average income in the most well off province was 4.82 times that in the poorest province, showing that there was a high level of polarization between rich and poor. The inequality in income distribution among regions is still expanding, and in general the regional income differences in both urban and rural areas are expected to continue to widen in the future.

IV DECOMPOSING INEQUALITY

1. The definition of 'disposable income'

The data employed in this section are from household surveys carried out in 1988 and 1995 by the Institute of Economics. The definitions of 'urban disposable income' applied in the two surveys are basically the same, with some necessary ad-hoc adjustments. Urban disposable income can be divided into eight components, as follows (Griffin and Zhao 1993). (1) The cash income of working household members (wages and so on). (2) The cash income of retired household members who still have work. (3) The income of non-working household members. This includes pensions and welfare payments. (4) Subsidies and in-kind income. (5) The income value of owner-occupied housing. This is calculated as 8 per cent of the equity in the housing. 'Equity' in this case is defined as the difference between the replacement value of the housing (estimated in the same way as that of urban public housing) and any outstanding debt due on account of the housing. (6) Income from private (*siying*) or individual (*geti*) enterprises. (7) Income from property. This includes interest on savings deposits and bonds, dividends, income from housing rent, and income from leases on other property. (8) 'Other' income (private transfers and so forth). Because the ration coupon subsidy had been cancelled in urban areas, these items were adapted in 1995 to reflect this cancellation and adjustments in the incomes of non-working household members.

The definitions of 'rural disposable income' applied in the two surveys are the same. Rural disposable income also consists of eight components, as follows. (1) Net cash income from household production. This includes gross sales from all activities, less all expenditure on inputs, as well as on production taxes and contract payments to the state and the collective. (2) Items produced and consumed by the household. (3) Individual wage income. (4) The income value of housing. This is calculated at 8 per cent of the difference between the replacement value of the housing (directly estimated by the responding households) and any outstanding debt due on account of the housing. (5) Non-wage income from a collective or enterprise. (6) Income from property. (7) Net transfers from the state, the local government and the collective. (8) Miscellaneous (mainly private transfers).

2. Methods of decomposing inequality

2.1 Decomposition by source

By using the Gini coefficient, we can decompose overall income inequality into its various sources. Kakwani (1980) derives the following formula.

$$(1) G = \sum U_i * C_i$$

where G = the Gini coefficient of income inequality, U_i = the ratio of the i th source of income to total household disposable income per capita, C_i = the concentration ratio of the i th source of household disposable income per capita.

2.2 Decomposition by subgroup

Jenkins (1995) has shown that, at any point in time, the mean logarithmic deviation, I_0 , can be decomposed as follows.

Aggregate inequality:

$$(2) I_0 = (1/N) \sum_i \log(m/y_i)$$

Aggregate inequality = inequality within-groups + inequality between-groups

$$(3) I_0 = \sum_k v_k I_{0k} + \sum_k v_k \log(1/\lambda_k)$$

(A) (B)

where v_k = the population share of group k , m = the mean income of the total population, y_i = the income of unit i , λ_k = group k 's mean income relative to the population mean.

We can use formulas (2) and (3) to examine the contributions of the 'within-group' and 'between-group' components. The term 'A' is the 'within-group' component (the weighted sum of the inequalities within each subgroup). The term 'B' is the 'between-group' component (the inequality remaining were each person's income equal to his subgroup's mean income).

The change in I_0 over two years, t and $t+1$, can be written as follows:

$$(4) \Delta I_0 = I_0(t+1) - I_0(t) = \sum_k \bar{V}_k \Delta I_{0k} + \sum_k \bar{I}_{0k} \Delta V_k - \sum_k \overline{[\log(\lambda_k)]} \Delta V_k - \sum_k \bar{V}_k \Delta \log(\lambda_k)$$

$$\approx \sum_k \bar{V}_k \Delta I_{0k} + \sum_k \bar{I}_{0k} \Delta V_k + \sum_k \overline{[\lambda_k - \log(\lambda_k)]} \Delta V_k + \sum_k (\bar{\theta}_k - \bar{V}_k) \Delta \log(\mu_k)$$

[I]
[II]
[III]
[IV]

where Δ = the difference operator, and a bar over a variable indicates an average of base and current period values.

