

**The evolution of growth,
inequality and poverty in China:
Spatial and temporal aspects**

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Context

China has achieved spectacular growth performance in the past years with annual GDP per capita growth rate of over 10% since the economic reform in the early 1980s. More than 400 million people were lifted out of poverty, which represents more than 75% of poverty reduction in the development world since 1980.

However, the fruits of growth have been unevenly shared. With impressive living standard amelioration, social inequalities have significantly increased across population in urban and rural areas as well as in coastal and inland regions. The widened income gaps have raised the cost of economic restructuring during the transition process in China.

Objective of this study



To examine the links between growth, changes in income distribution and poverty reduction; and provide answers to the following questions:

- To what extent income has increased and inequality has worsened in the 1990s and 2000s?
- What forces have resulted in the changes of patterns of growth-inequality-poverty reduction?

Methodology

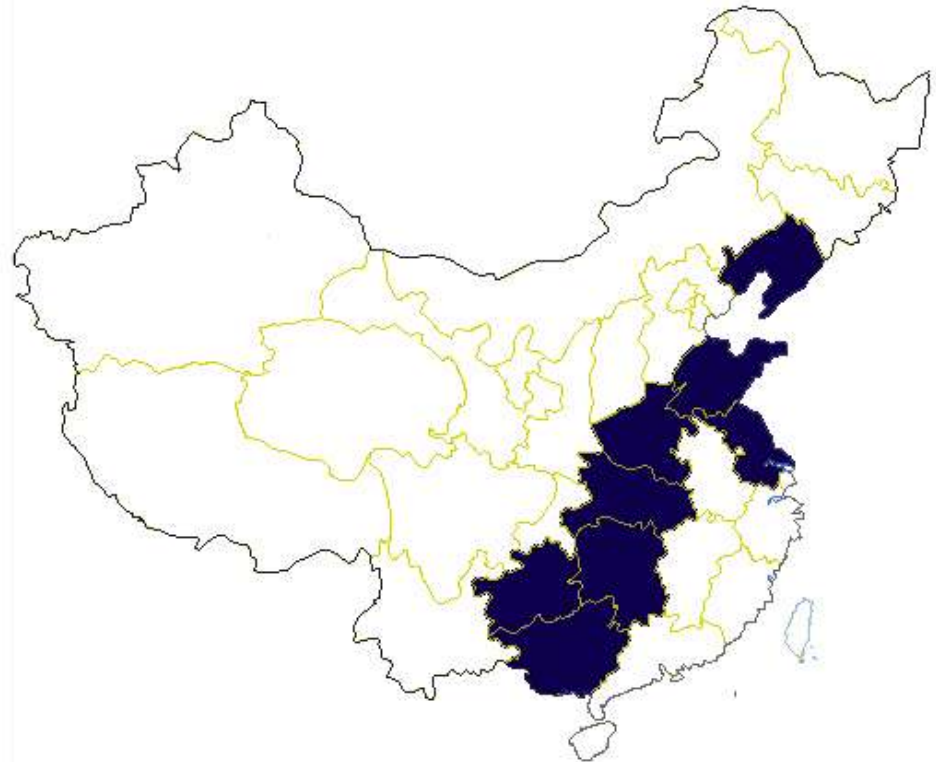
- First, we use Growth Incidence Curve (Ravallion and Chen, 2001) to examine the growth pattern across population and changes in income distribution.
- Second, we use the Poverty-Growth-Inequality Triangle (Bourguignon, 2005) to study the interaction between income growth, inequality and poverty reduction.
- Finally, we use a development of Oaxaca decomposition to examine the factors that drive differentiated income growth:

$$\log \tilde{y}_{06} - \log \tilde{y}_{89} = \hat{\beta}^{89} (\bar{X}_{06} - \bar{X}_{89}) + (\hat{\beta}^{06} - \hat{\beta}^{89}) \bar{X}_{06}$$

where $\hat{\beta}^{89} (\bar{X}_{06} - \bar{X}_{89})$ denotes the main effect of the independent variables, for example, that of education which signifies the changing education stock of the population. $(\hat{\beta}^{06} - \hat{\beta}^{89}) \bar{X}_{06}$ denotes the year effect, for example, the changes in returns to education.

