

Radical economic reform and income distribution

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Economic reform has experienced two stages—a modest reform stage, and a radical reform stage. Before the mid 1990s the Chinese economic reform followed a gradual approach. During this period inequality in urban areas widened but the Chinese people as a whole were made better off (Zhao and Li 1999).

Since the mid 1990s, however, economic restructuring has accelerated. The state and collective employment share has reduced from 76 per cent of total urban employment in 1995 to 49 per cent in 1999 and unemployment has increased significantly. Although official unemployment figures have been kept very low, at around 3 per cent, several different estimates suggest that as many as 15–27 million state sector workers were laid off in 1999—an additional 7–12 per cent of the urban labour force (Fan 2000 and Appleton, Knight, Song, and Xia 2001).

Questions naturally arise as to whether the acceleration of economic restructuring has changed the nature of the increase in income inequality in urban China, and whether any particular groups of households are badly affected. Using three comparable urban household surveys this chapter investigates these questions by comparing the change in income inequality between the periods 1988–95 and 1995–99 and identifying the different contributing factors to the changes in each period.

Previous studies on income inequality changes in China focused mainly on the period up to the mid 1990s (Knight and Song 1991; Kahn, Griffin, and Zhao 1992; Aaberge and Li 1997; Gustafsson and Li 1997, 1998, 1999; Knight and Li 1999; Yang 1999; Khan and Riskin 2000; Riskin, Zhao, and Li 2001). Due to the lack of available

data, there are, as yet, no published studies on recent developments. In early 2000, however, the Institute of Economics at the Chinese Academy of Social Sciences, with assistance from the China Statistical Bureau, conducted a new household income distribution survey, collecting information on household income and expenditure in 1999 in 6 provinces. This chapter utilises this new survey together with two other comparable surveys conducted by the same Institute for the years 1988 and 1995.

BACKGROUND

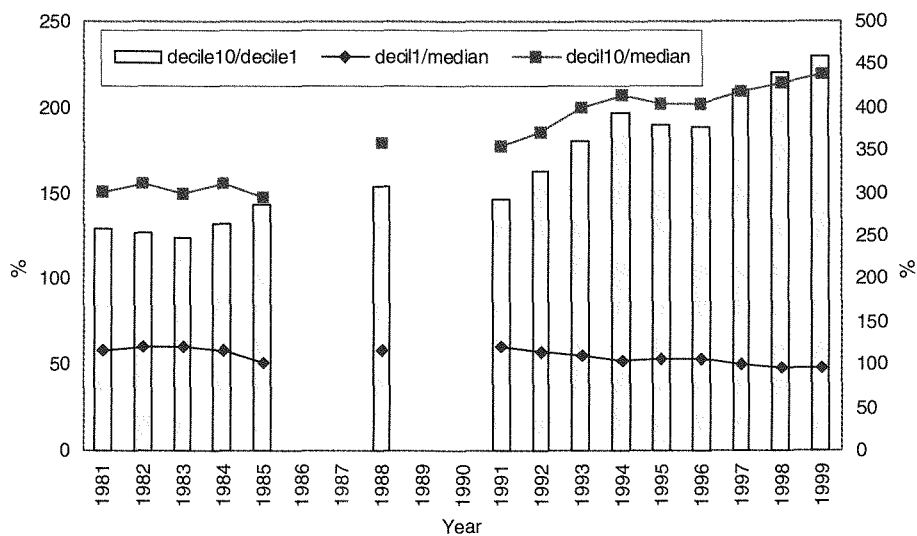
China has experienced rapid economic growth since economic reforms began in the late 1970s. Over the period 1982–99, urban household per capita real income increased by 7.4 per cent per annum (China State Statistical Bureau (SSB) 2000). The rate of increase, however, varied from period to period. The annual increase in urban household real income was 5.6, 8.3, and 7.3 per cent for the periods 1982–88, 1988–95, and 1995–99, respectively. Income inequality also increased and this increase also varied across different periods of economic reform (Figure 12.1).