(Source: *Economica* (1995) Vol. 62, p. 38 "Accounting for Inequality Trends: decomposition Analyses for the UK, 1971-86")

Overall inequality changes can be neatly decomposed into pure inequality changes (term I), the changes resulting from changes in the numbers in different groups (terms II and III) and changes resulting from changes in the relative incomes of different groups (term IV).

3. Analysis and explanation of the changes in overall inequality

3.1 Decomposition according to household income sources

We can use Kakwani's method to decompose the sources of rural and urban household incomes.

First, we break down the inequality in income in rural areas. The following facts are shown in Table 11. (1) Income from household production and operation still contributes the most to rural income inequality. (2) The most rapidly growing source of income inequality is individual wages, which rose from 18.3 per cent in 1988 to 25.3 per cent in 1995, a net increase of 7 percentage points. This shows that the development of township enterprises has come to play an important role in rural income distribution. (3) The contribution of the self-consumption of household products fell significantly, from 19.2 per cent in 1988 to 10.4 per cent in 1995, a net decline of around 9 percentage points.

Table 11 also contains information concerning the change in the shares, the Gini coefficients and the concentration coefficients of various sources of income. A concentration coefficient lower (higher) than the Gini coefficient means that the distribution of the corresponding source of income has an equalizing (disequalizing) effect on the overall distribution of income.

The share of cash income from household production has grown. However, inequality in this type of income has fallen, because the concentration coefficient of this source decreased from 0.436, which is higher than the Gini coefficient, to 0.296, which is lower than the Gini coefficient, between 1988 and 1995. The two effects largely cancel each other out. As a consequence, the contribution of this source to income inequality has remained almost unchanged.

The self-consumption of goods has a strongly equalizing effect, but the share of this source has dropped. The contribution of this source to income inequality decreased from 19.2 per cent in 1988 to 10.42 per cent in 1995.

Individual wages are by far the most disequalizing income source. The share of this source has grown rapidly, and the concentration coefficient (0.595) was still higher than the Gini coefficient (0.323) in 1995. Thus, the contribution of this source to income inequality has risen the most quickly.

Among rural income sources, the increase in individual wages and the decrease in the self-consumption of household products indicate that economic reform and industrial development in rural areas are in a healthy cycle.

TABLE 11. RURAL INCOME INEQUALITY AND ITS SOURCES*

	1988			1995		
	Income share (1)	Gini (2)	% of total ineq. (3)	(1)	(2)	(3)
Income and its sources						
Net cash income from household production and operation	33.08	0.436	42.6	49.28	0.296	43.80
Self-consumption	41.13	0.159	19.2	24.36807	0.14	10.42
Individual wages, etc.	8.73	0.71	18.3	14.123	0.595	25.28
Rental value of housing	9.67	0.281	8	6.57	0.342	6.76
Household non-wage income from enterprises	2.4	0.487	3.6	5.318	0.52	8.28
Income from property	0.17		0.3	0.379506	0.501	0.571564
Net subsidies	-1.9	0.052	-0.3	-2.44261	0.071	-0.52233
Miscellaneous (mainly private transfers)	6.71	0.418	8.3	2.40934	0.333	2.40934
Total income	100	0.338	100	100	0.323	100

Source: Griffin and Zhao (1993).

* (1): The income share of the *i*th component. (2): The index of inequality in the distribution of the *i*th source of income. For total income it shows the Gini coefficient. For the other rows it shows the concentration ratio, of the corresponding income source. (3): The percentage of total inequality contributed by the *i*th source of income.

