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Globalization and the Urban Poor in China

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Abstract

This paper examines the distributional impact of globalization on the poor in urban China. Employing the kernel density estimation technique, we recovered from irregularly grouped household survey data the income distribution for 29 Chinese provinces for 1988-2001. Panels of the income shares of the poorest 20, 10 and 5 per cent of the urban residents were then compiled. In a fixed-effect model, two of the central conclusions of Dollar and Kraay (2002)—that 'the incomes of the poor rise equi-proportionately with average income' and that trade openness has little distributional effect on poverty—were revisited. Our results lend little support to either of the Dollar-Kraay conclusions, but instead indicate that average income growth is associated with worsening income distribution while globalization in general, and trade openness in particular, raises the income shares of the poor. It is also found that openness to trade and openness to FDI have differential distributional effects. The beneficial effect of trade was not restricted to the coastal provinces only, but also weakened significantly after 1992. These findings are robust to allow for nonlinearity in the effect of globalization and to control for the influence of several other variables.

Keywords: globalization, poverty, China

JEL classification: O15, O53

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1 Introduction

Recent research has revealed the disturbing fact that since the late 1980s, progress in poverty reduction has stalled in urban China (Ravallion and Chen 2004) or has even been reversed (Hussain 2003; Khan, Griffin and Riskin 1999). The same period also witnessed the engine of China's economic takeoff change from agricultural growth, spurred by the decollectivization of the rural areas to manufacturing exports fuelled by large FDI inflows. Arguably, the latter is more directly related to the urban areas where most manufacturing industries are concentrated. In view of the ongoing debate on the marginalizing impact of globalization on the poor, the concurrence of increasing urban poverty in China and growing integration with the global economy deserves a careful examination.

Although a rich literature exists on the issues of inequality and poverty in China, relatively few studies have dealt with the effect of globalization on poverty in urban China. In two recent studies, Ravallion and Chen (2004) and Ravallion (2004) find little correlation between the expansion of trade and overall poverty reduction. This finding is based on national aggregate measures of poverty and trade openness. However, both the level of openness and the severity of poverty vary considerably across Chinese provinces.[1] Also, because residents in urban areas are generally more exposed to the vicissitudes of the global economy than in the rural regions, the effects of globalization on urban and rural poverty may also differ. Hence, even if globalization does impact on poverty, either positively or negatively, the relationship may not show up in national average measures. Moreover, globalization can affect poverty via two channels: the growth effect and the distributional effect. Since there is a general consensus on the positive impact of trade (and FDI inflows) on growth, the finding of a disassociation between absolute poverty and trade implies a negative distributional effect of trade. This is inconsistent with Dollar and Kraay (2002) who, in a widely cited cross-country study, conclude that the poor benefit from globalization just as much as the rest of the population. Is China an exception to this general pattern?

This paper departs from earlier studies in three aspects. First, by placing the focus on the distributional effect of globalization on China's *urban* poor, it complements previous studies on the total impact of globalization and those on China's rural poverty. Second, it examines the impact of both openness to foreign trade and openness to foreign investment. Although these two aspects of globalization are closely related, their effects on poverty might differ. As shown below, urban China turns out to be a case in point. Finally, the paper makes use of intra-province distributional data to assemble a provincial panel, whereby province-specific heterogeneity can be more readily accommodated. By accounting for regional diversity, we consider this one step towards the direction of 'looking beyond average', as urged by Ravallion (2004).

The remaining part of the paper is organized as follows. The next section explains our method of estimating from grouped household survey data the three measures of income shares of the poor. This is necessary because we are unable to access household records or congruent data for the poor. Preliminary analysis of the trend and regional pattern of the three measures is also presented. In section 3, the effects of globalization on the

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[1] For evidence on regional differences in openness, see Wei and Wu (2002) and Wan, Lu and Chen (2004); for evidence on regional variations in poverty, see Khan (1998) and Hussain (2003).

three income shares are explored and the robustness of the findings tested. Section 4 concludes.

2 Estimating the income shares of the poor

To obtain the urban income distribution for different provinces over time, we draw on the annual urban household surveys administered by the National Bureau of Statistics (NBS).[2] The survey data are published in provincial statistical yearbooks, albeit in grouped format where households are classified into consecutive income classes and the percentage/number of households in each class is tabulated along with the group mean income and average household size. We were able to collect such data for a total of 375 distributions, covering 29 out of China's 31 provinces and province-level cities (Taiwan, Macao and Hong Kong not counted) for most of the years between 1988 and 2001.

A problematic feature of the data is that the grouping format gives rise to irregular quantiles. To compound the problem, the categorization of income classes is not congruent across provinces and frequently changes over time. To enable spatial and temporal comparison, it is thus necessary to estimate the probability density functions (PDFs) of the distributions from the published data. In the income distribution literature, a number of parametric models have been proposed for such a purpose. None of these models enjoy established superiority over the others. Considering that the 375 distributions are likely to be rather diverse both spatially and temporally and that the number of data points available for estimating each distribution also differs, we feel it unpromising to search for a parametric form that would approximate all the distributions reasonably well. By contrast, the non-parametric method of kernel density estimation offers an appealing alternative in that it does not require *a priori* specification of any particular functional form.[3]

Kernel density estimation was recently applied by Sala-i-Martin (2002a, 2002b) to estimate income inequality among world citizens.[4] Further explanation of the method can be found in the Sala-i-Martin papers. Suffice it to note here that we use the

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2 Most published studies on China's income distribution rely on the NBS data. Some studies use data from household surveys conducted by the Chinese Academy of Social Sciences (CASS) in collaboration with a team of economists based outside China. The latter surveys cover around a third of the 31 provinces and are available for 1988 and 1995 only.

3 At the exploring stage, we tried fitting parametric models to the data. We experimented with the log-normal distribution and the Beta and General Quadratic (GQ) Lorenz curves, complete with the quantile-by-quantile mean-fitting method proposed in Shorrocks and Wan (2004). This procedure did not always yield meaningful Lorenz curves. Where it did, we found that the differences between the resulted distribution and that produced by kernel density estimation lie primarily at the upper tail.

4 Milanovic's (2002) objection to the use of kernel density estimation in Sala-i-Martin (2002a, 2002b) is that there is too little information (Sala-i-Martin uses quintile data) to infer the shape of entire distributions, especially that of the upper tails. This is essentially a criticism of the data rather than of the estimation method. Any estimation method, parametric or non-parametric, can produce only as good an approximation to the true distribution as the data allow. In our dataset, we have on average eight data points for a distribution and typically greater concentration of data for the lower part of the distribution which is the focus of this paper.

Rosenblatt-Parzen density estimate with the standard normal density function as the kernel.[5] The bandwidth of the kernel is set individually for each province at $0.9\times\sigma\times n^{-1/5}$, where σ is the average of the standard deviations of the logarithmic income of the province and n is the number of available data points. The figure in Appendix B presents the estimated PDFs for each province for three selected years: the first and last years for which the distributional data of the province are included in the sample, and the year 1995 or 1996 depending on whether data for the former are available.[6]

It is easy to see from Appendix B that for nearly all provinces the entire distribution has moved to the right. Unless there has been widespread switching of fortunes between the members of high- and low-income groups, this implies that an overwhelming majority of urban residents saw their real income grow in this period. It is also obvious that income inequality has increased since the distribution has become more dispersed in all cases except Gansu, for which information is available only for the limited period of 1990-97. For the three province-level cities, it appears that a second local mode is gradually taking shape at the high-income end, indicating a tendency towards polarization.[7]

Of more interest for this paper is what happened to the lower tails of the PDFs. It can be seen that, for all provinces, the lower tails have grown longer over the period. Thus, income of the poor has not grown as fast as average income and the income shares of the poor must have fallen accordingly. Compared with either the contemporary income growth rates of other groups or with its own record over previous years, the income growth of the poor seems to have been particularly slow since the mid-1990s. In a number of provinces, e.g., Shanxi, Anhui, Hunan, Guizhou and Guangxi, real income growth of the poor may have stagnated.

Rising regional disparity in China has attracted much attention recently. In order to determine whether there is any distinct regional pattern in the provincial PDFs, the plots in Appendix B are organized into six regional groups based on the geographical and economic characteristics as suggested in Démurger *et al*. (2002). As expected, the PDFs of the richer eastern provinces, including the three province-level cities plus the coastal provinces, are further to the right along the income axis. Concerning the income share of the poor, however, little is discernible from viewing the plots. Thus, we turn to some quantitative measures of the income share of the poor.

We define the poor as either the bottom 5, 10 or 20 per cent of the population with the lowest income. Given an estimated PDF $p(x)$ of log income, a person is considered poor if his or her annual real income Y satisfies $\int_{-\infty}^{\ln Y} p(x)dx < s$, where s = 0.05, 0.1 or

5 Using the Epanechinikov kernel yields similar results.

6 The horizontal axis denotes the logarithm of income in 1981 prices.

7 This is, of course, subject to the caveat that data for high-income groups are likely to contain more errors.

0.2 depending on which of the three definitions is used. The income shares of the poorest 5, 10 and 20 per cent of the provincial residents are calculated as[8]

$$\frac{s\int_{-\infty}^{\ln Y^*} e^x p(x)dx}{\int_{-\infty}^{+\infty} e^x p(x)dx}, \tag{1}$$

where $\int_{-\infty}^{\ln Y^*} p(x)dx = s,$ and $s = 0.05$, 0.1 and 0.2, respectively.