In the period before the early 1990s, economic reform was mainly concentrated on product markets and little was changed in terms of the compressed wage structure, immobility of labour, and the domination of state sector employment (Meng 2000). Correspondingly, income distribution changed very slightly. This is shown in Figure 12.1, where the income ratio of the tenth to the first decile was not very large, changing only from 259 per cent in 1981 to 295 per cent in 1991.

Factor market reform proceeded gradually from the early 1990s. By the mid 1990s, labour mobility across urban regions and between rural and urban areas increased (Meng 2000; West and Zhao 2000) and the rate of return to different levels of labour market skills widened (Knight and Song 1999). Accompanying this reform process, income inequality increased sharply (Kahn, Griffin, and Zhao 1992; Aaberge and Li 1997; Gustafsson and Li 1997, 1998, 1999; Knight and Li 1999; Yang 1999; Khan and Riskin 2000; Riskin, Zhao, and Li 2001). The ratio of the tenth to the first income decile increased from 295 per cent in 1991 to 378 per cent in 1995. The increase in income inequality in this period was mainly the result of increased regional dispersion (Gustafsson and Li 1999 and Khan and Riskin 2000).

Since 1995, urban economic reform has taken a sharp turn. Due to soft budget constraints and other property rights related problems, the Chinese state sector has been performing badly. In 1995–96, around 50 per cent of enterprises were

**FIGURE 12.1 CHANGE IN DISPERSION OF REAL PER CAPITA
HOUSEHOLD INCOME IN URBAN CHINA, 1981–99**



Source: State Statistical Bureau, *China Statistical Yearbook*, various years.

making losses. To vitalise the economy a policy of radical reform of SOEs was introduced in 1997 (Appleton, Knight, Son, and Xia 2001). Many small and medium-sized loss-making state enterprises were bankrupted as a result of this policy and the survivors began to take efficiency measures seriously. These two forces led to large-scale retrenchments.

Although official figures on urban unemployment only increased from 2.9 per cent in 1995 to 3.1 per cent in 1999, they do not include the majority of unemployed workers who were laid off from the state sector. The urban household surveys of 1995 and 1999 conducted by the Institute of Economics, Chinese Academy of Social Sciences, reveal that the urban unemployment rate when defined to include laid-off workers increased from 8 per cent to 17 per cent over this period.

Significant economic restructuring, leading to large increases in unemployment might be expected to widen income distribution. The effect of significant economic restructuring on income inequality during the period 1995–99 is apparent in Figure 12.1. The income ratio of the tenth to the first decile increased further from 378 per cent in 1995 to 459 per cent in 1999. More importantly, relative income at the

bottom end of the distribution reduced from 54 per cent of medium income in 1995 to 47 per cent in 1999, while the average income at the top end of the distribution continued to increase.

CHANGES IN INCOME INEQUALITY OVER TIME

According to the survey data, average real household per capita disposable income grew from 1398 yuan in 1988 to 2125 yuan in 1995, and further to 2647 yuan in 1999. The average annual growth rate is 6.2 per cent for the period 1988–95 and 5.6 per cent for the period 1995–99. These growth rates are slightly lower than those reported in the national statistical data.

Table 12.1 presents a range of measures of income inequality. For the 1988 and 1995 data, the first column under each of the two years reports measures for the full sample (11 provinces) while the second column reports measures for the sample of 6 provinces consistent with those included in the 1999 data. Income inequality increased during the period of interest, regardless of the inequality measure, income measure, or sample used.

Using the Gini coefficient as an example, our estimates of the Gini for per capita household disposable income for the full sample increased from 23.4 in 1988, to 28.2 in 1995, and further increased to 31.3 in 1999.