Data

We use the China Economic, Population, Nutrition and Health Survey (CHNS) data - a longitudinal survey - from 1989 to 2006. The sample households were randomly drawn from eight provinces including *Liaoning*, *Shandong*, *Jiangsu*, *Henan*, *Hubei*, *Hunan*, *Guangxi* and *Guizhou*. Household income in different survey years is adjusted to 2009 urban *Liaoning* price using rural/urban Consumer Price Index (CPI) at the provincial level.



Results – Income distribution

Table 1 – Evolution of income distribution, 1989-2006

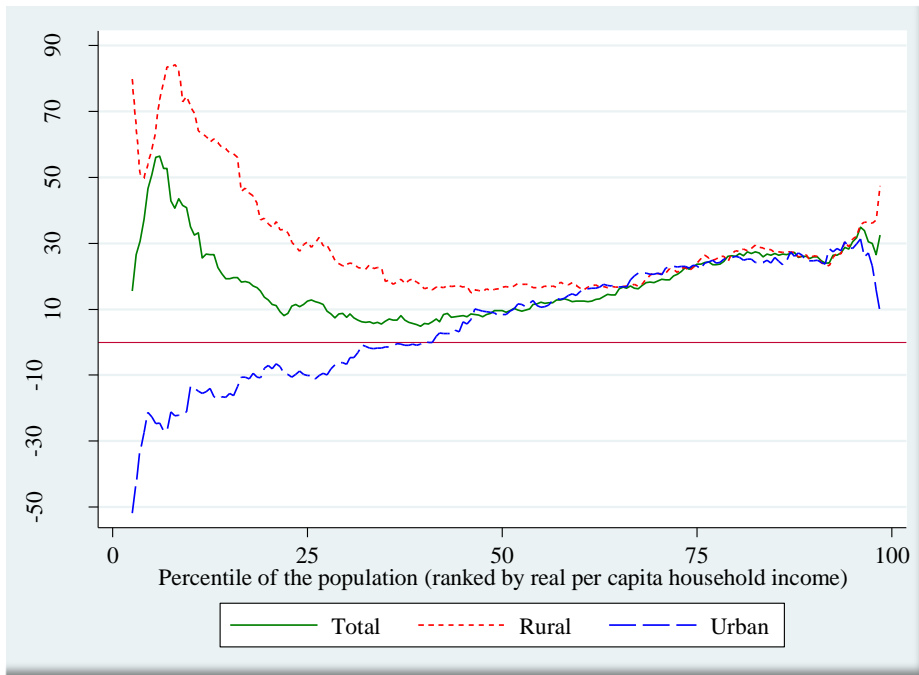
	1989 A	2006 B	Variation (%) (B-A)/A
Household per capita income (<i>yuan</i>)			
Rural	2555	7178	180.9
Urban	3483	10029	187.9
Gini coefficient			
Rural	0.424	0.518	22.2
Urban	0.310	0.478	57.1
Poverty headcount (%)			
Rural	35.4	13.2	-62.7
Urban	10.1	8.6	-14.9

- In average, household per capita income increased more than 6% per annum.
- There is a substantial increase in inequality both in rural and urban areas during the 17 years.
- Poverty headcount declined sharply, especially in rural areas where poverty was higher in 1989.

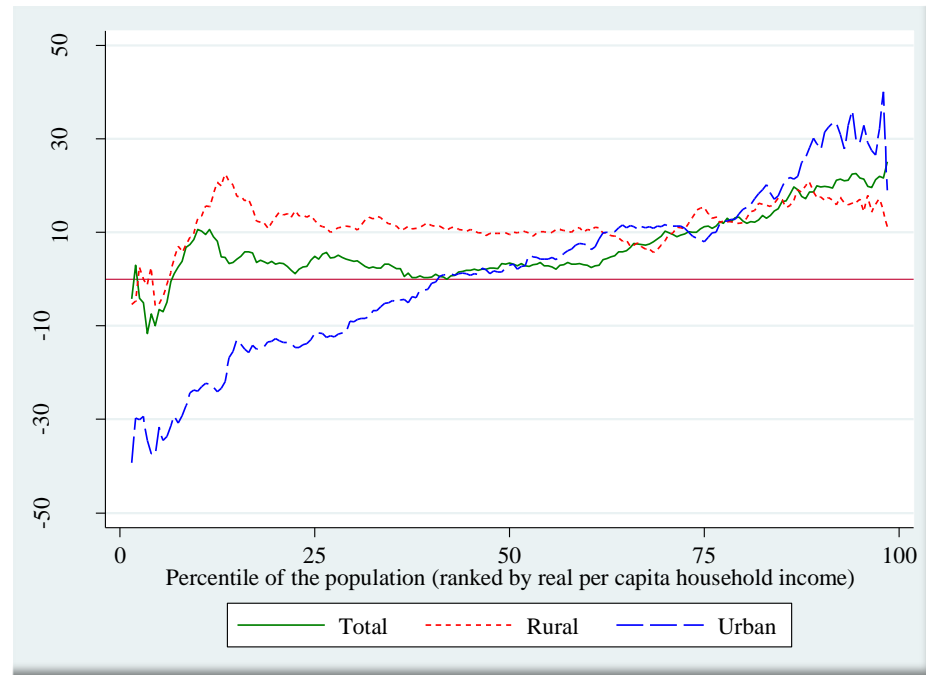
Results - Trends in income growth and inequality

