Does Population Matter in Accessing Inequality in China[1]

EST-CE QUE LA POPULATION IMPORTE DANS L'INEGALITE DE L'ACCES ?

Yang Xiuli[2] **Zhang Yang**[3]

Abstract: In accessing inequality all over the world, recent research by Fischer has found an interesting result: without regard to population size, incomes in poor countries grew slower than incomes in rich countries, implying that the poor are falling behind and that cross-country inequality is getting worse. However a population weighted analysis indicates that the poor are growing faster, which implies both catch-up and narrowing inequality. An attempt is made in this paper to examine whether the same pattern of inequality applies to the case of provincial comparison in China. Our finding shows, even after taking into consideration of population and using the improved accessing method, we find no evidence of less inequality across all the people.
Key words: inequality, population weighted, convergence, divergence

Résumé: Sur l'inégalité de l'accès dans le monde entier, les recherches récentes effectuées par Fischer ont trouvé un résultat intéressant : sans relation avec la taille de la population, les revenus dans les pays pauvres croissent plus lentement que dans les pays riches, cela implique que les pauvres sont en retard et que l'inégalité transnationale devient de plus en plus grave. Néanmoins, une analyse qui met l'accent sur la population montre que les pauvres augmentent plus rapidement, qui implique le rattrapage et l'inégalité diminué. L'article présent tente d'examiner si le même modèle d'inégalité est applicable à la comparaison provinciale en Chine. Les résultats montrent que, même en mettant en considération la population et en utilisant la méthode d'accès améliorée, on n'a pas trouvé la preuve d'une inégalité décrue à travers toute la population.
Mots-Clés: inégalité, population qui importe, convergence, divergence

1. INTRODUCTION

Economic inequality has always been one of the most popular discussion topics in development economics. This is particularly true when the previously neglected field of development economics was rediscovered in the 1950s and 1960s (Ranis, 2004). Recently, many studies have been constantly focusing on the economic inequality in the world (Sala-i-Martin, 2002; Pritchett, 1997), especially the widening gap between the rich and the poor in the world's most populous country, namely China (Yang, 1999; Wei, 2001; Wei, 2002; Gustafsson and Li, 2002).

Last decade has seen plenty of literatures addressing the issue of regional disparity and income inequality in China. One question concerning the base of comparison remains to be clarified. Which matters more? Whether inequality is widening among provinces, or whether inequality is widening among all the people of the whole nation, regardless of which province they happen to live in? If the latter question turned out to be of more relevance, i.e., measuring across all the nation's individuals, then population becomes an important factor. Hence when looking at regional disparity across provinces, an attempt is made in this paper to examine the tendency towards convergence in real per capita income among the provinces in China during the period 1990-2003 and to analyze the population-weighted inequality among these provinces. The group of poor provinces accounting for a big share of all the poor people in the country will be investigated with particular attention so as to find out how they affect the inequality among all the people.

[1] **funded by University of Macau (No. RG014/05-06S/ZY/FBA).**
[2] School of Tourism and Geographical Science, Shenyang University, China
[3] Faculty of Business Administration, University of Macau, Macau, China.
*Received 4 August 2006 ; accepted 9 December 2006

