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WORKING PAPER NO.18

**Rethinking Economic Growth
in a Globalizing World:
An Economic Geography Lens**

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About the Series

The Commission on Growth and Development led by Nobel Laureate Mike Spence was established in April 2006 as a response to two insights. First, poverty cannot be reduced in isolation from economic growth—an observation that has been overlooked in the thinking and strategies of many practitioners. Second, there is growing awareness that knowledge about economic growth is much less definitive than commonly thought. Consequently, the Commission’s mandate is to “take stock of the state of theoretical and empirical knowledge on economic growth with a view to drawing implications for policy for the current and next generation of policy makers.”

To help explore the state of knowledge, the Commission invited leading academics and policy makers from developing and industrialized countries to explore and discuss economic issues it thought relevant for growth and development, including controversial ideas. Thematic papers assessed knowledge and highlighted ongoing debates in areas such as monetary and fiscal policies, climate change, and equity and growth. Additionally, 25 country case studies were commissioned to explore the dynamics of growth and change in the context of specific countries.

Working papers in this series were presented and reviewed at Commission workshops, which were held in 2007–08 in Washington, D.C., New York City, and New Haven, Connecticut. Each paper benefited from comments by workshop participants, including academics, policy makers, development practitioners, representatives of bilateral and multilateral institutions, and Commission members.

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The working paper series was produced under the general guidance of Mike Spence and Danny Leipziger, Chair and Vice Chair of the Commission, and the Commission’s Secretariat, which is based in the Poverty Reduction and Economic Management Network of the World Bank. Papers in this series represent the independent view of the authors.

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Abstract

This paper argues that cumulative causation processes are fundamental to understanding growth and development. Such processes derive from spatially concentrated increasing returns to scale including thick market effects, knowledge spillovers, sectoral and urban clustering, and self-reinforcing improvements in physical and social infrastructure. These sources of agglomeration have been extensively analyzed in the economic geography literature. They imply that spatial unevenness in economic activity and incomes is an equilibrium outcome. Growth tends to be “lumpy,” with some sectors in some countries growing fast while other countries lag. The policy challenge is to lift potential new centers of economic activity to the point where they can reap the productivity and investment climate advantages of increasing returns and cumulative causation.

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Rethinking Economic Growth in a Globalizing World: An Economic Geography Lens

*Anthony J. Venables*¹

1. Introduction

The role of trade—especially modern sector exports—in economic growth is now increasingly clear. The Asian experience is well documented, and a number of recent studies point to the role of exports in growth accelerations. For example, Jones and Olken (2008) identify growth accelerations, and show that these are associated with an average 13-percentage-point increase in the share of trade in income (over a 5-year period) as well as an acceleration of the rate of transfer of labor into manufacturing. Pattillo et al. (2005) point to the association between growth accelerations and trade in sub-Saharan Africa.²

This paper draws on recent work in trade and economic geography to provide a lens through which to assess trade, globalization, and economic growth. It investigates the way in which globalization shapes countries' growth prospects, and draws out some policy implications. Analysis is based on three facts about the technology of trade and modern sector production. The first is that modern sector activity is surrounded by increasing returns to scale deriving from many sources, including social and political as well as narrowly economic. The second is that space still matters, both in defining the geographical scope of these increasing returns and in shaping economic relationships more broadly. The third is that globalization is changing the nature of international trade, in particular by facilitating the fragmentation of production. Discussion of these facts is the subject of the next section of the paper.

The paper then draws out implications from these facts, arguing that they support a view of the world different from that offered by standard trade or growth theory, although consistent with the evidence. In particular, there are equilibrium disparities between regions of the world and also between subregions within a country. Rapid economic growth can occur, and is likely to be associated with modern sector export growth. It will typically be “lumpy” in three senses. In geographical space, it will be uneven, being concentrated in some

¹ Anthony J. Venables is the BP Professor of Economics at the University of Oxford and Director of the Centre for the Analysis of Resource Rich Economies.