Figure 1 shows the cross-section boxplots over 1988-2001 for each of the three sets of income shares. The cross-section dispersions of the three measures do not appear to have changed much, yet a trend decline is visible in all of them. To assess the magnitude of the decline and to detect if any regional differences are present, four regressions were run on the pooled data on a time trend and dummy variables for three different groupings of the provinces.[9] As the results in Table 1 show, the further one moves away from the coast, the less favourable income distribution tends to become to the poor. In the two- and three-region groupings (coastal-inland and coastal-central-western), the income shares of the poor in the coastal provinces are clearly higher than those in the other provinces (referring to the coefficients on the coastal dummies in regressions 2-3). In comparison between the central and the western provinces, the poor in the former region obtain a larger share of total provincial income. When a finer classification of the provinces is adopted, the income distributions in the three province-level cities are the most favourable to the poor, followed by those in the three northeastern provinces and the other provinces along the coast. The sparsely populated yet resource-rich northwestern provinces have the least favourable income distribution for the poor. However, there appears to be ample variation within the groups so that the average income shares of the coastal, central and northeastern groups are not statistically different from that of the southwestern group, the base group in regression 4. Despite these regional differences in the levels of income shares, an across-the-board decline is confirmed for all three income share measures. The magnitudes of the coefficient estimates on the time trend are stable across different specifications. At the estimated rates of decline, the three measures could have fallen by 20 to 30 per cent over the period on average. We also tried introducing interaction terms between the time trend and the regional dummies into regressions 3 and 4. However, due to multicollinearity caused by high correlations between the regional dummies and their interaction terms, the interaction terms are never precisely estimated and hence dropped from the regression.

What part might have globalization played in bringing about the above outcomes? In trying to answer this question, looking at the bivariate correlations between globalization and the income shares of the poor alone does not get one very far, for the temporal and spatial correlations between the two present a paradox. Two of the well-

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8 $\int_{-\infty}^{\ln Y^*} e^x p(x)dx = \bar{Y}^P$ is the mean income of the poor, s is the population share of the poor, $\int_{-\infty}^{+\infty} e^x p(x)dx = \bar{Y}$ is the average income of all residents, the income share of the poor is thus given by $\bar{Y}^P \times s / \bar{Y}$.

9 The members of the regional groups are listed in the notes to Table 1.

known facts about China's globalization process are that: (i) the country, as a whole, has markedly increased its integration with the world economy since the mid-1980s; and (ii) the scale, intensity and speed of the opening-up process are much greater in the eastern seaboard provinces than inland. Thus, time-wise, the presence of a trend decline in the income shares of the poor implies that globalization cannot be pro-poor in the sense that it benefits the rich more than proportionately; space-wise, however, the proposition that globalization is anti-poor would be in conflict with the finding that the poor in the provinces closer to the coast enjoy higher income shares. An easy compromise would be to conclude that globalization is a distribution-neutral force. But is that the true and full story? We now turn to a formal analysis of the relationship between globalization and the income shares of the poor.

Table 1
Trend and regional differences in the income shares of the poor

	Regression 1			Regression 2			Regression 3			Regression 4		
Regressors	20%	10%	5%	20%	10%	5%	20%	10%	5%	20%	10%	5%
Intercept	11.241	4.926	2.206	10.999	4.786	2.132	10.762	4.660	2.072	11.252	4.920	2.201
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Time trend	-0.179	-0.092	-0.044	-0.180	-0.092	-0.045	-0.179	-0.092	-0.044	-0.181	-0.093	-0.045
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Coastal (a				0.640	0.371	0.195	0.874	0.495	0.254	0.213	0.140	0.073
				0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.124*	*0.046*	*0.035*
Central (b							0.449	0.238	0.115	0.098	0.051	0.022
							0.000	*0.000*	*0.000*	*0.411*	*0.400*	*0.470*
3 Cities (c										0.744	0.447	0.244
										0.000	*0.000*	*0.000*
Northeast (d										0.181	0.113	0.060
										0.176	*0.095*	*0.080*
Northwest (e										-0.816	-0.438	-0.221
										0.000	*0.000*	*0.000*

Notes: The figures in italics are the marginal significance values of the *t*-statistics of the coefficient estimates. In regression 4, the base group consists of the south western provinces: Guangxi, Guizhou, Sichuan and Yunnan. The other groups are defined as follows:

(a In regressions 2-3, coastal provinces include Beijing, Fujian, Guangdong, Hainan, Hebei, Jiangsu, Liaoning, Shanghai, Shandong, Tianjin and Zhejiang. In regressions 4, Beijing, Shanghai, Tianjin and Liaoning are assigned to other groups.

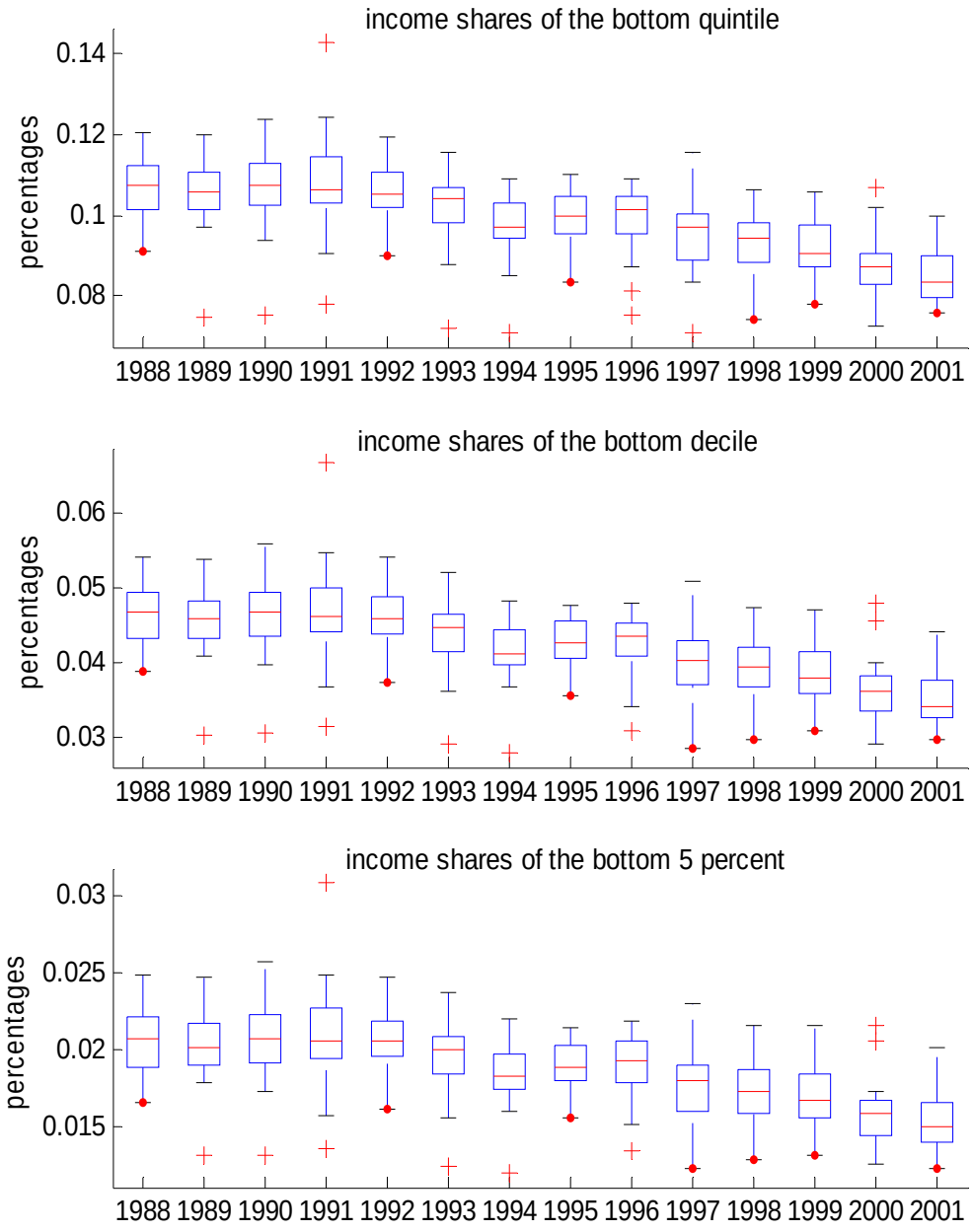
(b In regressions 2-3, central provinces include Anhui, Heilongjiang, Henan, Hubei, Hunan, Inner Mongolia, Jiangxi, Jilin and Shanxi. In regressions 4, Heilongjiang, Jilin and Inner Mongolia are assigned to other groups.

(c The three province-level cities are Beijing, Shanghai and Tianjin.

