Spatial Inequality and Development in Asia

Introduction to a Symposium in
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Inequality and Spatial Inequality

Asia is the most populous continent on earth. Changes in inequality or poverty in this region alter the corresponding global picture. Due to its remarkable economic growth and catch up in living standards, Asia has been an equalizing force in constituting international inequality. However, within-country inequalities in Asia are fast rising, which have contributed to the slow down in poverty reduction in the world. The rising inequality within individual countries is a cause of concern since Asia, particularly East Asia, has until recently been considered to be a good example of growth without worsening distribution.

It is known that a large proportion of the world's poor, 67 per cent in 1998, are living in Asia, especially South Asia and rural Asia. While economic development has benefited the poor in some countries, this has not happened in Nepal, Sri Lanka or Mongolia. On the contrary, poverty increased in Indonesia, Mongolia, Pakistan and Thailand during the 1990s. At the same time, poverty reduction slowed down in China, Bangladesh, India, Philippines and Korea. These are not unrelated to the rising inequality in Asian countries.

The recent rises in inequality in some Asian countries have cast doubt over the conventional wisdom on the historically stable inequality there. One possible explanation is the role of economic reforms. However, the Asian experience is mixed. For example, China and Viet Nam are two successful transition economies in Asia and have followed a similar reform path. However, inequality in Viet Nam has been fairly stable but increased substantially in China. It has also increased significantly in Mongolia without economic growth. Interestingly, inequality in China declined in the early years of reform before climbing up as from 1985. Also, inequality has gone up in non-transition but reforming economies such as India, Philippines and Pakistan. It seems that the increasing inequalities have little to do with the economic or political systems, be it democratic (India), dictatorship (China), market economy (Philippines), transition economies (Mongolia), reforming economies (Pakistan), or different combination of political and economic systems.

Spatial inequality refers to uneven distribution of income or other variables across different spatial locations. It is a component of overall inequality between individuals. Measuring spatial inequality usually involves calculating interpersonal inequality when each income recipient is assumed to receive the mean income of his/her location group. When the Theil measure is used, total inequality can be conveniently broken down into two components: spatial inequality or the so-called between-group component and a within-group component. The between-group component is typically small except in the case of urban-rural division. However, what may be more important is the change in this component. Thus while small in terms of levels, the contribution of spatial inequality to changes in inequality may be significant.

Moreover, when spatial inequality coincides with division of socio-economic groups such as migrants and natives, different ethnicities, different religions and so on, it is not the numerical value but its mere existence that is important. Such kind of spatial inequality can lead to severe consequences such as discontent, conflict, and even war.

Papers in this Symposium

Given its unique features and importance, the World Institute for Development Economics Research of the United Nations University (UNU-WIDER) initiated a major project on spatial inequality in 2002. As one of the project activities, a conference was held at the UNU headquarter in Tokyo in March 2003, focusing on spatial inequality and development in Asia. Eighteen papers out of some 100 submissions were presented at the conference and papers included in this symposium were further selected from these papers subject to the usual refereeing process.

The papers in this symposium highlight a range of theoretical, empirical and policy issues in the evolution of spatial inequality in Asia. In doing so, they also contribute to the general literature on spatial inequality and development.

The symposium begins with two methodologically oriented papers. A major problem with examining the structure of spatial inequality is a lack of disaggregated data. Most household sample surveys do not allow a diasggregation below the province level because of sample size. But censuses do not collect sufficiently detailed information on household income and expenditure. Recent methods attempt to combine the strengths of these two approaches by first estimating an income or expenditure equation from household surveys and then applying it to census data to generate distributions at highly disaggregated levels spatially. **Minot and Baulch** examine the loss in precision when aggregated census data are employed in this manner to measure poverty. They show analytically that such aggregation will result in poverty rates that are biased downward (upward) if the rate is below (above) 50 percent and that the bias approaches zero as the poverty rate approaches zero, 50 percent, and 100 percent. Relying on data from Vietnam, it is found that the average absolute error in estimating provincial poverty rates is about 2 (3-4) percentage points if the data are aggregated to the enumeration-area (provincial) level. In ranking the 61 provinces by the incidence of poverty, even data aggregated to the provincial level perform reasonably well: the average absolute error in ranking is only 0.92.

The second methodology oriented paper is given by **Kolenikov and Shorrocks.** They propose a new analytical framework for poverty decomposition, namely Shapley value decomposition, which is based on the co-operative game theory. Empirical results for Russia

(whose land mass and many of whose poorer regions are mainly in Asia) suggest that the regional poverty variations are due more to differences in inequality across regions than to those in real income per capita. When the real income is split into nominal income and price components, differences in nominal income per capita emerges as more important than either inequality or price effects for the majority of regions.

