Spatial Inequality and Development

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Abstract

This is the Introduction to an edited volume of papers, from the Cornell-LSE-WIDER conference on Spatial Inequality and Development. The conference is part of a larger WIDER project on Spatial Disparities in Human Development.

1. Five Questions

What exactly is spatial inequality? What are its determinants? How has it been evolving? Why does it matter? And what, if any, should be the policy response to spatial inequality?

These questions have become important in recent years as, amidst a growing concern about increasing inequality, the spatial dimensions of inequality have begun to attract considerable policy interest. In China, Mexico, Russia, India, and South Africa, as well as most other developing and transition economies, there is a sense that spatial and regional inequality, of economic activity, incomes and social indicators, is on the increase. To some extent this may be a normal feature of economic growth, as new activities develop around coasts or border regions. But are such patterns transient or permanent? What factors are conducive to the spread of activity from booming to backwards regions? Also important in the policy debate is a perceived sense that increasing internal spatial inequality is related to greater openness of economies, and to globalization in general.

Spatial inequality matters for a number of reasons. Market failures, and the positive and negative externalities associated with clustering and congestion, mean that outcomes are likely to be inefficient. The growth of mega-cities may be one aspect of this, but policy responses are far from clear. Should infrastructure expenditure be concentrated or dispersed? Should internal migration flows be restricted, or facilitated in order to narrow spatial wage gaps? Spatial inequality is a dimension of overall inequality, but it has added significance when spatial and regional divisions align with political and ethnic tensions to undermine social and political stability.

But despite these important popular and policy concerns, there is remarkably little systematic documentation of the facts of what has happened to spatial and regional inequality over the past ten to twenty years. Correspondingly, there is insufficient understanding of the determinants of internal spatial inequality in a globalizing world. As a result, the policy discussion tends to take place in something of an analytical and empirical vacuum. This volume of papers is the result of the first in a series of general

and region-specific conferences on spatial inequality and development, which are in turn part of a project organized by the World Institute for Development Economics Research.

Collectively, the papers in this volume represent an attempt to answer the questions posed above, based on data from 25 countries covering all regions of the world. They bring together perspectives and expertise in development economics and in economic geography. They form a well researched entry point into an area of growing analytical and policy importance. This introduction provides an outline of the volume and brief descriptions of the papers, and ends by highlighting key issues and areas for further research.

2. Overview of the Volume

The volume begins with papers on measurement issues. An essential first step in measuring spatial inequality in a country is to develop accurate measures of real income disparities across regions within countries. The recent spurt of interest in economic geography has led to a greater focus on regional level estimates of output within a country, but the paper by Aten and Heston (this volume) addresses head on the important question of accounting for regional price differences in making these calculations. While the PPP project has been invaluable in generating data on price variations across countries, there is very little comparable data on price variations across regions within countries. Given this limitation, the authors develop indirect methods, by modeling the variation in prices for the regional units in the world for which there is indeed regional price data, as a function of variables for which data is more generally available. The preferred estimated relationship can then be used to generate price indices for other regions of the world, and these prices can in turn be used to convert nominal output data into real output. The technique developed by Aten and Heston will prove indispensable to empirical researchers working on spatial inequality, whether in developing or developed countries.

Data availability is equally a problem in terms of household surveys which form the basis of much of the empirical work on interpersonal inequality, and the measurement of poverty in developing countries. The problem here is that while household surveys

collect detailed information on income, consumption and social indicators, their sample sizes are not large enough to allow adequate disaggregation to regional or sub-regional levels within a country. On the other hand, census data do not have much of the detailed information at the household level needed for inequality and poverty analysis. The obvious answer is to combine these data sources, and the paper by Elbers et al., (this volume) does just that. The approach is similar in some ways to that of Aten and Heston. The variable of interest which is available only in the household survey, in this case some measure of household well being, is modeled as function of explanatory variables in the household survey that are also available in the census (or a survey with a much larger sample survey). The relationship estimated on the household survey is then applied to the census to generate an effectively larger sample of household well being, which can then be disaggregated at the regional and sub-regional levels to study spatial inequality in household wellbeing.