(d The northeastern provinces include Liaoning, Heilongjiang and Jilin.

(e The northwestern provinces are Gansu, Inner Mongolia, Ningxia, Shaanxi, Qinghai, and Xinjiang.

Figure 1
Boxplots of the income shares of the poor



3 Globalization and the poor

We adopt the following econometric framework used in Dollar and Kraay (2002):

$$\overline{y}_{kt}^{P} = \alpha_0 + \alpha_1 \overline{y}_{kt} + \boldsymbol{\beta}' \mathbf{x}_{kt} + \boldsymbol{\mu}_k' + \varepsilon_{kt} . \qquad (2)$$

The equation states that the (logarithmic) mean income of the poor $\overline{y}_{kt}^{P}$ in location (province) *k* and period (year) *t* is, first of all, determined by the (logarithmic) per capita

income, $\overline{y}_{kt}$, in province *k*. Over and above the effects of $\overline{y}_{kt}$, $\overline{y}^{P}_{kt}$ is influenced by a vector of other variables $\mathbf{x}_{kt}$ and a vector of time-invariant yet province-specific factors $\boldsymbol{\mu}_k$. Upon subtracting $\overline{y}_{kt}$ from both sides of Equation (2), we obtain:

$$l_{kt} = \alpha_0^* + \alpha_1^* y_{kt} + \beta_1 g_{kt} + \boldsymbol{\beta}^{*\prime} \mathbf{x}_{kt}^* + \boldsymbol{\mu}_k' + \varepsilon_{kt}, \tag{3}$$

where $l_{kt} = \overline{y}^{P}_{kt} - \overline{y}_{kt} + \log s$,[10] s = 0.05, 0.1 or 0.2, is the logarithms of the income shares of the poor, $\alpha_0^* = \alpha_0 + \log s$, $\alpha_1^* = \alpha_1 - 1$ and g_{kt} is (the logarithms of) an indicator measuring the extent of globalization of the local economy. Our main concern in this paper is, of course, whether g_{kt} enters Equation (3) significantly and, if it does, what sign the coefficient β_1 takes on. On account of the results from the preceding section, it is also anticipated that α_1^* will be negative, implying that the income shares of the poor fall as the average income grows.

It might be argued that a globalization indicator should reflect the 'openness' of local institutions, that is, it should be indicative of how conducive or restrictive local legal and bureaucratic procedures and regulations are to cross-border flows of goods, services and capital. Data on such information are hard to come by, especially at the provincial level. Following the common practice, the ratio of imports and exports to GDP is used to indicate openness to foreign trade and the ratio of foreign direct investment (FDI) stock to GDP to indicate openness to foreign investment. While these two ratios measure two different aspects of globalization, they are also highly correlated in our dataset, with a correlation coefficient of 0.79. To avoid multicollinearity and to ensure that both aspects of globalization are represented in the regression analysis below, we use the first principle component constructed from the two ratios as the third globalization indicator.[11]

Several concerns might be raised about the estimation of Equation (3). The province-specific effect term $\boldsymbol{\mu}_k$ can be dealt with in two ways. The first is known as the within or fixed-effect estimator, which amounts to transforming each variable into deviations from the means of the respective cross-section units. The alternative is to sweep out $\boldsymbol{\mu}_k$ by taking the first difference of the regression equation. Both methods have their problems. Estimating the equation in first differences results in information loss which, in our case, is accentuated by the fact that our panel is punctured by missing observations at various years for different provinces.[12] The within estimator, on the other hand, requires for consistency the more stringent assumption that the right-hand side variables are strictly exogenous. This assumption is likely to be untenable in the

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[10] See footnote 8.

[11] The first principal component explains just below 90 per cent of the total variance of the two ratios. Details about the compilation of these indicators, as well as definitions of the other variables used in this paper, can be found in Appendix A. Agénor (2003) also uses a principal component analysis to derive a 'globalization index'.

[12] On taking first differences, the number of observations in our panel is reduced by 38, or about one-tenth of our sample size.

present context, particularly as per capita income $\overline{y}_k$ may be affected by income distribution l_k, though the causality may not be contemporaneous. In both methods, inconsistent estimates can arise from measurement errors. The omission of other potential determinants of l_k, albeit necessary to maintain a parsimonious model, may lead to a similar problem if the omitted variables are correlated with the explanatory variables included in the model.

To address the above concerns, variant specifications of Equation (3) are considered and their modelling results are discussed in sections 3.1 and 3.2 below. In these regressions, potential simultaneity is addressed by introducing instruments for the problematic variables $\overline{y}_k$ and g_{kt}. Following Ravallion (2001), we use (the log of) real GDP per capita as the instrument for $\overline{y}_k$. Despite the recent divergence between these two income measures observed in the national data for a wide range of developing countries including China,[13] the two series in our dataset are highly correlated.[14] As for the instrument of the globalization indicators, we experimented with its lagged values, two-year averages and using both. The regressions were conducted first by employing the within estimator, and then on the first-differenced form. These different combinations of alternative instruments and data transformations produced broadly similar results. The signs and significance of the coefficients on $\overline{y}_k$ and g_{kt}, in particular, are always in agreement. For the sake of brevity, we present below the within estimates with g_{kt-1} as the instrument for g_{kt}.

3.1 The differing effects of trade and FDI

In Tables 2-4, the results are given for three sets of regressions where the dependent variable is the log income shares of, respectively, the bottom quintile, decile and 5 per cent of the urban residents. Each table consists of three panels summarizing the results of using alternative globalization indicators in ten regressions. Column 1 gives the results of OLS regression on pooled data (i.e., $\boldsymbol{\mu}_k = \boldsymbol{\mu}$ for k = 1, …, 29) and column 2 OLS with fixed effects. As discussed above, the OLS estimates may be inconsistent and biased towards zero. They are reported here for comparison purposes. The estimates in the remaining eight columns are all produced using instrumental variable (IV) estimation.

In a study of 92 countries over four decades, Dollar and Kraay (2002) conclude that 'the general relationship between growth of income of the poor and growth of mean income is one-to-one'. Translated into the notation in Equation (3), that proposition is equivalent to the coefficient on real income per capita α_1^* being statistically insignificant. As can be seen from Tables 2-4, our results show that α_1^* is not only significant but also negative. This result holds consistently for all three income shares across the different globalization indicators, model specifications and estimation methods. Moreover, it seems that the further left down the Lorenz curve is the income share (the dependent variable), the

13 Ravallion (2003a) examines discrepancies between income data from household surveys and those from national accounts.

14 The logarithms of the two series have a correlation coefficient of 0.86.

greater is the magnitude of α_1^* in its equation. For China's urban poor, therefore, the rising tide has not uplifted their standard of living by as much and/or as quickly as it has elsewhere. Considering that income inequality in China was low before the mid-1980s, it is perhaps not much of a surprise that the experience of China should prove to be an exception to the Dollar-Kraay proposition.[15] Nonetheless, it reminds us that caution should be exercised when generalizing the findings of cross-country studies to individual economies.

Table 2
Globalization and the income shares of the poor: bottom quintile

Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Globalization indicator: trade/GDP ratio										
Globalization *g*	0.029	0.011	0.030	0.032	0.028	0.029	0.030	0.025	0.040	0.045
	0.001	*0.301*	*0.021*	*0.052*	*0.035*	*0.028*	*0.028*	*0.057*	*0.007*	*0.003*
Per capita income *y*	-0.145	-0.300	-0.319	-0.319	-0.338	-0.354	-0.338	-0.309	-0.372	-0.381
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Coast × *g*				-0.004						
				0.843						
p1992 × *g*					-0.008	-0.010	-0.006	-0.008	-0.011	-0.012
					0.054	*0.026*	*0.155*	*0.058*	*0.009*	*0.008*
Liberalization						0.046				0.063
						0.113				*0.038*
Economic structure							0.056			0.096
							0.122			*0.015*
Education								-0.012		-0.011
								0.460		*0.510*
Inflation									-0.100	-0.134
									0.016	*0.002*
Adjusted R^2	0.096	0.691	0.815	0.812	0.807	0.808	0.808	0.808	0.807	0.798
Globalization indicator: FDI stock/GDP ratio										
Globalization *g*	0.003	0.006	0.009	0.009	0.001	0.005	0.001	0.001	0.000	0.005
	0.647	*0.319*	*0.187*	*0.164*	*0.925*	*0.567*	*0.946*	*0.905*	*0.973*	*0.571*
Per capita income *y*	-0.115	-0.309	-0.329	-0.320	-0.325	-0.351	-0.325	-0.295	-0.346	-0.355
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Coast × *g*				-0.008						
				0.249						
p1992× *g*					-0.009	-0.010	-0.009	-0.009	-0.012	-0.012
					0.004	*0.003*	*0.008*	*0.006*	*0.000*	*0.000*
Liberalization						0.051				0.060
						0.106				*0.081*
Economic structure							0.034			0.060
							0.332			*0.099*
Education								-0.013		-0.012
								0.443		*0.497*
Inflation									-0.081	-0.104
									0.039	*0.009*
Adjusted R^2	0.094	0.689	0.809	0.808	0.805	0.803	0.804	0.804	0.804	0.797

Table 2 continues

[15] Ravallion (2003b) presents evidence that within-country inequality in developing countries converges towards medium levels.