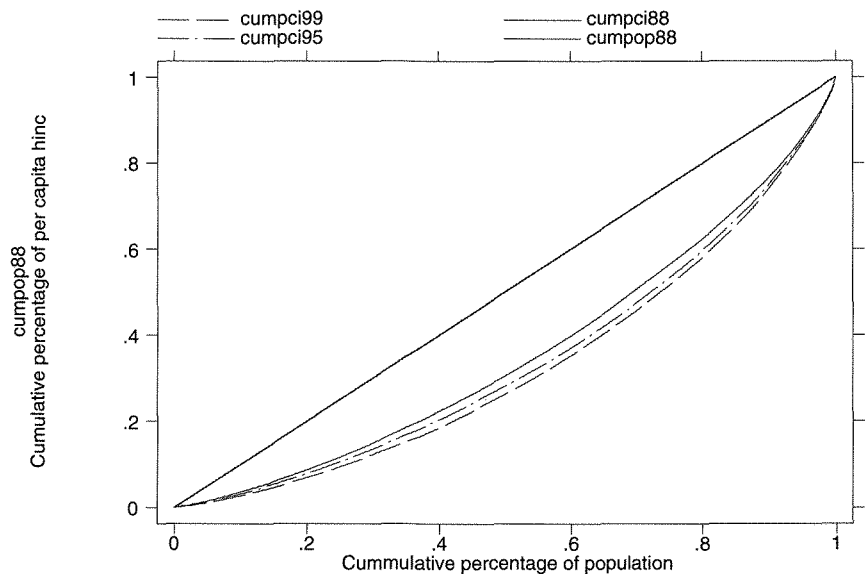
Figure 12.2 plots the Lorenz curves for the three survey years (Panel A full sample, Panel B, 6 provinces sample). The solid curve indicates income distribution in 1988, the dash and dotted line indicates the 1995 situation, and the dashed curve presents the 1999 situation. If one Lorenz curve lies everywhere above another it is

TABLE 12.1 **VARIOUS INEQUALITY MEASURES OF INCOME, 1988,**
1995, AND 1999

	Real per capita HH income						Real HH income					
	1988		1995		1999		1988		1995		1999	
	11 Prv.	6 Prv.	11 Prv.	6 Prv.	11 Prv.	6 Prv.	11 Prv.	6 Prv.	11 Prv.	6 Prv.	11 Prv.	6 Prv.
Relative mean Dv.	0.16	0.15	0.20	0.19	0.22	0.16	0.15	0.20	0.19	0.22		
Coeff. Var.	0.49	0.45	0.60	0.59	0.63	0.49	0.44	0.59	0.54	0.65		
Sd. Dv. of logs	0.42	0.39	0.51	0.50	0.60	0.43	0.40	0.50	0.48	0.61		
Gini coefficient	0.23	0.22	0.28	0.27	0.31	0.24	0.22	0.28	0.26	0.31		
Mehran measure	0.32	0.30	0.38	0.38	0.43	0.32	0.30	0.38	0.36	0.43		
Piesch measure	0.19	0.17	0.23	0.22	0.26	0.19	0.17	0.23	0.21	0.25		
Kakwani measure	0.05	0.04	0.07	0.07	0.09	0.05	0.05	0.07	0.06	0.09		
Theil entropy measure	0.10	0.08	0.14	0.13	0.17	0.10	0.08	0.14	0.12	0.17		
Theil mean log Dv.	0.09	0.08	0.13	0.13	0.17	0.09	0.08	0.13	0.12	0.17		