² See also Hausmann, Pritchett, and Rodrik (2005).

countries, regions, or cities. In product space, these regions are likely to be narrowly specialized, perhaps even specializing in a few tasks rather than production of integrated products. Temporally, growth will be rapid but only once some threshold level of capabilities has been reached. Growth will tend to be sequential rather than parallel, that is, with selected regions growing very fast while others lag behind. Furthermore, there will be a tendency for both middle-income regions and very low-income regions to be left behind in this process.

The final section of the paper discusses policy implications, focusing on two questions. First, how can countries or regions get to the threshold at which they become attractive as export bases for manufacturing, and at which they start to benefit from increasing returns to scale? Discussion of this question is based on urbanization and on African export diversification. Second, how should we understand the economic relationship between regions or countries? Are developments in one region complementary or competing with developments in another?

2. Modern Trade and Production

We start by outlining three facts about the technology of modern trade that underlie the thinking in the paper.

Increasing Returns

Standard economic modeling draws heavily on the assumption of diminishing returns to scale, although increasing returns are inherent to much modern sector activity.³ Increasing returns arise through a wide variety of mechanisms, some narrowly technical and others to do with wider socioeconomic feedbacks. Increasing returns may be internal to the firm—average costs falling with the length of the production run—but their implications for the performance of the economy are greatest if they are external, between rather than within economic units. What are the sources of such external economies of scale?

One category is technological externalities, such as knowledge spillovers when one firm is able to benefit from the knowledge capital of another. The mechanism through which knowledge transfer occurs may be labor mobility, face-to-face social contact between workers, or observation of the practices of other firms. Such effects are particularly important in innovation-intensive activities, and a large literature points to the spatial concentration of innovative activities (for example, Audretsch and Feldman 2004). Location-specific knowledge spillovers also arise if firms learn about the characteristics (such as the productivity) of the location, and are unable to keep their knowledge private, as in the “self-discovery” story of Hausmann and Rodrik (2003). This may be

³ Of course, there is also an enormous body of work looking at increasing returns, from (at least) the work of Young (1928) onwards.

learning about real characteristics of locations, or may simply be a “herding” story as firms simply choose to copy the location decisions of other (successful) firms.

Possibly more important than technological externalities are pecuniary externalities. In an imperfectly competitive market there are allocative inefficiencies, and these inefficiencies may depend on the size of the market. Increasing returns arise if increasing the size of the market brings about a reduction in these inefficiencies. This can occur in the goods markets. For example, there is a tradeoff between having firms large enough to achieve internal economies of scale without becoming monopolists. Increasing market size shifts this tradeoff, allowing benefits of both large-scale and more intense competition, and as a consequence firms will be larger, will operate at lower average costs, and will set lower prices. If firms have different productivity levels, then a market enlargement and the associated increase in competition will cause firms with high productivity to grow and firms with low productivity to exit. This argument supports the empirical finding that much of the gain from trade liberalization is due to a change in the mix of firms within each sector, favoring high-productivity firms at the expense of those with low productivity.⁴ A larger market will also support a greater variety of products. These price and variety effects benefit consumers and also, if the goods are intermediates, benefit firms in downstream sectors. For example, a larger market will support a greater variety of specialized input producers, tailoring their products to the needs of other firms. Downstream firms benefit from this variety, while at the same time upstream firms benefit from a large number of downstream firms. This is simply a modern restatement of old ideas of forward and backward linkages—that is, firms benefit from proximity of both suppliers and of customers.⁵

In addition to efficiency gains deriving from the size of the goods market, there are also gains from operating in a large labor market. The larger the pool of workers that a firm can access, the more likely the firm will find the exact skills that suit its needs.⁶ If firms are subject to idiosyncratic shocks, then a larger labor market will expose workers to less risk, increasing the probability of reemployment if they are made redundant. More importantly, a large labor market will increase the incentives for workers to undertake training. This argument, like some of those in the product market, turns on increased intensity of competition. In a small market, workers who acquire specialist skills may be “held up” by monopsonistic employers, in which case there is no incentive for them to invest in skills. The presence of a large number of potential employers removes this threat of opportunistic behavior, and thereby increases training incentives.⁷

⁴ See Bernard et al. (2007).