Second, we analyse the main factors affecting urban income distribution. The most important factor has been the systematic transition from income distribution in kind in the planned economy to income distribution in cash in the market economy. Table 12 shows the following. (1) The most important factor behind the growing gaps in urban incomes has been the rise in incomes from employment from 33.9 per cent in 1988 to 52.9 per cent in 1995, a jump of 19 percentage points. Meanwhile, the contribution of the incomes of retirees increased by about 3.2 percentage points. (2) The impact of subsidies was significantly dampened. The contribution of various types of subsidies in 1988 was as follows: 2.9 per cent from ration coupon subsidies of various sorts, 14 per cent from other net subsidies and in-kind income, and 24.2 per cent from housing subsidies. By 1995, the total contribution of various subsidies had dropped by about 22 percentage points. Urban incomes are depending more and more on the market, rather than on the methods of distribution that were more common in the past, such as planned distribution or in-kind distribution.

TABLE 12. URBAN HOUSEHOLD INCOME INEQUALITY AND ITS SOURCES*

	1988			1995		
	(1)	(2)	(3)	(1)	(2)	(3)
Cash income of workers (wages, etc.)	44.2	0.178	33.9	64.04	0.244	52.798
Cash income of retirees w/jobs	6.83	0.335	9.8	12.69	0.303	12.99
Income of non-workers	0.47	0.433	0.9	--	--	--
Subsidies & incomes in kind						
Ration coupon subsidy	5.26	0.13	2.9	--	---	--
Housing subsidy in kind	18.14	0.311	24.2	9.61	0.495	16.07
Other net subsidies and income in kind	15.68	0.208	14	1.19	0.259	1.043
Rental value of owner-occupied housing	3.9	0.338	5.7	7.51	0.413	10.47
Income from private/individual enterprises	0.74	0.413	1.3	0.72	0.175	0.42
Income from property	0.49	0.437	0.9	1.34	0.490	2.20
Other (private transfers, etc.)	4.06	0.377	6.6	2.92	0.362	3.57
Total income	100	0.233	100	100	0.296	100

Source: Griffin and Zhao (1993).

* (1): The income share of the *i*th component. (2): The index of inequality in the distribution of the *i*th source of income. For total income it shows the Gini coefficient. For the other rows it shows the concentration ratio, of the corresponding income source. (3): The percentage of total inequality contributed by the *i*th source of income.

TABLE 13. WITHIN-GROUP AND BETWEEN-GROUP INEQUALITY, 1988 AND 1995*

Sample Partition	Year	1000 I ₀			1000 I ₁		
		Aggregate inequality	Within-group inequality	Between-group inequality	Aggregate inequality	Within-group inequality	Between-group inequality
Rural-urban	1988	258.3	159.6	98.7	253.3	145.6	107.7
	(%)	(100)	(61.8)	(38.2)	(100)	(57.5)	(42.5)
	1995	378.4	255.9	122.5	373.1	242.3	130.9
	(%)	(100)	(67.6)	(32.36)	(100)	(64.9)	(35.1)
Standard region	1988	258.31	238.8	19.5	253.3	233.6	19.7
	(%)	(100)	(92.5)	(7.5)	(100)	(92.2)	(7.8)
	1995	378.41	343.1	35.4	373.14	336.9	36.2
	(%)	(100)	(90.7)	(9.3)	(100)	(90.3)	(9.7)
Age of household head	1988	258.31	256.2	2.1	253.3	251.4	1.9
	(%)	(100)	(99.2)	(0.8)	(100)	(99.3)	(0.7)
	1995	378.41	371.4	7.0	373.14	366.1	7.0
	(%)	(100)	(98.1)	(1.9)	(100)	(98.1)	(1.9)
Education of household head	1988	258.31	226.0	32.3	253.3	218.3	35.0
	(%)	(100)	(87.5)	(12.5)	(100)	(86.2)	(13.8)
	1995	378.41	322.6	55.8	373.14	311.3	61.8
	(%)	(100)	(85.3)	(14.7)	(100)	(83.4)	(16.6)
Employment status of household head	1988	258.31	256.7	1.6	253.3	251.6	1.7
	(%)	(100)	(99.4)	(0.6)	(100)	(99.3)	(0.7)
	1995	378.41	361.7	16.7	373.14	353.4	19.7
	(%)	(100)	(95.6)	(4.4)	(100)	(94.7)	(5.3)
Ownership sectors of household	1988	258.31	159.2	99.4	253.3	149.5	103.8
	(%)	(100)	(61.6)	(38.4)	(100)	(59.0)	(41.0)
	1995	378.41	241.2	137.2	373.14	233.2	139.9
	(%)	(100)	(63.7)	(36.3)	(100)	(62.5)	(37.5)
Occupation of household head	1988	258.31	160.4	97.9	253.3	150.8	102.4
	(%)	(100)	(62.1)	(37.9)	(100)	(59.6)	(40.6)
	1995	378.41	237.5	140.9	373.14	229.3	143.8
	(%)	(100)	(62.8)	(37.2)	(100)	(61.5)	(38.5)