FIGURE 12.2 LORENZ CURVES FOR REAL PER CAPITA HOUSEHOLD
DISPOSABLE INCOME, 1988, 1995, AND 1999

Penal A: Full sample



Panel B: Sample of consistent 6 provinces

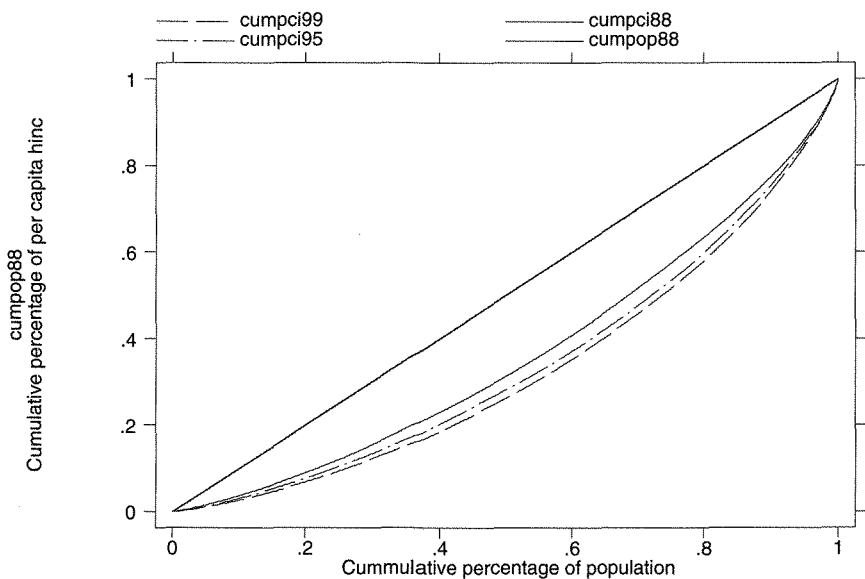
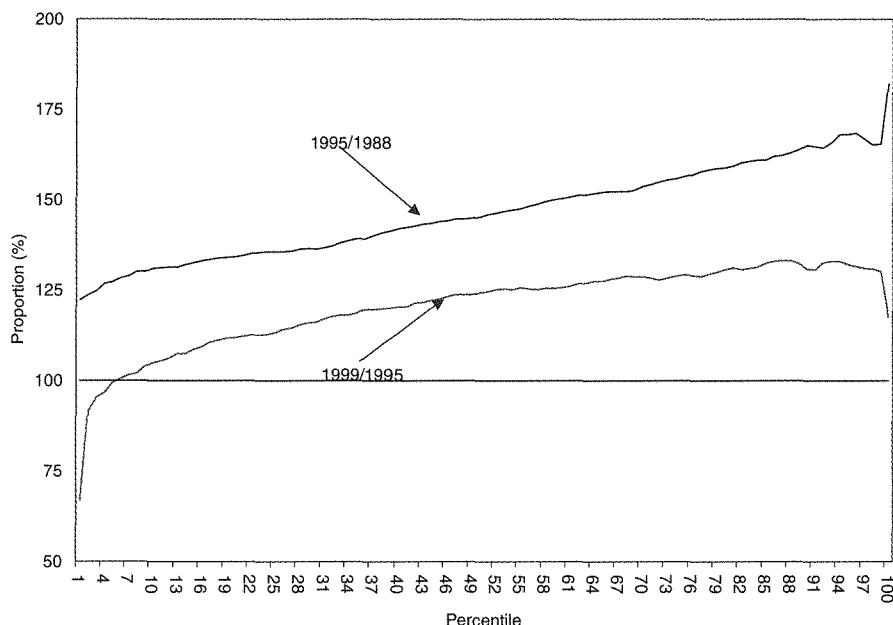


FIGURE 12.3 **AVERAGE PER CAPITA INCOME DISTRIBUTION, 1988, 1995, AND 1999**



said to 'Lorenz dominate' the other curve and all inequality measures will show inequality to be lower for the higher curve. What is observed from Figure 12.2 is that the 1988 Lorenz curve dominates that of 1995, which in turn dominates that of 1999, confirming that income inequality increased over the period. The fact that there is no Lorenz-crossing enables an unambiguous conclusion that income inequality has increased, as a basis for study of its causes.