⁵ See Fujita, Krugman, and Venables (1999).

⁶ See Amiti and Pissarides (2005).

⁷ Matouschek and Robert-Nicoud (2005).

A further set of arguments, relating to density of activity as much as to scale of activity, has to do with communication between workers. In many activities face-to-face communication is extremely important.⁸ Face-to-face contact enables higher-frequency interchange of ideas than is possible by e-mail, phone, or videoconference. Brainstorming is hard to do without the ability to interrupt and use parallel means of communication—oral, visual, and body language. Face-to-face communication is also important for building trust, once again by observing the body language and a wide range of other characteristics of one’s interlocutor. By breaking down anonymity, face-to-face contact enables networks of the most productive workers to develop, and promotes partnerships and joint projects between these workers. All these considerations are productivity enhancing.

Increasing returns are also common in provision of public sector goods and services, and again there are several mechanisms. The simple one is technological; many publicly provided services are also public goods and so (by definition) have declining average cost. An important twist on this is that many inputs—including public services and utilities—have a complementary relationship when used in production.⁹ Efficiency in production of goods requires continuous electricity supply *and* water supply *and* roads *and* security. If any or all of these inputs are subject to increasing returns then returns to scale for the package as a whole are amplified.

Increasing returns in the provision of public sector goods, services, and institutions are also based on a much broader argument. There is often suboptimal provision of fundamental governance services—protection of property rights, maintenance of economic and personal security and of the rule of law. One factor determining the quality of the institutional environment for doing business is the level of demand coming from firms for a high-quality environment, and this creates a positive feedback. The larger is the business sector, the greater is the demand for a good business environment, the greater is the political payoff from providing these governance services, and the better is the ensuing business environment. If the initial position was suboptimal, then this feedback is a source of increasing returns—the larger the sector, the closer provision will be to the optimal level.

Spatial Frictions and Economic Geography

The second fact about modern trade and globalization is that distance still matters. This can be seen most clearly by thinking through the externalities of the previous subsection, almost all of which are spatially limited. Many knowledge spillovers occur within very concentrated economic regions—clusters and districts within cities. “Self-discovery” is, by definition, discovery of the characteristics of a particular location. Labor market effects operate within a

⁸Storper and Venables (2004).

⁹See Kremer (1993).

travel-to-work area. Public goods and utilities (such as water supply and security) are typically not easily traded across space. Institutional effects operate partly at a national level but are often subnational, operating at the level of provinces, cities, or just within special economic zones. Notice that the key element of “distance” is slightly different in each of these and other contexts. Distance matters as it raises the monetary and time cost of trading goods, of moving workers, or of spreading ideas. It is also underlies jurisdictions, and hence manmade barriers to mobility.

The product market mechanisms are the ones for which globalization has most obviously reduced the importance of distance, although even here it is far from eliminated. Small trade frictions can be used by firms as a way of softening competition, as witnessed by the long-running struggle to turn the EU into a truly integrated market. Distance has a large effect in choking off trade flows, and gravity models of trade suggest that the full costs of trade are far higher than suggested by simply looking at tariffs or transport costs.¹⁰ Part of the cost is associated with time-in-transit, and “just-in-time” management techniques have increased the cost of slow or uncertain delivery times. Hummels (2001) estimates the cost of time-in-transit for manufactures to be nearly 1 percent of the value of goods shipped *per day*.