Table 2 (con't)
Globalization and the income shares of the poor: bottom quintile

Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Globalization indicator: 1st principal component of trade/GDP and FDI/GDP										
Globalization *g*	0.011	0.008	0.013	0.039	0.032	0.029	0.033	0.032	0.039	0.048
	0.035	*0.073*	*0.024*	*0.053*	*0.001*	*0.025*	*0.001*	*0.004*	*0.000*	*0.004*
Per capita income *y*	-0.133	-0.306	-0.323	-0.334	-0.346	-0.349	-0.350	-0.350	-0.373	-0.451
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Coast × *g*				-0.025						
				0.187						
p1992× *g*					-0.012	-0.011	-0.011	-0.012	-0.014	-0.015
					0.023	*0.051*	*0.032*	*0.025*	*0.007*	*0.013*
Liberalization						-0.026				-0.037
						0.572				*0.426*
Economic structure							0.155			0.258
							0.089			*0.021*
Education								0.002		0.012
								0.931		*0.487*
Inflation									-0.092	-0.124
									0.025	*0.005*
Adjusted R^2	0.097	0.690	0.815	0.814	0.806	0.805	0.804	0.804	0.805	0.798

Notes: See Appendix A for the definition of the variables. Figures in italics are the marginal significance levels of the *t*-statistics of the corresponding estimates.

Estimation methods used for each regression are as follows:

(1) OLS regression on pooled data. The standard errors of the coefficient estimates are adjusted for heteroscedasticity and first-order autocorrelation using the Newey-West procedure.

(2) OLS estimation with fixed effects.

(3)-(10) IV estimation with fixed effects.

A more surprising result is the one with the coefficient on the globalization indicator β_1. Across the first panels of Tables 2-4, β_1 is found to be positive and significant at conventional levels for every regression with the exception of the OLS with fixed effects in column 2. The latter estimates are probably biased, anyway. Here, again, our results sit at odds with those in Dollar and Kraay (2002) and, for that matter, with those from several other cross-country studies on trade openness and income inequality.[16] In contrast to the findings in the other studies that trade openness has either no impact on the income share of the poor or is inequality-increasing, our results suggest that trade helps the poor gain a larger share from aggregate income growth or, equivalently, reduces the 'losses' they would otherwise suffer. However, the magnitude of this salutary effect of trade is rather small, about one-tenth of the negative effect of aggregate income growth. Inferring from the estimates in Table 2, a doubling of the trade/GDP ratio would only increase the income share of the bottom quintile by about 3 per cent from, say, 12 per cent to 12.4 per cent, assuming other things being equal. The elasticity appears to be slightly higher for the bottom decile and the bottom 5 per cent, but not by a large margin.

[16] See, for example, Barro (1999) and Spilimbergo, Londono and Szekely (1999).

Table 3
Globalization and the income shares of the poor: bottom decile

Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Globalization indicator: trade/GDP ratio										
Globalization *g*	0.040	0.015	0.040	0.039	0.037	0.039	0.038	0.033	0.047	0.052
	0.000	*0.229*	*0.014*	*0.059*	*0.024*	*0.018*	*0.021*	*0.045*	*0.008*	*0.006*
Per capita income *y*	-0.170	-0.360	-0.385	-0.385	-0.408	-0.431	-0.408	-0.363	-0.439	-0.436
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Coast × *g*				0.003						
				0.901						
p1992× *g*					-0.010	-0.013	-0.008	-0.010	-0.013	-0.015
					0.046	*0.018*	*0.112*	*0.049*	*0.013*	*0.009*
Liberalization						0.064				0.078
						0.070				*0.037*
Economic structure							0.052			0.089
							0.248			*0.064*
Education								-0.018		-0.018
								0.344		*0.366*
Inflation									-0.090	-0.126
									0.076	*0.018*
Adjusted R^2	0.082	0.681	0.809	0.810	0.804	0.802	0.803	0.804	0.803	0.795
Globalization indicator: FDI stock/GDP ratio										
Globalization *g*	0.007	0.006	0.010	0.010	-0.001	0.004	-0.002	-0.001	-0.002	0.004
	0.452	*0.370*	*0.244*	*0.228*	*0.882*	*0.693*	*0.871*	*0.906*	*0.850*	*0.712*
Per capita income *y*	-0.135	-0.368	-0.391	-0.384	-0.386	-0.419	-0.386	-0.335	-0.403	-0.396
	0.001	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Coast × *g*				-0.006						
				0.481						
p1992× *g*					-0.013	-0.013	-0.012	-0.012	-0.015	-0.015
					0.002	*0.001*	*0.003*	*0.003*	*0.000*	*0.000*
Liberalization						0.066				0.070
						0.085				*0.097*
Economic structure							0.024			0.048
							0.572			*0.284*
Education								-0.022		-0.021
								0.280		*0.324*
Inflation									-0.066	-0.093
									0.168	*0.054*
Adjusted R^2	0.081	0.680	0.809	0.809	0.803	0.801	0.803	0.802	0.803	0.794
Globalization indicator: 1st principal component of trade/GDP and FDI/GDP										
Globalization g	0.012	0.013	0.021	0.051	0.045	0.045	0.046	0.046	0.052	0.057
	0.040	*0.020*	*0.004*	*0.036*	*0.000*	*0.000*	*0.000*	*0.001*	*0.000*	*0.000*
Per capita income y	-0.151	-0.372	-0.395	-0.408	-0.425	-0.434	-0.430	-0.434	-0.453	-0.497
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Coast × g				-0.030						
				0.194						
p1992× g					-0.015	-0.018	-0.015	-0.015	-0.018	-0.021
					0.015	*0.008*	*0.020*	*0.016*	*0.006*	*0.003*
Liberalization						0.164				0.237
						0.201				*0.083*
Economic structure							0.156			0.282
							0.164			*0.027*
Education								0.004		0.006
								0.878		*0.782*
Inflation									-0.094	-0.112
									0.062	*0.032*
Adjusted R^2	0.084	0.682	0.811	0.810	0.804	0.803	0.804	0.804	0.803	0.796

Notes: See Table 2.

Table 4
Globalization and the income shares of the poor: bottom 5 per cent

Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Globalization indicator: trade/GDP ratio										
Globalization *g*	0.046	0.013	0.040	0.036	0.036	0.038	0.037	0.031	0.047	0.051
	0.000	*0.372*	*0.032*	*0.119*	*0.055*	*0.042*	*0.050*	*0.093*	*0.022*	*0.017*
Per capita income *y*	-0.179	-0.393	-0.420	-0.421	-0.450	-0.478	-0.450	-0.401	-0.484	-0.481
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Coast × *g*				0.008						
				0.799						
p1992× *g*					-0.012	-0.016	-0.011	-0.012	-0.016	-0.019
					0.027	*0.009*	*0.064*	*0.029*	*0.008*	*0.005*
Liberalization						0.077				0.091
						0.055				*0.032*
Economic structure							0.048			0.089
							0.346			*0.105*
Education								-0.020		-0.020
								0.373		*0.380*
Inflation									-0.096	-0.133
									0.097	*0.029*
Adjusted R^2	0.068	0.663	0.808	0.809	0.801	0.801	0.802	0.803	0.803	0.784
Globalization indicator: FDI stock /GDP ratio										
Globalization *g*	0.009	0.007	0.012	0.012	-0.001	0.006	-0.001	-0.001	-0.002	0.005
	0.373	*0.373*	*0.219*	*0.205*	*0.923*	*0.648*	*0.914*	*0.946*	*0.890*	*0.668*
Per capita income *y*	-0.143	-0.404	-0.433	-0.426	-0.427	-0.467	-0.427	-0.373	-0.447	-0.443
	0.002	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Coast × *g*				-0.007						
				0.495						
p1992× *g*					-0.015	-0.015	-0.014	-0.014	-0.017	-0.017
					0.002	*0.001*	*0.002*	*0.003*	*0.000*	*0.000*
Liberalization						0.078				0.082
						0.075				*0.089*
Economic structure							0.022			0.049
							0.654			*0.334*
Education								-0.023		-0.023
								0.310		*0.351*
Inflation									-0.076	-0.104
									0.165	*0.059*
Adjusted R^2	0.068	0.662	0.808	0.808	0.799	0.798	0.797	0.798	0.796	0.785
Globalization indicator: 1st principal component of trade/GDP and FDI/GDP										
Globalization *g*	0.014	0.015	0.025	0.059	0.053	0.053	0.054	0.055	0.061	0.067
	0.041	*0.021*	*0.003*	*0.035*	*0.000*	*0.000*	*0.000*	*0.001*	*0.000*	*0.000*
Per capita income *y*	-0.158	-0.409	-0.439	-0.453	-0.473	-0.483	-0.478	-0.491	-0.506	-0.562
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Coast × *g*				-0.033						
				0.206						
p1992× *g*					-0.017	-0.020	-0.017	-0.018	-0.021	-0.024
					0.015	*0.008*	*0.020*	*0.016*	*0.006*	*0.003*
Liberalization						0.184				0.268
						0.208				*0.088*
Economic structure							0.170			0.318
							0.185			*0.031*
Education								0.007		0.010
								0.794		*0.706*
Inflation									-0.110	-0.130
									0.057	*0.032*
Adjusted R^2	0.070	0.663	0.811	0.809	0.799	0.799	0.798	0.799	0.797	0.785

Notes: See Table 2.