The power of their technique is then illustrated by Elbers et al., by application to Ecuador, Madagascar and Mozambique. They decompose national inequality into inequality within and between spatial units at successively finer levels of disaggregation. A major conclusion, consistent with the general inequality decomposition literature, is that the within group component of inequality stays high (in excess of 75%) even at what seems to be very high levels of disaggregation (in Ecuador, for example, down to the level of 915 local units with an average of just over 1000 households). Thus the contribution of average variations across spatial units, to total interpersonal inequality, seems to be no greater than 25 %. Does this mean that spatial inequality is not a phenomenon of great policy interest? In fact, the papers in this volume suggest otherwise, and this point will be taken up towards the end of this introduction.

The second section of the volume moves from the perspective of measurement of income inequality to the perspective of economic geography. The paper by Escobal and Torero (this volume) looks at the micro level and investigates the determinants of the spatial variation in household level wellbeing in Peru, using household survey data for 1991, 1994, 1996 and 1997. They first of all show the high level of spatial inequality in Peru. But they also argue that these geographical differences can be accounted for by variation in private and especially public assets. Once these are accounted for, pure

geography in the sense of altitude or temperature does not influence measures of household wellbeing. However, as they recognize and highlight, this simply pushes the question back one stage—the effect of geography on the provision of such an uneven distribution of public infrastructure, and the concentration of economic activity over and above the influence of physical geographical constraints.

The recent theoretical literature has suggested the importance of location and agglomeration externalities as key determinant of spatial concentration of economic activity and income. The empirical literature has lagged behind the theoretical developments, and the two papers in this section are attempts to identify and quantify these factors in the data. The paper by Davis and Weinstein (this volume) investigates the effect of region size on regional productivity, allowing for possible spillover effects across neighboring regions, and other more standard explanatory factors. Using data from 40 Japanese regions, they find that own size does matter in explaining regional total factor productivity—doubling own size raises productivity by 3.5%. Moreover, the nature of neighboring regions matters too for a region's own productivity. The uneven pattern of activity in Japan contributes to overall efficiency—if aggregate activity were to be spread evenly across the regions of Japan, output would be lower by 5 %.

Ravallion's contribution to this volume comes at the issue of externalities from the micro level of household survey data. Starting with panel data on 5,600 farm households from 111 counties in four provinces of China, he seeks an explanation of household consumption growth over the period 1985-90. He estimates a model of consumption growth that has household level variables and locality level explanatory, allowing for time variant fixed effects. There is strong evidence of geographical externalities, in the sense that locality level variables have an effect on consumption growth over and above household level attributes. The explanation is that the level and nature of local economic activity, in the aggregate, affects the household level returns to human capital and infrastructure.

The previous sections established that spatial inequality can be large, and that location externalities play a key role in explaining variations in wellbeing across space. But do these spatial differences persist, or do they tend to diminish over time? The next two papers in the volume are contributions to the literature on regional convergence.

distribution of other features—specifically, infrastructure and public services. As shown in a number of papers in this volume, a key determinant of household wellbeing in a region, over and above household specific characteristics, is the quantity and quality of infrastructure in that region.

However, even without variations in physical features, or infrastructure variations across regions, once the standard assumptions of neoclassical economics are dropped a number of possibilities arise for the propagation of spatial inequality. The new economic geography has highlighted, in particular, location and agglomeration externalities. These can arise because of knowledge spillovers, thick market effects, or input-output linkages between firms. They operate at various spatial levels; within regions of dense economic activity; within cities; and within narrowly specialized industrial districts of cities. Evidence has slowly begun to accumulate on the magnitude of the agglomeration externalities that create these disparities. The papers by Davis and Weinstein and by Ravallion in this paper are an important contribution to this literature, and highlight the importance of agglomeration effects and location externalities.