The causes of spatial inequality in Asia's (and the world's) second most populous economy come next in this symposium. The paper by **Lall and Chakravorty** argues that spatial inequality of industry location is a primary cause of spatial income inequality. It identifies spatial factors that have cost implications for firms, and factors that influence location decisions of new industrial units. By examining the contribution of economic geography factors to the cost structure of firms in eight industry sectors, the authors show that local industrial diversity is the one factor with significant and substantial cost reducing effects. Further, new private sector industrial investments in India are found to be biased toward existing industrial and coastal districts, whereas state industrial investments (in deep decline after structural reforms) are far less biased toward such districts. It is concluded that structural reforms lead to increased spatial inequality in industrialisation, and therefore, income.

The consequences of economic reform for spatial inequality and poverty are further investigated by **Jensen and Tarp** in a Computable General Equilibrium Framework, applied to Vietnam. They calibrate two static Computable General Equilibrium (CGE) models with respectively 16 and 5,999 representative households. Aggregated and disaggregated household categories are consistently embedded in a 2000 SAM for Vietnam, and they map on a one-to-one basis to each other. Distinct differences in poverty assessments emerge when the impact of trade liberalisation is analysed in the two models. This highlights the importance of modelling micro household behaviour and related income and expenditure distributions endogenously within a static CGE model framework. Simulations indicate that poverty will rise following a revenue-neutral lowering of trade taxes. This is interpreted as a worst-case scenario, which suggests that government should be proactive in combining trade liberalisation measures with a pro-poor fiscal response to avoid increasing poverty in the short to medium term**.**

The contributions so far are primarily static or equilibrium in nature. The next two papers in this symposium, both on China, take a dynamic perspective and examine the evolution of spatial inequality over time. **Kanbur and Zhang** compile a time-series data set for China, which is used to construct a time profile of China's regional inequality for the period 1952 - 2000. They identify three peaks of inequality, coinciding with the Great Famine of the late 1950s, the Cultural Revolution of the late 1960s and 1970s, and finally the period of openness and global integration in the late 1990s. The authors then employ econometric analysis to establish that regional inequality is mainly caused by three key policy variables—the ratio of heavy industry to gross output, the degree of decentralization, and the degree of openness.

A considerable literature exists on the measurement of income inequality in China and its increasing trend. Much less is known, however, about the driving forces of this trend and their quantitative contributions. The paper by **Wan and Zhou** represents an early attempt to apply the regression-based decomposition framework to the study of inequality accounting in rural China, using household level data. It is found that geography has been the dominating factor but is becoming less important in explaining total inequality. Capital input emerges as

a most crucial determinant of income inequality. Farming structure is more important than labour and other inputs in contributing to income inequality across households.

So much for the description and causes of spatial inequality. What about its consequences? As argued earlier, while at moderate levels spatial inequality can be seen as one contributor to overall interpersonal inequality, extremes of spatial inequality can lead to extreme outcomes as well. In the final paper in this symposium, spatial inequality amidst ethnic and caste divisions is found, by **Murshed and Gates,** to be a main cause of the Nepalese civil war, which is most intense in the mid and far western regions of Nepal. These regions are the most disadvantaged in terms of human development indicators or HDI and asset (land) holdings. Using the number of deaths as the dependent variable and HDI and landlessness as control variables, a Poisson regression analysis indicates that the deaths across the districts of Nepal is most significantly explained by the degree of inequalities.

Clearly, limited space allows only a small selection of papers to be included here and many issues remain unexplored. It is our hope that publication of this collection will bring about more interest in spatial inequality in Asia, particularly its causes, consequences and policy implications.

1   Spatial Inequality and Development in Asia: Introduction to a Symposium in Review of Development Economics
Ravi Kanbur (Cornell University, USA), **Anthony J. Venables** (LSE, UK) and **Guanghua Wan** (UNU-WIDER, Finland)

2   Poverty mapping with Aggregate Census Data: What is the Loss in Precision?
Nicholas Minot (IFPRI, USA) and **Bob Baulch** (IDS, University of Sussex, UK)

3   A Decomposition Analysis of Regional Poverty in Russia
Stanislav Kolenikov (Russian-European Centre for Economic Policy, Russia) and **Anthony F. Shorrocks** (UNU-WIDER, Finland)

4   Industrial and Spatial Inequality: Theory and Evidence from India
Somik V. Lall (World Bank, India) and **Sanjoy Chakravorty** (Temple University, India)

5   Trade Liberalization and Spatial Inequality: A Methodological Innovation in Vietnamese Perspective
Henning Tarp Jensen (Copenhagen University, Denmark) and **Finn Tarp** (Copenhagen University, Denmark)

6   Fifty Years of Regional Inequality in China: A Journey through Revolution, Reform and Openness
Ravi Kanbur (Cornell University, USA) and **Xiaobo Zhang** (IFPRI, USA)

7   Income Inequality in Rural China: regression-based Decomposition Using Household data
Guanghua Wan (UNU-WIDER, Finland) and **Zhangyue Zhou** (University of Sydney, Australia)

8   Spatial-Horizontal Inequality and the Maoist Insurgency in Nepal
S. Mansoob Murshed (ISS, Netherlands) and **Scott Gates** (Michigan State University and PRIO, USA)