The spatial dimension provides a way of estimating the quantitative importance of increasing returns, and there is a well-established literature measuring the productivity advantages of large scale urban centers. A recent survey of the literature (Rosenthal and Strange 2004) reports a consensus view that, over a wide range of city sizes, doubling city size is associated with a productivity increase of some 3–8 percent. This is a large effect—moving from a city of 50,000 inhabitants to one of 5 million is predicted to increase productivity by more than 50 percent. Analysis of the spatial scale of these effects indicates that they are quite concentrated. Work on the United Kingdom suggests that they attenuate rapidly beyond 45 minutes of driving time (Rice, Venables, and Patachini 2006). Effects also vary across sectors, generally being larger in higher-technology sectors of activity.

Fragmentation

The third characteristic of globalised trade that has to be taken into account is fragmentation—otherwise known as unbundling or splitting the value chain. It refers to the fact that the different stages involved in producing a particular final good are now often performed in many different countries. Particular “tasks” may be outsourced (or offshored) and can be undertaken in different places. This occurs in response to productivity or factor price differences, and may take place within a single multinational firm or through production networks of supplier

¹⁰See Anderson and van Wincoop (2004).

firms.¹¹ Although widely reported, solid evidence on the extent of fragmentation is quite hard to obtain. For example, it is estimated that just 37 percent of the production value of a typical U.S. car is generated in the United States. A recent survey is contained in Grossman and Rossi-Hansberg (2006), whose discussion includes the fact that the share of imports to inputs in U.S. goods manufacturing has doubled to 18 percent over a 20-year period. In China, it is estimated that domestic value added amounts to around 60 percent of the value of goods exported, this falling to less than 30 percent for equipment (electrical, communications, and transport) sectors.¹² It is estimated that up to 78 percent of East Asian trade is in intermediate goods.

Fragmentation means that comparative advantage now resides in quite narrowly defined tasks. This is highly beneficial for developing countries, particularly when accompanied by learning effects and increasing returns to scale. It means that countries do not have to acquire capability in all stages of an integrated production process, but can instead specialize in a narrow range of tasks, facing a much easier learning process.

3. Implications for Growth and Development

What are the implications of these facts for the world economy and for growth? There are several important points.

Equilibrium Disparities

Diminishing returns to scale are a force for convergence. A city or country that offers high returns to firms or workers will attract inflows of these factors, thus reducing their returns and causing convergence toward equilibrium. A consequence of this is that an economic model dominated by diminishing returns offers no theory of international or spatial inequality. Some exogenous reason may be postulated as to why regions differ, but economic processes then tend to reduce these differences.

Spatially concentrated increasing returns offer a very different view. If a city or country offers high returns to firms or workers then they are attracted to the area, which increases their returns further and amplifies any initial differences. The process may be unbounded: some regions empty out, or all of world production of some commodity takes place in a single location. Or it may be bounded as when, beyond some point, diminishing returns come to dominate scale effects. Thus, cities eventually run into diminishing returns because of congestion costs. Production of a good is not (generally) concentrated in a single location, but dispersed between several because of transport costs (or time

¹¹ See Arndt and Kierzkowski (2001) for discussion of fragmentation, and for more recent treatments see Markusen and Venables (2007) and Grossman and Rossi-Hansberg (2006).

¹² See Cuihong and Jianuo (2007).

differences) in supplying world demand from one place. The most important source of diminishing returns to concentration of activity is that the prices of immobile factors are bid up, which reduces the return to mobile factors. In the urban context, land prices increase, making the city less attractive to mobile workers. In the international context, wages rise, making a country less attractive to mobile firms.

But whether bounded or unbounded, the point is that increasing returns create a force for divergence. Locations may be identical in their underlying characteristics, but economic forces make them different as the economy “self organizes” into clusters. Differences in prices of immobile factors and in income levels are then an equilibrium outcome, not a transient consequence of some initial difference.