When an interaction term of trade openness with either a location dummy for the coastal provinces or a time dummy for the post-1992 years is added to the regression equation,[17] the above results concerning α_1^* and β_1 continue to hold. As indicated by the estimates in column 4, the trade effect is not exclusive to the coastal provinces. While this is reassuring, the results in column 5 would give some cause for concern. It seems that the equalizing effect of trade openness has weakened substantially since the early 1990s, and all the more so for the poorer groups.

All the preceding findings constitute only half of the picture. On moving to the second panel, one can no longer identify any significant effect of globalization on the income shares of the poor. Furthermore, the negative and significant coefficient on the time interaction term (p1992) actually points to globalization's inequality-increasing role since 1992. The crucial difference between the regressions in the first panel and those in the second panel is, of course, the use of different globalization indicators. It is not our intention in this paper to investigate what accounts for the differing effects of openness to trade and openness to foreign investment, or what mechanism has brought about the attenuation of the positive trade effect. Many a model in the literature has demonstrated that the distributional effects of trade, and FDI can be sensitive to assumptions about labour mobility, market distortions, production technology and specialization, and a range of initial conditions. Most probably, the results seen above were produced by a confluence of many forces. Nevertheless, we will venture two conjectures: (i) foreign-funded export firms, in comparison to domestic indigenous export firms, employ more advanced technology and thus require relatively more skilled labour; (ii) China's export growth has been increasingly led by foreign-funded firms (FFEs). If the first conjecture is true, an increase in exports by domestic firms would raise the demand for unskilled labour and thus improve the lot of the poor, whereas an increase in exports by FFEs would raise the demand for more skilled labour, having little effect on or even depressing the income of the poor. Since both domestic firms and FFEs engage in trade, we would observe a positive effect of trade on the income shares of the poor and a near-zero or no effect on the part of FDI as long as domestic firms contribute a growing share to the total trade volume. If the growth of trade is led by FFEs, as postulated in conjecture (ii), the positive distributional effect of trade will then diminish.[18]

Given the contrasting distributional effects of trade and FDI, what would be the overall evaluation of the influence of globalization? The estimates in the third panel provide a tentative answer. The globalization indicator utilized here is constructed from trade/GDP and FDI/GDP ratios. By construction, it reflects variations in both series. As can be seen, a pattern very similar to that in the first panel emerges. Hence, it might be concluded that on the whole, globalization increases the income shares of the poor. It is not the case that the poor in inland provinces have been excluded from the globalization process, as is held by popular belief. If anything, the results suggest that the poor in the coastal provinces have benefited (proportionately) less than their counterparts in the

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[17] Deing Xiao Ping's tour of South China in 1992 is widely viewed as marking the resumption of China's reform and opening-up process that had stalled after 1989.

[18] We note two facts supporting these conjectures. First, many of China's indigenous export firms are township and village enterprises (TVEs) engaged in such industries as garments, footwear and toys that do not require sophisticated machinery and equipment. Second, FDI inflows to China were considerably higher in the 1990s than in the 1980s.

inland regions. Somewhat disturbingly, the magnitude of the positive impact has decreased since the 1990s.

3.2 Sensitivity tests

Thus far we have restricted the specification of our regression equation to the minimal. This has the clear virtue of saving on the degrees of freedom. We might also draw some comfort from the fact that the average adjusted *R*-squares of the IV-estimated regressions with fixed effects is well over 0.81. However, relying on such a simple specification does risk introducing serious biases into the model that stem from misspecified functional form and/or the omission of important explanatory variables. To test the robustness of the findings in section 3.1, a range of sensitivity tests has been conducted.

We first consider the possibility that the distributional effect of globalization is nonlinear. One type of nonlinearity is that the effects of globalization depend on the level of economic development. A second type of nonlinearity resembles the shape of the 'Laffer curve', namely, globalization has an adverse effect on income distribution to a certain threshold level beyond which its effect turns positive.[19] We test for the presence of both forms of nonlinearity by adding into the regression in column 5 an interaction term between $\overline{y}_{kt}$ and g_{kt} and the quadratic term of g_{kt}. Whether they are entered separately or together, neither of the added terms turns out to be significant while the coefficient estimates on $\overline{y}_{kt}$, g_{kt} and the interaction term between g_{kt} and the 1992 dummy remain virtually unchanged. We thus conclude that the possibility of nonlinearity can be excluded rather safely.[20]

One might also suspect that the ameliorative effect of globalization identified earlier is spurious on the ground that it is simply a consequence of both globalization and the income shares of the poor being correlated with a third variable/factor in the same direction. We examine four such factors that are frequently mentioned in studies on poverty and income distribution in China. The first of these is the extent to which market reform has progressed. It is often argued that a more open economy is also a more liberalized economy. By allowing private businesses to flourish, a more liberalized economy in turn offers more employment opportunities for the poor. We use the proportion of the labour force employed in the non-state sector as a proxy for the extent of liberalization. Adding this variable to the regression produces the results in column 6 of Tables 2-4. It can be seen easily that liberalization can indeed exert a positive effect on the income shares of the poor. Equally clear is the result that the positive effect of liberalization does not knock out the positive effect of globalization.[21]

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19 Agénor (2003) examines the 'Laffer curve' effect of globalization on the absolute level of poverty.

20 We have also tried replacing the trade/GDP ratio with exports/GDP and FDI stock/GDP with FDI flow/GDP. The results are expectedly similar, given the high correlations within the two pairs of ratios.

21 When using the share of non-state enterprises of gross industrial product as the measure of liberalization, we obtained similar results.

The second factor we consider is the economic structure of the local economy. In an extensive study on poverty in China, Ravallion and Chen (2004) find that agricultural growth has a greater impact on poverty reduction at the national level than does the growth of either the industrial or the service sector. In addition, they find no evidence for any significant effect of trade openness on poverty. Will these conclusions apply when the subject of investigation is changed to relative poverty in urban areas? In column 7 of Tables 2-4, the estimation results from including the GDP share of manufacturing industries are reported. Across the nine regressions in this column, globalization retains its significance, whereas the newly added variable proves insignificant. When we alternately substitute this variable with the GDP share of the entire industrial sector and with the GDP share of the service sector, there is still little sign of any significant relationship between the income shares of the poor and the economic structure. Herein, however, lies an important caveat. Because no sectoral breakdown of urban GDP is available at the provincial level, the GDP shares used in the regressions are calculated from the provincial totals. For individual provinces, these shares may or may not capture the economic structure in their urban areas.

The next factor on the list is the average stock of human capital. The rationale for testing the effects of this factor comes from the observation that the distribution of human capital among the Chinese provinces, much like that of physical capital, is weighted in favour of the coastal region. For the lack of a more appropriate measure, the average schooling of the labour force is adopted and the regression results are shown in column 8. The correlation between the income shares of the poor and average schooling is weak, insignificant and in most cases negative. It should be noted, however, that average schooling is a poor measure of the type of human capital required by the poor to participate better in aggregate growth. The latter is more appropriately anchored to the completion of primary education and basic vocational training, for which we do have sufficient data. Therefore, while the results in column 8 confirm the robustness of the impact of globalization, they do not serve as the basis for dismissing the effect of augmenting the human capital of the poor.

The last factor we examine is the rate of inflation. For an economy of China's size, it is no surprise that both the absolute level of and the changes in prices can vary widely across regions. The evidence from cross-country studies shows that the poor stand to lose more from inflation than the rest of the population.[22] In Ravallion and Chen (2004), it is noted that changes in inflation rates are poverty-increasing. If the extent of openness of a province is negatively correlated with its inflation rate, a positive relationship between globalization and the income shares of the poor might show up even if there is no underlying relationship between the two. This proposition does not ring true in our case, however, as is demonstrated by the results in column 9. Inflation does have a dampening effect on the income shares of the poor, but the effect of globalization still comes through.

As a final check, we run a regression where all the aforementioned control variables are included in the specification. As can be seen in column 10, the coefficient on g_{kt} remains positive and significant in the first and third panels while the coefficient on the interaction term between g_{kt} and the 1992 dummy remains negative and significant. To

[22] See, for example, Easterly and Fischer (2001).

summarize the analysis in this section, our findings in section 3.1 prove to be robust to additional control variables and nonlinearity in functional forms.