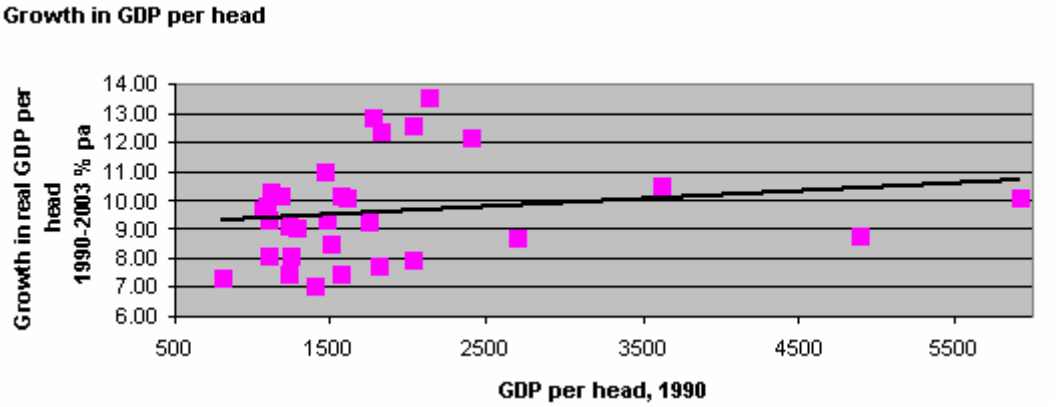
2. LITERATUR EREVIEW

In examining economic inequality around the world, Stanley Fischer, former deputey chief of the International Monetary Fund, to the American Economic Association, propounded three important steps which are deemed necessary (Fisher, 2003). The first two steps are to show whether the within-country income inequality and the cross-country income inequality are widening. The third one is to show whether the overall income inequality is widening globally. Presumably, inequality measured across countries is widening, or the gap between average incomes in the richest countries and average income in the poorest countries is growing. Let us also suppose that inequality is broadening within each individual country. Given the above facts, can we hereafter conclude that the overall inequality is getting worse globally? Actually no. Fisher by taking into account the population factor, find that it may not be the case, because the fact that the most two populous nations, China and India, are catching up rapidly from a low start with growth rates higher than the world average. Therefore population matters when studying the inequality across all the individuals all over the world. This improved method proposed by Fischer is able to better capture the feature of the evolving overall inequality in the world. This paper attempts to investigate whether the same pattern of inequality exist in the case of China in the time period between 1990 and 2003.

3. RESULTS AND DICUSSION

Those who believe in convergence of the world economy hold the opinion that the followers tend to catch up the leader through the transfer of technology and the spill over effect of those leaders' booming economies. Yet, there is no clear-cut evidence showing that whether convergence or divergence is the dominating trend. One way to look at this problem is to examine the growth rate of individual country or economy with respect to their initial income level, to shed some lights on whether the poor are moving closer to, or being left further behind, the rich.

In the chart below, we use the horizontal axis to show each province's average level of GDP per capita in 1990, whereas the vertical axis describes the annual growth rate of inflation-adjusted GDP per capita, from 1990 to 2003. Each province is depicted as a single point. The graph is drawn based on the data from the following table.



Province	GDP per head 1990 (yuan, 1952 price)	Annual growth rate in real GDP per head, 1978-2003 *	Population in 1990 (10 thousand)
Beijing	4881	7.93	872
Tianjin	3621	8.51	724
Hebei	1465	9.20	5057
Shangxi	1493	7.79	2424
Neimenggu	1478	9.05	1823
Liaoning	2698	8.02	3394
Jilin	1746	8.67	2149

To be Continue

Continued

Province	GDP per head 1990 (yuan, 1952 price)	Annual growth rate in real GDP per head, 1978-2003 *	Population in 1990 (10 thousand)
Heilongjiang	2028	7.01	3130
Shanghai	5910	7.95	1098
Jiangsu	2016	11.36	5834
Zhejiang	2122	12.21	3751
Anhui	1182	9.14	4713
Fujian	1767	11.51	2453
Jiangxi	1110	9.12	3183
Shangdong	1815	10.73	7160
Henan	1091	9.32	7067
Hubei	1556	9.28	4575
Hunan	1228	7.98	5166
Guangdong	2395	11.57	5064
Guangxi	1066	7.75	3402
Hainan	1598	9.26	528
Sichuang	1105	8.48	9708
Guizhou	810	7.54	2686
Yunnan	1224	7.93	3092
Tibet	1276	7.63	179
Shanxi	1241	8.27	2780
Gansu	1099	7.54	1870
Qinghai	1558	6.28	365
Ningxia	1393	7.18	356
Xinjiang	1799	8.36	1233

Note: Chongqi is not included; *Calculated by the authors

Source: Comprehensive Statistical Data and Materials on 50 Years of New China; China Statistical Yearbook, various issues