Wage Gradients

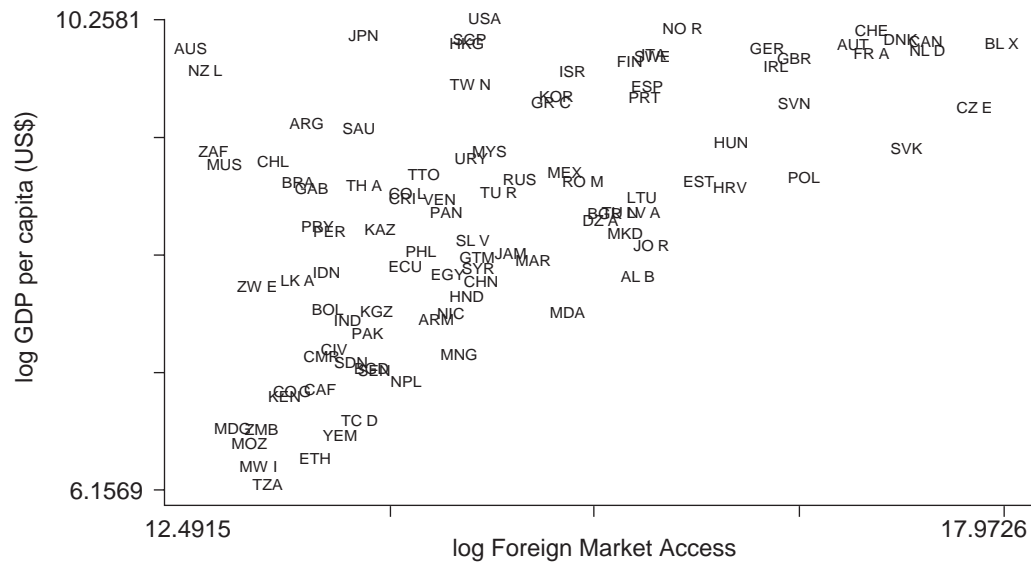
The fact that the benefits of increasing returns to scale and access to large markets depends on proximity to centers of activity means that we should expect to observe wage or income gradients as we move from central to peripheral locations. Venables and Redding (2004) investigate this at the international level. They use international trade data and a gravity model to get a measure of each country’s access to foreign markets, and the relationship between this and per capita income is illustrated in figure 1. Several points stand out. The first is the empty bottom right part of the picture. Good geography, in the sense of good market access, prevents countries from having low incomes. Among countries with good market access there is a wage gradient within the EU countries, and a similar one (at lower income) for countries that were emerging from communism. In the top left, it is clear that a substantial number of countries have escaped the problem of low foreign market access. In some cases this is due to endowments of natural resources, and in others due to the large *own* market effect, reducing the impact of distance from other sources of demand. Adding other controls (factor endowments, physical geography, and social, political, and institutional variables) and undertaking a number of robustness checks, Venables and Redding conclude that proximity to foreign markets is a statistically significant and quantitatively important determinant of income levels. This finding is consistent with the work of Frankel and Romer (1999) who use geography as an instrument for the effect of trade on income.

Lumpy Growth

What does economic growth look like in this world? It has three characteristics, each of which is a sort of “lumpiness.”

The first is that it is lumpy or uneven across *space*. Instead of all regions growing in parallel, they have a tendency to grow in sequence. Some countries or regions may grow fast as increasing returns cut in and they transit from one “convergence club” to another.

Figure 1: GDP Per Capita and Foreign Market Access



Other countries will be left out of the process. To see the logic behind this, suppose that the world is divided between high-income countries that have manufacturing activity and low-income countries that do not. This is an equilibrium, as wages in former group are matched by the high productivity associated with scale, so there is no incentive for any firm to relocate. Now suppose that some growth process is going on in the world economy as a whole—such as technical progress—that is raising income and hence demand for manufactures. This increases employment and raises wages in the manufacturing regions until a point is reached at which the productivity advantage of being in an existing cluster is outweighed by the higher wages in the cluster. It then becomes profitable for some firms to relocate, but where do they go? Spatially concentrated increasing returns mean that they will tend to cluster in a single newly emergent manufacturing location. A situation in which all countries gain a little manufacturing is unstable; a country that gets even slightly ahead will have the advantage, attracting further firms. As this process runs through time, countries join the group of high-income nations in sequence. Each country grows fast as it joins the club, and is then followed by another country, and so on.