4 Conclusion

This paper examines how globalization affects urban poverty in China, with two major objectives in mind: one substantive, and one methodological. Our substantive objective is to conduct the analysis at the provincial level. Such a set-up allows us to take into account the rich diversity in the levels of development and degrees of openness across the Chinese provinces, an advantage over studies at the cross-country or national level. Our methodological objective is to tap into the wealth of statistical methods and econometric models developed for cross-country studies, and to apply some of them at the subnational level. More specifically, we adopt the kernel density estimation technique of Sala-i-Martin (2002a, 2002b) to recover provincial income distribution from irregularly grouped survey data. The income shares of three poorest groups (the bottom 20, 10 and 5 per cent of urban residents along the Lorenz curve) are obtained and used in the econometric framework by Dollar and Kraay (2002) to assess the impact of globalization on the poor in urban China.

Our focus on the subnational level resulted in several interesting findings that are either different from those in cross-country or national level studies or are completely overlooked in those studies. First, we find that average income growth has an adverse effect on the income shares of the poor while globalization in general, and trade openness in particular, increases the income shares of the poor. Both findings are in disagreement with the related results in Dollar and Kraay (2002). Second, it is seen that openness to trade and openness to FDI have differential, if not diametrically opposed, distributional effects. The inequality-reducing effect of trade was significantly attenuated after 1992, suggesting possible changes in the nature of the growth of trade and in the way trade impacts on the labour market. Finally, the benefit from globalization accrues to the poor in the inland provinces just as much as it does to their counterparts in the coastal region. These findings are robust to alternative specifications in which the effect of globalization enters nonlinearly or where additional control variables are included.

One of the basic lessons learned from economic history is that economies urbanize as they develop. Although China is still a predominantly rural society, there is little doubt that urbanization will proceed apace once restrictions on internal migration are removed. Among the many potential ‘growing pains’ is a resurgence of urban poverty. Increasingly, the battle against poverty will have to be waged in urban as well as in rural areas. Should promoting international trade and foreign investment remain part of the weaponry? On the one hand, the evidence from this paper should allay fears that globalization is merely pro-rich or pro-coastal provinces. On the other hand, further research is needed to look into the negative effect of FDI and the weakening of the positive effect of trade on the income shares of the poor.

Appendix A: Data sources and definitions

The data on household income distribution are collected from various provincial statistical yearbooks. The data for all the other variables are from *Comprehensive Statistical Data and Materials for 50 Years of New China* (China Statistical Publishing House, 1999) and updated to 2001 using the *Statistical Yearbook of China* 2000, 2001 and 2002.

The variables involved in the regressions in section 3 are defined as follows:

l: The logarithms of the income shares of, respectively, the bottom quintile, decile and 5 per cent of the provincial residents along the Lorenz curve. The method of calculating these income shares are detailed in section 2 of the text.

y: The logarithm of real per capita income. This is obtained by deflating the nominal average incomes recorded in the survey data by the provincial price levels provided in Brandt and Holz (2004).

g: Alternatively defined as the ratio of the sum of imports and exports to GDP, the ratio of the stock of FDI to GDP, and the first principal component of the preceding two ratios. The stock of FDI is accumulated from the annual flows of utilized FDI using the perpetual inventory method. The nominal values of FDI flows are converted to real values using the provincial implicit GDP deflators. The depreciation rate is set at 0.09.

Coast: Dummy variable for coastal provinces, which include Beijing, Fujian, Guangdong, Hainan, Hebei, Jiangsu, Liaoning, Shanghai, Shandong, Tianjin and Zhejiang.

Time: Dummy variable for 1992-2001.

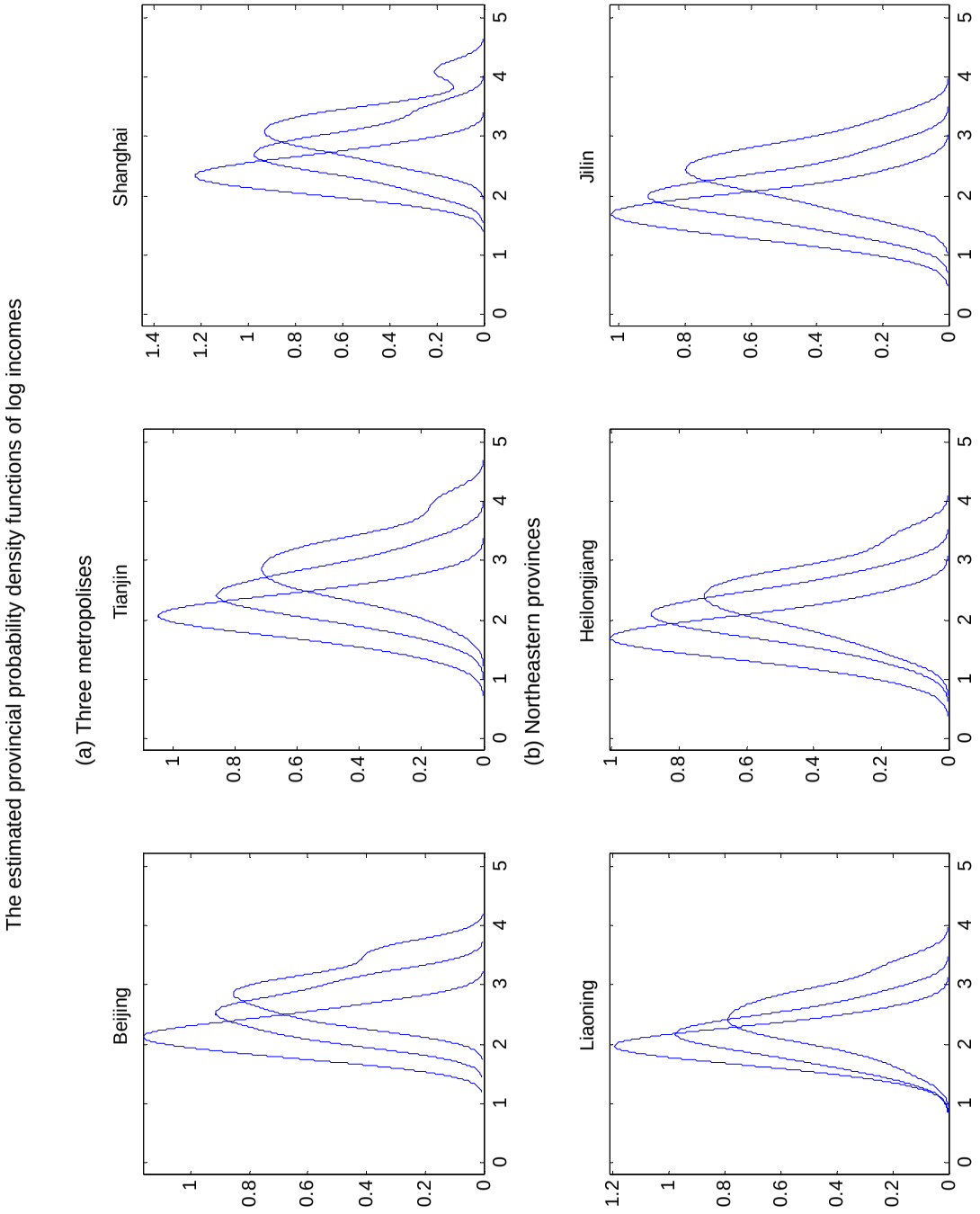
Liberalization: The logarithm of the proportion of the labour force employed in the non-state sector.

Economic structure: The logarithm of the share of manufacturing industries in provincial GDP.