* 'Standard region' = eastern, middle and western. 'Age of household head' (years) = 0-15, 16-25, 26-35, 36-45, 46-55, 56-65, 65+. 'Education of household head' = college or above, professional school, middle level professional, upper-middle school, lower-middle school, four or more years of elementary school, one-three years of elementary school, illiterate or semi-illiterate. 'Employment status' = work on family farm or business, employed outside the household, unemployed or waiting for job, retired, full-time homemaker, disabled or injured or had chronic disease and unable to work, other. 'Ownership sectors of household' = farming household, private enterprise, non-farming 'individual' enterprise, township or village enterprise, other collective enterprise, state-owned enterprise or institution, Sino-foreign joint venture, foreign-owned enterprise, currently not working or employed, and other. 'Occupation of household head' = farm labourer, ordinary worker, skilled worker, professional or technical worker, owner or manager of enterprise, village staff, official of party or government office or institution, ordinary staff in an enterprise, temporary or short-term contract worker.

3.2 Decomposition into subgroups and changes in the income structure (Zhao, Li and Zhang 1997)

a) Aggregate inequality and the 'within-group' and 'between-group' components

First are the decompositions by rural-urban location, the standard region, and the head-of-household by age, education, employment, ownership sector and occupation.

Table 13 shows the trends in aggregate inequality and the 'within-group' and 'between-group' components, for I_0 and I_1 (the Theil index). From a theoretical viewpoint, I_0 and I_1 are the same index of income inequality, although I_1 is used more frequently.

The results are striking. No matter which partition is used, the within-group inequality component dominates the between-group component for both years. Aggregate inequality increased 47 per cent from 1988 to 1995. Additional results can be summarized as follows.

First, from 1988 to 1995, rural-urban within-group and between-group inequality measured by I_0 rose 60 per cent and 24 per cent, respectively. Obviously, within-group inequality was changing more rapidly than was between-group inequality. In other words, rural-urban within-group inequality was playing a more and more important role in aggregate inequality.

Second, the within-group and between-group inequality of standard regions measured by I_0 and I_1 increased to 81.5 per cent and 83.8 per cent from 1988 to 1995. Inequality between regions was changing more quickly than was inequality within regions. This means that the effect of between-group regional inequality was climbing in relative terms.

Third, the decompositions by the age, education, employment, occupation and ownership sector of the household head show that the within-group and between-group inequalities in these subgroup rose from 1988 to 1995. The between-group component of the ownership sector and occupation accounted for more than 30 per cent of the aggregate inequality.

b) Changes in within- group and between-group inequalities

The more detailed decompositions of inequality change described by formula (4) above are summarized in Table 14.