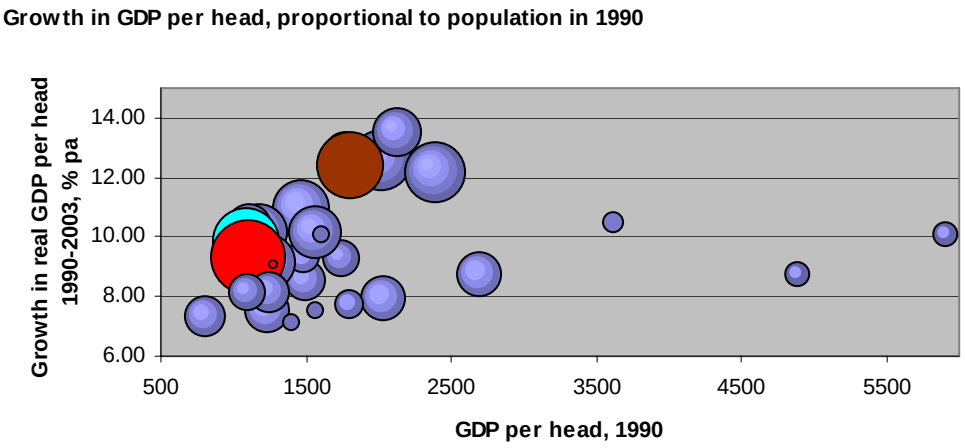
The above graph plots the relationship between the annual growth rate of per capita GDP of each individual province and their GDP per head in 1990, as starting points. On average, if we can observe that incomes in poor provinces grow faster than rich provinces, then this relationship tends to be reversely related. In other words, provinces with lower initial income show higher growth rate. That is to say, a negative related relationship indicates that poor provinces were on average catching up and the overall inequality nation-wide is improving, a signal of convergence. However, what we observe from the figure is an upward sloping line produced by regression. That means, for those provinces with a lower per capita GDP in 1990, they tended to present a growth rate lower than the rich provinces in the chosen time period; comparatively, those provinces with relative higher initial income level tend to show a higher rate of growth for the given time span. Hence, these two variables being positively related show a signal of diverging economy, or the deterioration in term of equality.

Is it sufficient for us to conclude that income inequality is getting worse across the country?

Not quite yet. According to Fischer's work, population may matter in explaining the overall inequality among all the people. Province with different size of population should be given different weight in identifying how they contribute to the aggregate picture of economic trend, either diverging or converging.

Now we look at the graph below, where population-weighted growth rate is plotted with regard to GDP per head in 1990. Specifically, the chart plots the same provinces as circles with areas proportionally to population respectively. Econometric model actually shows a positive relationship between the two series and the regression weighted by population of each province actually draws through all the points a line of best fit, although very flat, but slopes upwards, again. That is to say, the higher the initial income level is; the faster the growth rate tends to be. This for another time implies that the poor are falling further behind rather than

catching up, and therefore inequality across all the people is getting worse, unfortunately.



As can be seen from the above bubble chart, we are not able to observe the same pattern as Fischer did in global circumstance, i.e., after taking into consideration of population, the GDP growth rate becomes negative related to initial income, opposite to the case where a positive relationship is produced without regard to population. Why provinces in China show a trend no similar to the global picture? We may now explore the reason through different grouping of the provinces.

Poorest Group of Provinces

Province	GDP per head 1990 (1952 price)	Population in 1990 (10 thousand)	% of total population	Annual growth rate in real GDP per head, 1990-2003	Deviation from national average
Guizhou	810	3268	2.87	7.35	-2.29
Guangxi	1066	4261	3.74	9.68	0.04
Henan	1091	8649	7.59	9.84	0.20
Gansu	1099	2255	1.98	8.15	-1.49
Sichuang	1105	10804	9.48	9.32	-0.32
Jiangxi	1110	3810	3.34	10.34	0.70
Anhui	1182	5675	4.98	10.17	0.53
Yunnan	1224	3731	3.27	7.53	-2.11
Hunan	1228	6128	5.38	9.17	-0.47
Shangxi	1241	3316	2.91	8.12	-1.52
Tibet	1276	222	0.19	9.09	-0.55
Ningxia	1393	470	0.41	7.11	-2.53

Being diverging or converging (an upward sloping or downward sloping line) highly depends on those poor provinces' performance, whether they are growing faster than the richer counterparts, or not. The above listed group of provinces with the lowest income in 1990 account for more than 46% of total population. Yet this community only managed to show a growth rate less than national average. Hence, poor provinces are falling further behind instead of catching up, even after population weight is taken into account.