Figure 1 – Growth incidence curve, 1989-1993

Coastal provinces



Inland provinces

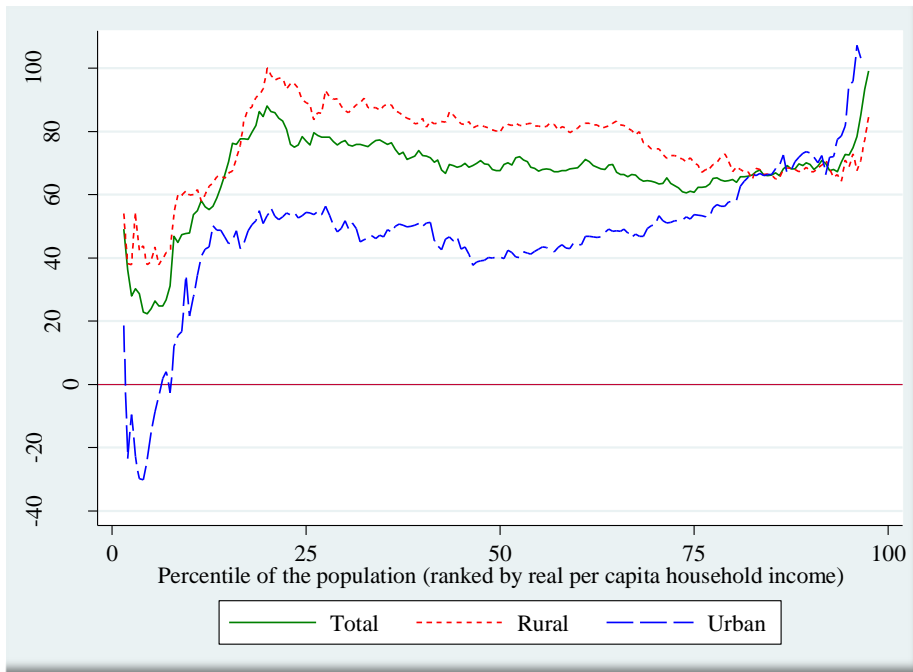


- Income gap between rural and urban declined.
- Inequality widened within urban.

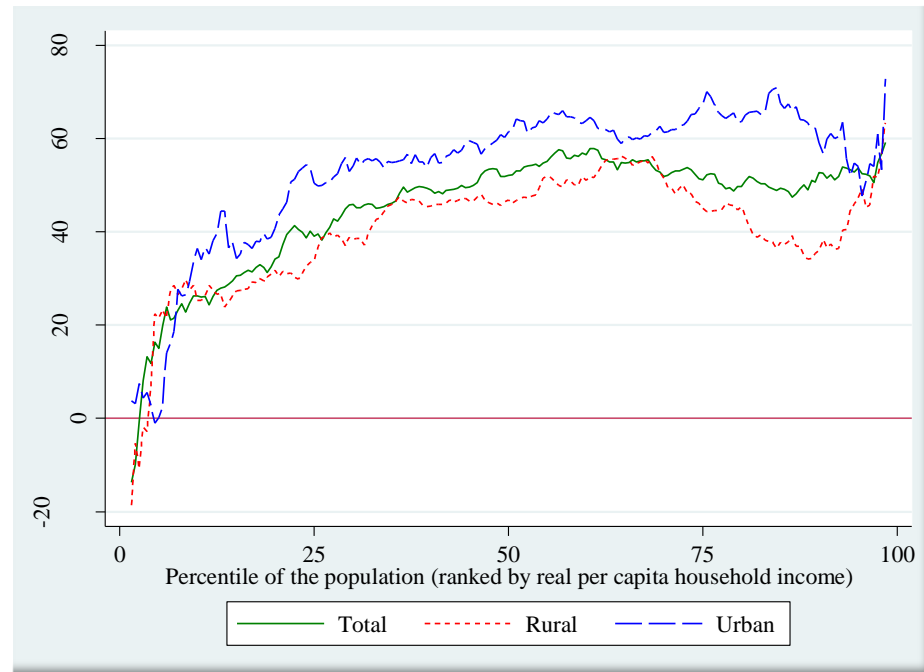
Results - Trends in income growth and inequality