Figure 12.3 depicts the changes in the average income of each percentile of the real PCHI distribution. Over the 1988–95 period, both the top and bottom end of the income distribution gained income although the top end gained more. Whereas over the 1995–99 period strong income growth is observed for the top sixty percentiles (about a 20 per cent increase), a moderate growth for the lower middle income group (around a 10–20 per cent increase), a very slight increase for the fifth to the fifteenth percentile, and a reduction in income for the bottom five percentiles.

Why did household income at the lower end of the distribution fall while medium

and high income families enjoyed significant income gains over the period 1995–99? As economic restructuring may be an important cause, Figure 12.4 presents the distribution of households with unemployed members across different income deciles in 1995 and 1999. It indicates that the number of households with unemployed members more than doubled for the lower two deciles while it hardly changed for the top two deciles.

If unemployment is an important cause of the reduction in income at the lower end of the distribution between 1995 and 1999, why is it that not all households with unemployed members fall into the lowest income group? Perhaps the reduction in household income from one member being unemployed can be offset by income earned by other employed members. Of course, households with more unemployed members are less likely to be able to compensate within the household and hence more likely to fall into the lower end of the distribution. Indeed, in 1999 around 50 per cent of the households with two or more unemployed members were located at the bottom ten percentiles of the income distribution, and about thirty per cent of these households were concentrated at the lowest five percentiles of the distribution.

IDENTIFYING CONTRIBUTING FACTORS TO THE CHANGE IN INCOME INEQUALITY

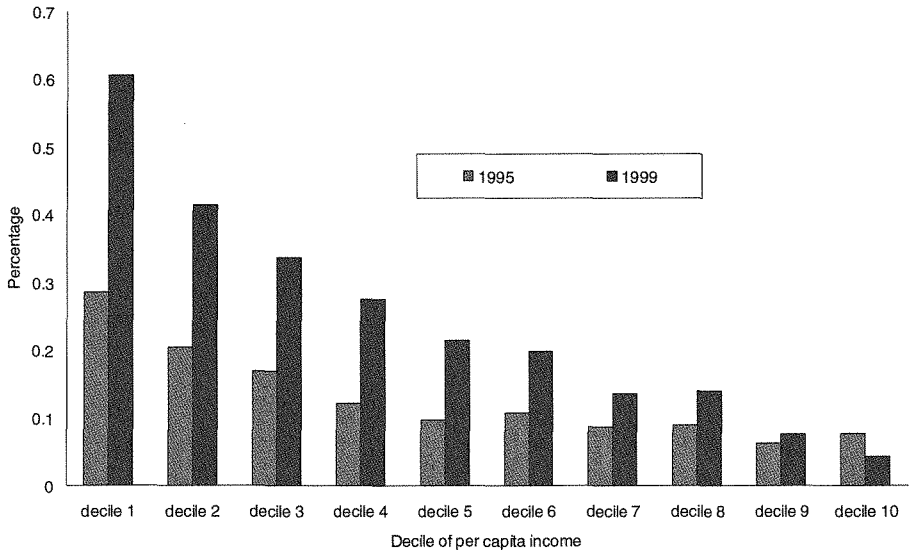
A regression analysis on the determinants of income variation reveals the following interesting results, especially when compared across the three survey years.

First, the effect of education on real PCHI has increased over time. One more year of education increased real PCHI by 1.9 per cent in 1988, 3.4 per cent in 1995, and 4.4 per cent in 1999. The increase in the return to education reflects the effect of market-oriented economic reform in the urban labour market.

Second, party members earn significantly higher earnings than non-party members. In 1988, a household where both husband and wife were party members received 10 per cent more per capita income than households without any party member, this ratio increased to 13 per cent in 1995, and 20 per cent in 1999.

Third, household residential location plays an important role in the determination in income variation in all three years. However, the effect is the most obvious in 1995.