No matter which subgroup partition is used, for the changes in the contribution of within-group and between-group inequality over 1988-95, terms I and IV account for more than 95 per cent of the changes in aggregate inequality, and terms II and III are typically small in magnitude.

The results of the decompositions are very interesting. First, the largest contribution to the changes in aggregate inequality was made by changes in within-group inequality rather than between-group inequality. Second, the between-group inequality by ownership sectors and occupation grew rapidly. This saturation was related to the adjustment of ownership structures and the loosening of labour-market controls.

TABLE 14. SUBGROUP DECOMPOSITIONS OF THE CHANGES IN AGGREGATE INCOME INEQUALITY, 1988 AND 1995

Subgroup Partition	% Change in Aggregate Inequality	Within- group (I)	Population Shares (II) and (III)		Subgroup Mean Incomes (IV)
Urban-rural	46.5 (100)	38.6 (83.0)	-1.2 (-2.5)	1.4 (3.1)	7.7 (16.5)
Standard region	46.5 (100)	39.8 (85.6)	0.5 (1.1)	-0.1 (-0.2)	6.3 (13.5)
Age of household head	46.5 (100)	44.4 (95.4)	0.2 (0.5)	-0.2 (-0.5)	2.1 (4.6)
Education of household head	46.5 (100)	38.5 (82.7)	-1.1 (-2.3)	0 (0)	9.1 (19.6)
Employment status of head	46.5 (100)	41.0 (88.2)	-3.9 (-8.3)	2.1 (4.5)	7.3 (15.6)
Ownership sectors of head	46.5 (100)	32.7 (70.3)	-1.2 (-2.5)	1.4 (3.1)	13.6 (29.2)
Occupation of head	46.5 (100)	28.2 (60.7)	1.6 (3.4)	-0.2 (-0.3)	16.9 (36.3)

X

X

V FUTURE TRENDS IN INCOME DISTRIBUTION AND IN THE POLICY RESPONSES

The gradual reform process in China was initiated almost 20 years ago. During the early stages of the reforms, the gap between urban and rural incomes was narrowed, as was overall income inequality. However, especially after the goal of the establishment of a socialist market economy was set in 1992, the more rapid pace of marketization and the adjustments in the structure of ownership rendered income distribution less and less equal. Overall income differences, the differences within and between urban and rural incomes, and regional income differences widened. Time-series data show that this widening trend is continuing. Cross-sectional data appear to indicate that the urban-rural income gap alone may be narrowing.

In urban areas, the shift from the distribution of material goods under the planned economy to the distribution of money under the market economy is essentially complete. The gradual reforms have contributed to the moderate widening in income differences. Now, the factors most affecting urban income distribution are the high income of state-owned monopolies and the low income of many declining state-owned industries.

In future, the further development of the market economy, the establishment of a labour market, and the struggle against monopolies will, to certain degree, cushion additional widening in urban income differences.

The following factors will have an influence on any future expansion in urban income differences. (1) Unemployment, including the unemployment which results from the bankruptcy of urban state-owned and collective-owned enterprises due to mismanagement and unemployment among farm workers who fail to find jobs after moving to cities. (2) With the declining importance of state enterprises and the more rapid pace in the adjustments of the structure of ownership, the significance of private ownership will rise quickly. The accumulation of private capital and private property will lead to more income inequality.

Both of these factors will also tend to widen rural income differences. Urban income inequality may be more substantial than income inequality in rural areas. To counter the negative trend in urban areas, the policy towards rural income distribution should be centred on the re-establishment of a social security system, including unemployment relief.

Two major factors will continue to influence rural income differences in the future. One is rural industrial reform, that is, the development of township enterprises, and the other is the migration of rural labour. This migration will become more and more conspicuous in the future.

Income differences in both urban and rural areas are becoming more and more determined by endogenous development variables. Over the short and the middle run, income gaps will continue to increase. Income policies must therefore be enhanced in order to reduce social unrest and maintain the pace of the economic development of the country.

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