Figure 2 – Growth incidence curve, 1993-2000

Coastal provinces



Inland provinces



- Rapid income growth and widened income gap between urban and rural.
- Increase in inequality, especially within urban coastal.

Results - Trends in income growth and inequality

Figure 3 – Growth incidence curve, 2000-2006

Coastal provinces



Inland provinces



- Continued rapid income growth.
- Inequality widened, especially in rural.

Results - Poverty-Growth-Inequality Arithmetic

Table 2 – Decomposition of changes in poverty into growth and distributional effects, 1989-2006

	Simulated poverty headcount (%)			Decomposition (%)		
	1989 distribution A	2006 distribution B	Horizontal translation of 1989 curve C	Total effect B-A	Growth effect C-A	Distributional effect B-C
All the provinces						
Total	32.4	14.3	8.0	-18.0	-24.4	6.4
Rural	40.0	15.8	11.6	-24.2	-28.5	4.2
Urban	12.3	11.0	0.9	-1.3	-11.4	10.1
Coastal provinces						
Total	28.7	7.5	4.3	-21.2	-24.4	3.2
Rural	36.4	8.8	7.6	-27.6	-28.8	1.2
Urban	6.1	4.8	0.0	-1.4	-6.1	4.7
Inland provinces						
Total	34.6	18.4	11.0	-16.2	-23.6	7.4
Rural	42.4	20.1	14.8	-22.3	-27.6	5.3
Urban	15.8	14.7	2.6	-1.0	-13.2	12.2

- Poverty reduction is mainly driven by the strong growth effect.
- However, part of the effect of poverty reduction is wiped out by the increase in poverty, especially in inland provinces.

Results - Determination of Income Growth

Estimation of income equations :

- Estimate per capita household income determination for rural and urban households in 1989 and 2006 separately using a modified Mincerian type equation.
- Study the role of structural transformation in income changes, applying a Blinder-Oaxaca decomposition.
- Key findings:
 - Education matters
 - Occupation matters
 - Location matters

Results - Decomposition of income growth

Table 5 – Decomposition of per capita income growth between 1989 and 2006 (urban areas)

	Total growth in logarithm	Total main effect	Total year effect	Contribution of various variables to income growth						
				Education		Occupation		Coastal provinces		Other factors
				Main effect	Year effect	Main effect	Year effect	Main effect	Year effect	
Effect	0.738	0.064	0.675	0.128	0.650	-0.133	0.123	-0.001	0.105	-0.197
%	100	8.6	91.4	17.4	88.0	-18.1	16.6	-0.1	14.3	-18.2

- Nearly 90 percent of real household per capita income changes can be attributed to year effects of education, namely returns to education.
- Changes in returns to occupation, i.e. the year effects, explain about one-sixth of total change in income variation.
- The economic reform led to unleashing of market forces that promote efficient reallocation of resources.

Results - Trends in income growth and inequality

Table 5 – Decomposition of per capita income growth between 1989 and 2006 (rural areas)

	Total growth in logarithm	Total main effect	Total year effect	Contribution of various variables to income growth										
				Education		Occupation		Land		Participation in off-farm activities		Coastal provinces		Other factors
				Main effect	Year effect	Main effect	Year effect	Main effect	Year effect	Main effect	Year effect	Main effect	Year effect	
Effect	0.869	0.180	0.690	0.029	0.262	0.030	0.366	0.002	0.023	0.070	-0.081	0.001	0.109	0.086
%	100.0	20.7	79.3	3.4	30.1	3.4	42.1	0.2	2.6	8.0	-9.3	0.1	12.6	9.5

- Similar as in urban, the year effects are the overall dominant factor
- However, household per capita income variation attributed to the changes in returns to occupations are larger (40 percent of the total), while those attributed to the changes in returns to education are smaller (30 percent).

Conclusions



- Education is a key factor of production
- The differential of returns to education increases over time
- Narrowing gaps in education can contribute to harmonizing income distribution in the long run