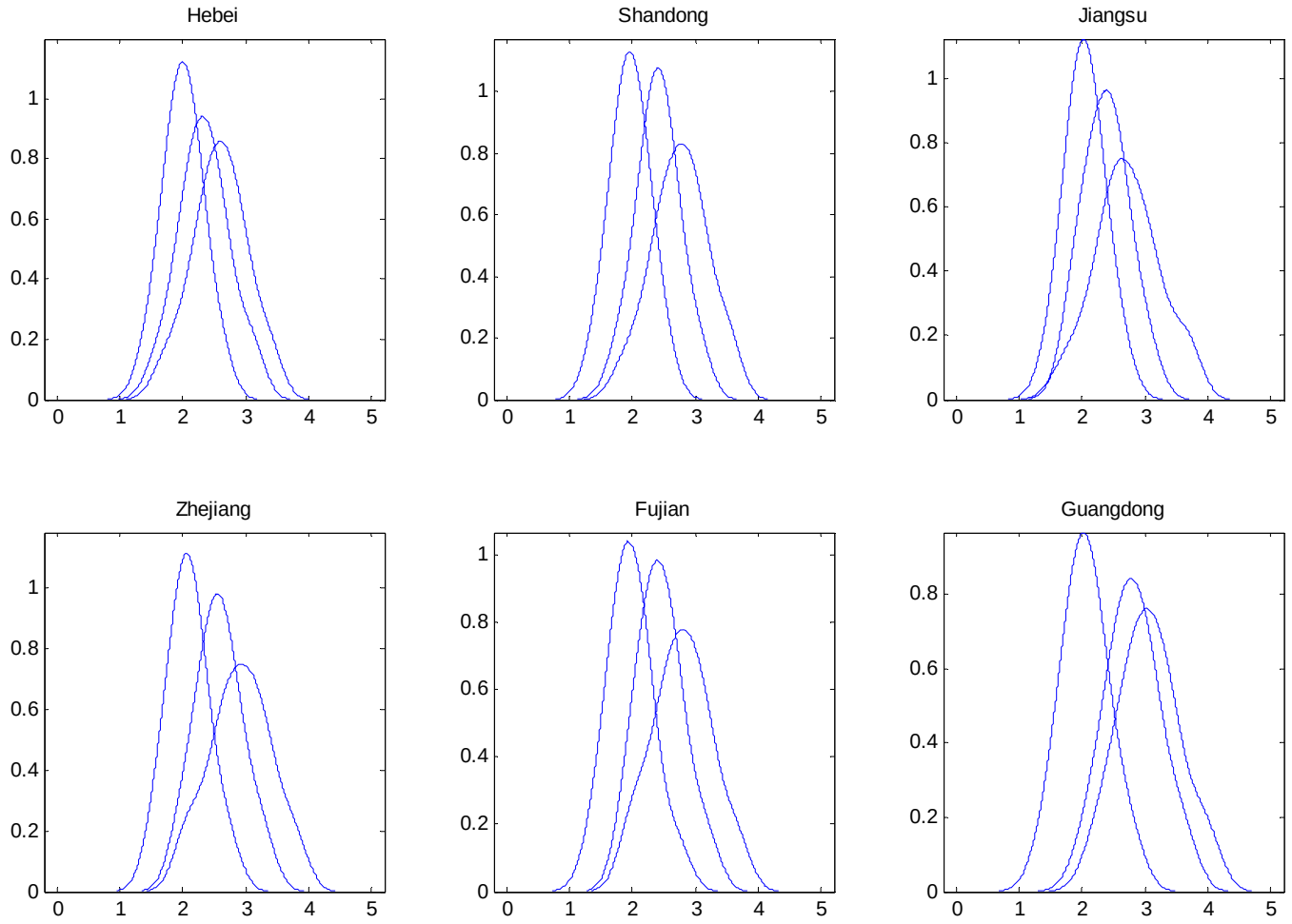
Education: Average years schooling obtained from Wan, Lu and Chen (2004).

Inflation: Annual inflation rate in decimal. The rates are calculated from the price levels in Brandt and Holz (2004).

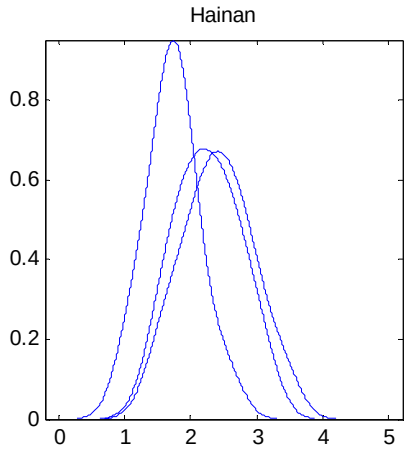
Appendix B
The estimated provincial probability density functions of log incomes