Most Populous Group of Provinces

The most populous provinces are Sichuan, according to population in 1990, followed by Henan, Shangdong, Jiangsu, Guangdong, Hebei and Human. As shown in the above table, provinces with large share of population didn't lead in term of annual growth rate. Moreover, those provinces with both relatively big population size and rapid growth rate are not those very poor provinces with low starting level. Therefore they failed to bring a role as China and India do in the measurement of global inequality

Province	Population in 1990(10 thousand)	% of total population	GDP per head 1990(1952 price)	Annual growth rate in real GDP per head, 1990-2003	Deviation from national average
Sichuan	10804	9.48	1105	9.32	-0.32
Henan	8649	7.59	1091	9.84	0.20
Shangdong	8493	7.45	1815	12.37	2.73
Jiangsu	6767	5.94	2016	12.57	2.93
Guangdong	6346	5.57	2395	12.17	2.53
Hebei	6159	5.40	1465	10.98	1.34
Hunan	6128	5.38	1228	9.17	-0.47

4. CONCLUSION

This paper explores if the mechanism suggested by Fischer (2003) works for explaining the cross-provincial variation in income within China. The positive relationship between per capita GDP in 1990 and annual growth rate over time (1990-2003) may not be significant enough to draw sound conclusion on how seriously and how fast the inequality and income gap are evolving across provinces. But what can be derived from the above analysis is that the overall inequality in China shows no sign of convergence, with or without regard to population. We are unable to identify a trend for closing gap even with the improved and more comprehensive method proposed by Fischer, by including population factor. Unlike the bigger picture all over the world where India and China happen to have performed so well from a low start and where these two countries account for such a big share of all the world's poor, we find no evidence resembling the above pattern, in the regional comparison in provincial level. Therefore based on the data from the given time period we chose, we find, without or with regard to population, a positive relationship between initial income level and annual growth rate of GDP per capita, which implies worsening inequality both across all the provinces and across all the people.

REFERENCES

Fischer, Stanley, 'Globalization and Its Challenges', *AEA Papers and Proceedings. American Economic Review*, Vol. 93, No.2, 2003.

Gustafsson, Bjorn and Shi, Li, 'Income Inequality within and across Counties in Rural China 1988 and 1995', *Journal of Development Economics*, *69*(1), pp.179-204, 2002.

Katz, Lawrence F. and Autor, David H., 'Changes in the Wage Structure and Earnings Inequality', *Handbook of labor economic*, Vol. 3A, pp. 1463-555, 1999.

Pritchett, Lant, 'Divergence, Big Time', *Journal of Economic Perspectives*, 11(3), pp.3-17, 1997.

Ranis, Gustav., 'The Evolution of Development Thinking: Theory and Policy', *Economic Growth Center Discussion Paper Series*, *Center Discussion Paper No. 886*, 2004.

Ravallion, Martin and Chen, Shaohua, 'What Can New Survey Data Tell Us About Recent Changes in Distribution and Poverty?', *World Bank Economic Review*, 11(2), pp. 357-82, 1997.

Sala-i-Martin, Xavier, 'The Distributing 'Rise' of Global Income Inequality', *NBER Working Paper 8904*, 2002.

Wei, Shang-Jin, 'Is Globalization Good for the Poor in China', *Finance and Development*, *39*(3), pp. 26-29, 2002.

Wei, Shang-Jin and Wu, Y., 'Globalization and Inequality: Evidence from within China', *National Bureau of Economic Research Working Paper: 8611*, pp. 20, 2001.

Yang, Dennis Tao, 'Urban-Biased Policies and Rising Income Inequality in China', *American Economic Review*, 89(2), pp.306-10, 1999.

THE AUTHORS

Yang, Xiuli, Associate Professor, School of Tourism and Geographical Science, Shenyang University China

Zhang Yang, Assistant Professor, Faculty of Business Administration, University of Macau CHina

E-mail: YZhang@umac.mo