How has spatial inequality been evolving over the past two decades? If the evidence presented in this volume is anything to go by, it has been on the increase. Its relationship to greater openness in trade and investment is investigated by Rodriguez-Pose and Sanchez-Reaza for Mexico and by Lin for China. Even where the last two decades have brought overall growth and poverty reduction, the benefits of this growth have not flowed evenly across space. Spatial inequality has grown (especially in transition economies, as documented by Forster et al., and by Yemtsov), with the result that poverty reduction has been uneven across regions within a country (as documented for Africa by Demery et al., and for Indonesia by Friedman). However, a number of key questions remain. To what extent is some increase in spatial inequality a natural feature of development, as growth is initially concentrated in a few regions? Is this increase temporary, and how long is it likely to take for growth to spread from region to region? Some existing research suggests a pattern of increasing then decreasing spatial inequality, but further research is needed to identify factors that are conducive to the dispersion of activity.

Why does spatial inequality matter, and is a policy response appropriate? We have seen that spatial inequality accounts for only around one-third of total inequality, and part of this may be transient rather than permanent. Does this mean that spatial inequality is unimportant, as some might be tempted to argue? One argument in favor of doing nothing, or very little, is that if our ultimate objective is total interpersonal inequality, and if spatial inequality is at most one third of this total, surely policy should focus on inequality within spatial units (which accounts for two thirds of the total) rather than between. There are several responses to this. First, one third is smaller than two thirds, but is still quite big—eliminating spatial inequality would have an impact on inequality that is far larger than some cross-country variations in inequality. And, as in the case of Russia, there are periods when even though spatial inequality is relatively small, much of the increase in total inequality is in fact increase in spatial inequality. However, the real question here is what policy instruments are available to address within and between group inequalities, and what the cost benefit of each instrument is. It may well turn out that "per unit of inequality reduction" the instrument that addresses between group inequality is cost effective. This will depend on the specifics of the case—addressing between group inequality cannot be simply dismissed because between group inequality is a smaller than within group inequality.

Furthermore, it might be the case that the distribution of individual attributes, such as ability, is the same in all regions. Spatial inequality is then particularly inequitable and—especially when aligned with political, religious or ethnic tensions—may be dangerous to social and political stability. If spatial divisions align with ethnic, religious or language splits, as so often happens, then the between group component of inequality takes on a greater significance than its contribution to interpersonal inequality. In such cases, we ignore growing spatial inequality at our peril. Even when spatial units do not represent ethnic or other cleavages, but command the allegiance of the population as political entities, increasing disparities in group averages may lead to tensions and conflict in some cases.

Additional arguments derive from the real income losses that may be associated with spatial inequality. Spatial location decisions are associated with multiple market failures, particularly when agglomeration forces are present. These market failures

depress real income, and may also retard growth as they depress the returns to job creation. For example, it is often suggested that prime cities are excessively large. There may be negative externalities arising from congestion costs in large cities. In addition, the presence of agglomeration economies and increasing returns to city formation gives rise to a coordination failure, as it is not profitable for a single firm to relocate and establish a new center of activity. What is needed, if new centres are to be established, is a collective or policy coordinated movement.

Complex policy choices also arise with migration and infrastructure. According to one view there is too little migration, and part of the problem of lagging regions arises because of individuals' reluctance to emigrate from such regions. The reason for the reluctance to migrate may be attachment to the area of birth, or may be that individuals are locked into declining regions by location specific human capital. However, in neither of these cases is there a market failure. Failures, and consequent arguments for policy, arise if migrating individuals exert positive or negative externalities on other individuals in the locations that they are leaving or that they are joining. It is then far from clear that there is too little migration—there may well be too much, particularly into established urban centres. Similarly with infrastructure. As Escobal and Torero (this volume) show, provision of public infrastructure is an important determinant of household well-being. Such investments may allow individuals to increase the return to their general and location specific human capital and be a powerful instrument in favor of greater spatial equality. However, the benefits of such an allocation need to be weighed against the costs, particularly as urban infrastructure needs are often pressing.

The case for policy interventions to ensure a more spatially equitable and efficient allocation of infrastructure and public services has been made powerfully in the papers in this volume. But the specifics of this policy conclusion still need to be developed. The benefits of such an allocation need to be weighed against the costs, so both will have to be quantified. In order to do this we will need a deeper and more detailed understanding of the determinants of spatial inequality, and how exactly policy interventions in infrastructure and other areas will impinge on it. The papers in this volume have made a start. A full research agenda lies ahead.

Spatial Inequality and Development

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