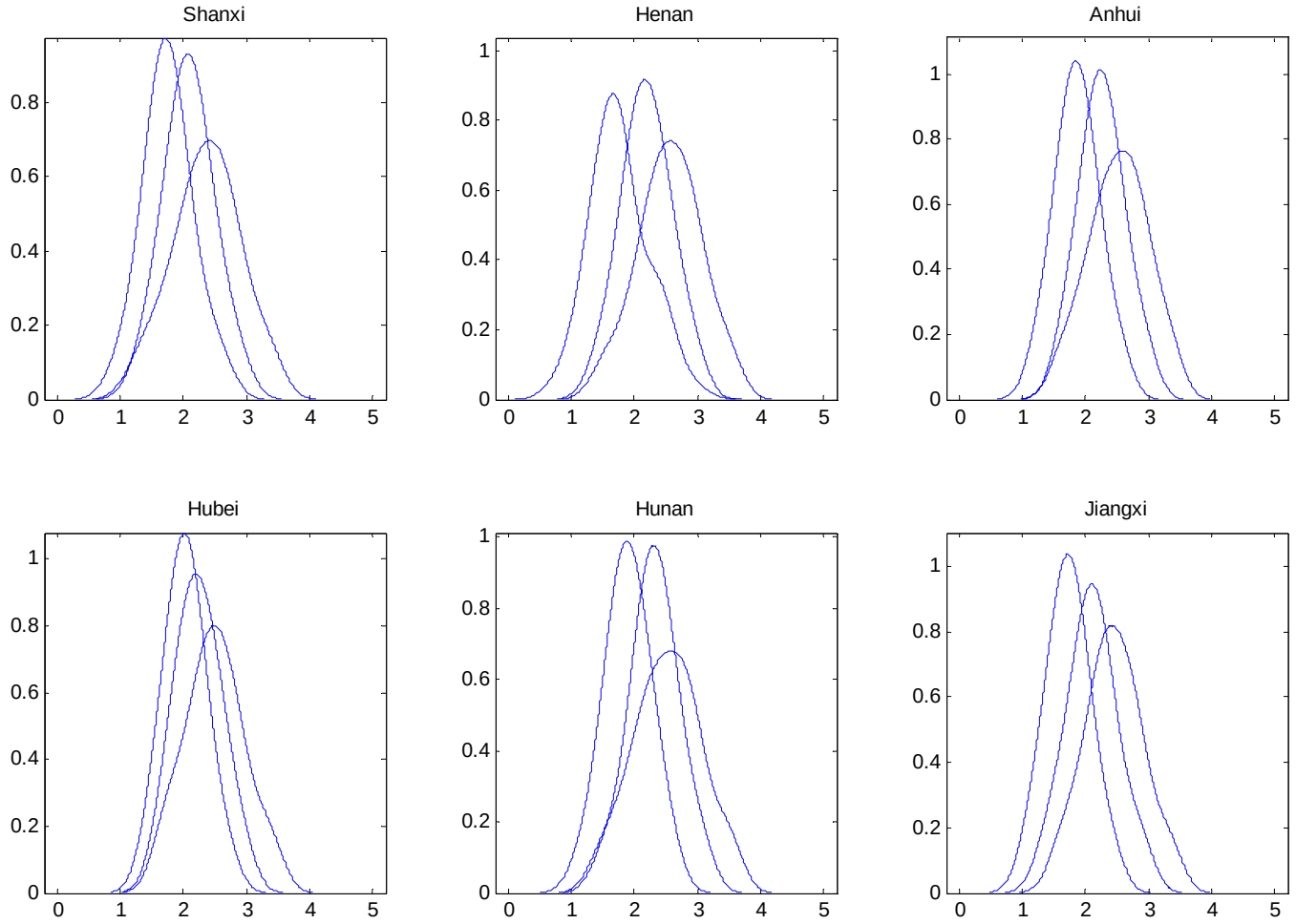
(c) Coastal provinces



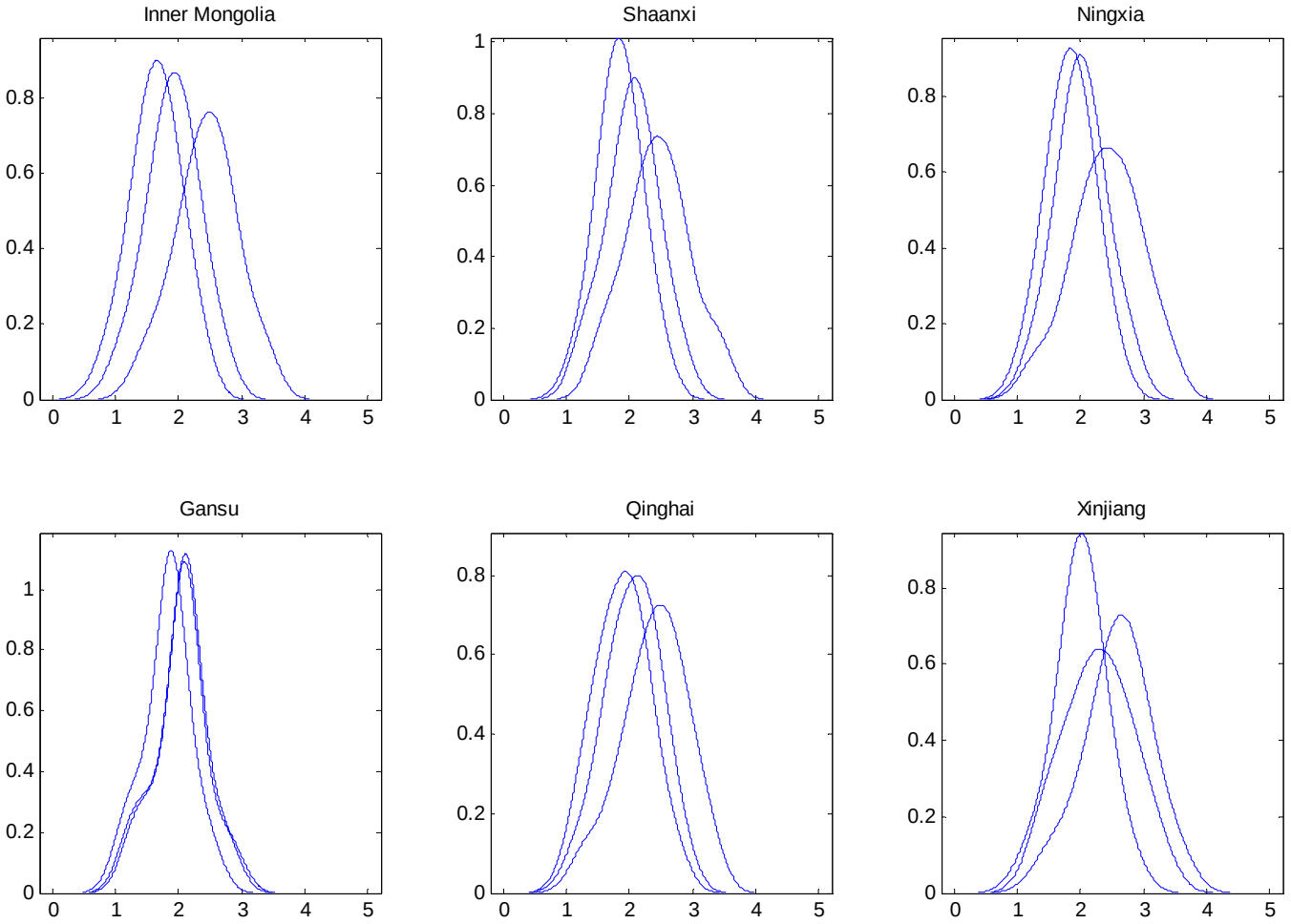
(c) Coastal provinces



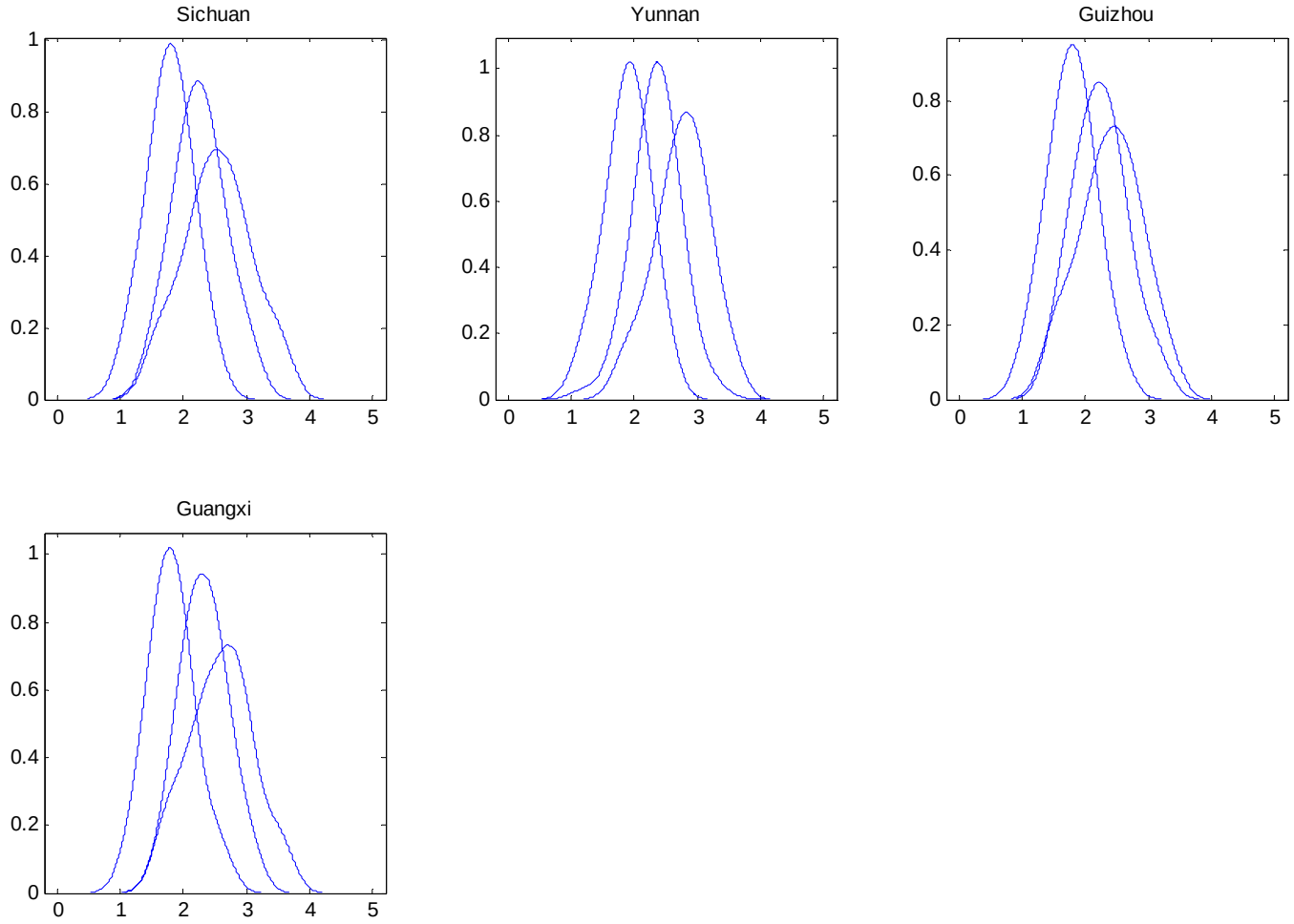
(d) Central provinces



(e) Northwestern provinces



(f) Southwestern provinces



References

Agénor, P.-R. (2003). 'Does Globalization Hurt the Poor?'. Washington, DC: World Bank. Mimeo.

Barro, R. J. (1999). 'Inequality, Growth and Investment'. NBER Working Paper No. 7038. Cambridge, MA: National Bureau of Economic Research

Brandt, L., and C. A. Holz (2004). 'Spatial Price Differences in China: Estimates and Implications'. Hong Kong: Social Science Division, Hong Kong University of Science and Technology. Manuscript,

Démurger, S., J. D. Sachs, W. Thye Woo, S. Bao, G. Chang, and A. Mellinger (2002). 'Geography, Economic Policy, and Regional Development in China'. NBER Working Paper No. 8897. Cambridge, MA: National Bureau of Economic Research.

Dollar, D., and A. Kraay (2002). 'Growth is Good for the Poor'. *Journal of Economic Growth*, 7 (3): 195-225.

Easterly, W., and S. Fischer (2001). 'Inflation and the Poor'. *Journal of Money Credit and Banking*, 33 (2-1): 160-78.

Hussain, A. (2003). 'Urban Poverty in China: Measurement, Patterns, and Policies'. Geneva: ILO.

Khan, A. (1998). 'Poverty in China in the Period of Globalization: New Evidence on Trend and Pattern'. Issues in Development Discussion Paper 22. Geneva: ILO.

Khan, A., K. Griffin, and C. Riskin (1999). 'Income Distribution in Urban China during the Period of Economic Reform and Globalization'. *American Economic Review*, 89 (2): 296-300.

Milanovic, B. (2002). 'The Ricardian Vice: Why Sala-i-Martin's Calculations of World Income Inequality are Wrong'. Washington, DC: World Bank. Mimeo.

Ravallion, M. (2001). 'Growth, Inequality and Poverty: Looking Beyond Averages'. *World Development*, 29 (11): 1803-15.

Ravallion, M. (2003a). 'Measuring Aggregate Economic Welfare in Developing Countries: How Well do National Accounts and Survey Agree?'. *Review of Economics and Statistics*, 85 (3): 645-52.

Ravallion, M. (2003b). 'Inequality Convergence'. *Economics Letters*, 80: 351-6.

Ravallion, M. (2004). 'Looking Beyond Averages in the Trade and Poverty Debate'. WB Policy Research Working Paper 3461. Washington, DC: World Bank.

Ravallion, M., and S. Chen (2004). 'China's (uneven) Progress Against Poverty'. WB Policy Research Working Paper 3408. Washington, DC: World Bank.

Sala-i-Martin, X. (2002a). 'The Disturbing Rise in Global Income Inequality'. NBER Working Paper No. 8904. Cambridge, MA: National Bureau of Economic Research.

Sala-i-Martin, X. (2002b). 'The World Distribution of Income'. NBER Working Paper No. 8905. Cambridge, MA: National Bureau of Economic Research.

Shorrocks, A., and G. Wan (2004). 'A Simple Method for Generating Income Data from Lorenz Coordinates'. Helsinki: UNU-WIDER. Mimeo.

Spilimbergo, A., J. L. Londono, and M. Szekely (1999). 'Income Distribution, Factor Endowments, and Trade Openness'. *Journal of Development Economics*, 59 (3): 77-101.

Wan, G., M. Lu, and Z. Chen (2004). 'Globalization and Regional Income Inequality: Evidence from within China'. WIDER Discussion Paper No. 2004/10. Helsinki: UNU-WIDER.

Wei, S.-J., and Y. Wu (2002). 'Globalization and Inequality without Differences in Data Definition, Legal System and Other Institutions'. Washington, DC: IMF. Manuscript.