Finally, the most important changes come about in variables representing economic restructuring. The effects on household income of unemployment and working in a loss-making firm have changed considerably, though the change in the

FIGURE 12.4**DISTRIBUTION OF HOUSEHOLDS WITH UNEMPLOYED MEMBERS ACROSS INCOME DECILES**

return to different sectors of employment have not been particularly significant.

In 1988, there were few unemployed individuals (only 3 per cent of the total labour force) and the effect of unemployment on household income was insignificant. By 1995 there was a significant change. A household with a husband who is unemployed has a 9 per cent lower PCHI than a household without the unemployed husband. The income reduction for households with wives or sons/daughters being unemployed is 10.5 and 7.5 per cent, respectively. In addition, working in loss-making firms also reduces income substantially. A household with both husband and wife working in a loss-making firm receives 17.7 per cent less income than otherwise. Working in a loss-making firm is a first step towards becoming unemployed.

By 1999, radical urban state sector reform had been in place for about 4–5 years and the effect on household income variation was even more severe than in 1995. Households with unemployed husbands, wives, or sons/daughters receive 29, 26, and 16 per cent less income, respectively, than households where these members were employed. These ratios are between double to triple those observed in 1995. The loss of income for households with husbands working in loss-making firms also

increased. In 1995, the per capita income of these households was about 9 per cent less than households without husbands working in a loss-making firm. By 1999, this ratio had increased to 17 per cent.

To identify the contributing factors of income inequality further over the period studied, Fields' decomposition (1998) approach is employed to quantify the degree to which the variables included in the income-generating equation account for the level of income inequality. The variables included in the estimated per capita household income equation are grouped into 5 contributing factors.

- 'Economic restructuring' which includes the effect of household members (husband, wife, and sons/daughters) being unemployed, working in a loss-making firm, and their sector of employment.
- 'Regional effect' which is captured by the regional dummy variables.
- 'Party membership' which includes the two dummy variables indicating whether the husband or wife is a party member.
- 'Human capital' effect which is measured by the average age of household labourers, its squared term, and the average years of schooling of household labourers.
- 'Household composition' which covers the effect of the gender of the household head, the young and old dependency ratios, family size, and the number of labourers in the household.

This analysis shows that the most important contributing factor to income inequality changed from household composition in 1988 to regional effect in 1995, and to economic restructuring effect in 1999. In 1988 there is hardly any effect on income inequality from economic restructuring. In 1995, about 7 per cent of income inequality is due to the effect of economic restructuring, of which sector of employment accounted for about half. The effect of economic restructuring had increased to more than 20 per cent of the level of income inequality by 1999, of which the effect of unemployment contributed more than 9 percentage points.

The regional effect has always been significant, but only in 1995 is it identified as the single factor accounting for most of the income inequality. This result is consistent with that found in Gustafsson and Li (1999) and Khan and Riskin (2000). Other effects which have gained some grounds in 1999, relative to 1988 and 1995, are party membership and human capital effects but these do not play as significant a role as that of economic restructuring.

To what extent do different factors contribute to the increase in income inequality

TABLE 12.2

**DECOMPOSITION OF THE CONTRIBUTING FACTORS TO
THE CHANGE IN THE GINI COEFFICIENT, 1988–95, AND
1995–99**

	1988 Gini=0.234	1995 Gini=0.282	1999 Gini=0.313	Change 1988–95	Change 1995–99
	$S_j(\ln Y)$	$S_j(\ln Y)$	$S_j(\ln Y)$	$P_j(\text{Gini})$	$P_j(\text{Gini})$
Restructuring	0.39	2.02	6.35	33.96	139.55
Of which: unemployment	0.11	0.40	2.84	6.02	78.70
Loss-making firm	0.00	0.67	1.87	13.97	38.82
Sector of emp.	0.27	0.95	1.63	13.97	22.03
Regional effect	4.01	6.38	4.26	49.47	-68.60
Party	0.26	0.56	1.20	6.11	20.84
Human capital	0.67	1.81	2.23	23.65	13.53
Household composition	6.13	4.53	2.24	-33.40	-73.86
Residual	11.94	12.91	15.03	20.21	68.54
Total	23.40	28.20	31.30	100.00	100.00

over the periods? To quantify this the change in income inequality over the two periods are further identified. Table 12.2 summarises these results in terms of the change in the Gini coefficients between 1988–95 and 1995–99.

The results show that the regional effect contributed 50 per cent of the increase in the Gini coefficient between 1988 and 1995. Economic restructuring contributed around 34 per cent, of which unemployment accounted for 6 percentage points, while household members working in a loss-making firm or sector of employment each contributed to more than 13 percentage points. Another important factor that contributed to the increase in income inequality between 1988 and 1995 is the human capital factor, which accounted for about one quarter of the increase in the Gini coefficient. This finding is consistent with other studies indicating that the effect of labour market reform increased the rate of return to human capital in the 1990s (Knight and Song 1999; Meng 2000).

During the period 1995–99 the main contributing factor to the increase in the Gini coefficient is the factor of economic restructuring, which accounted for more than 100 per cent of such change¹ while the regional effect contributed to the reduction of the Gini coefficient. Of the economic restructuring factor, unemployment contributed 79 per cent of the increase in the Gini coefficient, while working in a loss-making firm and the sector of employment each contributed 39 and 22 per cent, respectively. Another important effect contributing to the increase in the Gini coefficient during this period was party membership. Around one fifth of the

increase in inequality can be explained by this factor. The reason that the effect of party membership increased income inequality is due to a sharp increase in the rate of return to party membership as there has been little change in the proportion of households with a party member.

To conclude, the increase in inequality between 1988 and 1995 is mainly due to the increase in regional income variation, whereas the main contributing factor to the inequality increase between 1995 and 1999 is economic restructuring.

CONCLUSIONS

Income inequality has increased considerably over the period of economic transition from a planned to a market oriented economy in urban China. This study has investigated this change over two important phases of the economic transition: the initial stage of acceleration of the state sector and urban labour market reforms (1988–95) and the period of radical reform in the state sector and the urban labour market (1995–99).

First, although income inequality increased during each period, the nature of the increase is different. In the first period everybody was made better off and the increase in inequality was due to the relatively stronger income growth at the top end of the distribution. In the second period, however, households at the lowest 5 percentile income distribution experienced an income reduction, while households at the top end of the distribution enjoyed significant income gains. Thus, in terms of social welfare, the increase in inequality in the first period was compensated by an unambiguous increase in social welfare at every level of income distribution, whereas this was not the case in the second period. This may be a reason why the social stability issue has become more of a concern since the late 1990s.

Second, while the increase in income inequality in the first period was mainly due to the increase in regional income variations, this effect was dominated by the impact of economic restructuring in the second period. The increase in the number of households with unemployed members and the significant increase in income reduction for unemployed households contributed more than 78 per cent of the increase in the Gini coefficient over the period 1995–99. In addition, households with members working at a loss-making firm also contributed considerably to the increase in income inequality during this period.

The interesting issue, though, is that not all households with unemployed members fell into the low income group. While around 40 per cent of such

households had income at or below the 20th percentile, nearly 11 per cent of households with unemployed members received income above the 70th percentile. This difference may be closely related to the concentration of unemployed members within each household. Indeed, although only 3.7 per cent of households in 1999 had more than one unemployed member, on average these households earned more than 50 per cent less real PCHI than other households, *ceteris paribus*. The significant effect of unemployment concentration on income reduction, and hence, on income inequality suggests that, to a large extent, some of the unemployment effect may have been cushioned by within household income transfers. Households whose members are unable to compensate each other are more likely to suffer from severe income reduction due to economic restructuring. Therefore, the households that deserve more government assistance may be those which have more than one member unemployed.

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Note

- ¹ This implies that, had there been no offsetting factors, the increase in the Gini coefficient would have been more significant.