Of course, the strict sequence of countries should not be taken literally. The key insight is that the growth mechanism does not imply more-or-less uniform convergence of countries, as has been argued by some economic growth theorists (see, for example, Lucas 2000). Instead, growth is sequential, not parallel, as manufacturing spreads across countries and regions. Which countries go first, and the order in which countries join the high-income club, is determined by a range of factors to do with endowments, institutions, and geography. Proximity to existing centers may be an important positive factor, as with development in Eastern Europe

and with regions of Mexico, East Asia, and China.¹³ Institutional failure, a bad macroeconomic environment, or civil war are powerful negative factors.

The second aspect of lumpiness is that growth is uneven in *time*. Small initial differences between countries may mean that some countries get ahead while others are left behind for a long period of time. Countries that fall below some threshold—in terms of investment climate and institutional quality—will not participate in the process.

The third feature is that growth may be lumpy across *products*, as it is likely to be concentrated in particular sectors. This occurs as many of the sources of increasing returns are sector specific—that is, the acquisition of skills and capacity in quite narrowly defined sets of products or tasks. A corollary of narrow specialization is of course that growth will be highly export dependent. This is consistent with the Asian experience, and with the empirical work on growth accelerations (see, for example, Hausmann, Pritchett, and Rodrik 2005) that we noted above. Direct measures of the sectoral concentration of exports are given by Hausmann and Rodrik (2003). They look in detail at the exports to the United States of Bangladesh, Pakistan, Honduras, the Dominican Republic, the Republic of Korea, and Taiwan (China), using data at the highly disaggregated 6-digit level (for example, “hats and other headgear knitted or from textile material not in strips”). Even at this very fine level of disaggregation there is a high level of specialization. For each of these countries, the top four product lines account for more than 30 percent of exports to the United States and there is little overlap in the top product lines of quite similar countries; only six product lines are in the top 25 for both these countries. Bangladesh is successful in exporting shirts, trousers, and hats (but not bed linen or footballs), while Pakistan does well in bed linen and footballs. Hausmann and Rodrik conclude that “for all economies except possibly the most sophisticated, industrial success entails concentration in a relatively narrow range of high productivity activities.”¹⁴

Initial Difference—Who Gains and Who Is Left Behind

In the preceding argument we emphasized that inequalities could emerge even between similar (or *ex ante* identical) countries. But given that there are underlying differences between countries, what sort of countries might expect to do well, and what countries badly out of globalization? We make just two points.

The first is that some countries have failed to meet the necessary conditions for full integration in the global economy and inclusion in production networks. The obvious comparison is between the performance of much of Asia and of Africa. Asian manufacturing has crossed the threshold, and diversification into

¹³ The implications of market size and trade barriers are investigated by Puga and Venables (1999), who assess the alternatives of export-oriented versus import-substituting manufacturing development. See also Kremer and Chamon (2006) for a model of a “development queue.”

¹⁴ Imbs and Wacziarg (2003) point to the fact that the degree of diversification increases in the earlier stages of diversification before declining.

exports of manufactures has raised wages and has been contagious across the region. In Africa this process has yet to start. Africa has lagged behind partly because its economic reforms lagged Asia: in the 1980s when Asia first broke into global markets no mainland African country provided a comparable investment climate. “Lumpiness” in the development process means that these initial differences translate into very large differences in outcomes, and may create long lags before Africa can attract modern sector activity. A number of African cities, such as Accra, Dakar, Mombassa, Maputo, and Dar es Salaam, now offer investment climates as good as those offered earlier in Asia. However, these cities now face the obstacle that Asia has a headstart and is benefiting from clusters of shared knowledge, availability of specialist inputs, and pools of experienced labor. Africa’s potential export locations do not have these advantages and so face an entry threshold or “chicken-and-egg” problem. Until clusters are established, costs will be above those of Asian competitors; but *because* costs are currently higher, individual firms have no incentive to relocate.

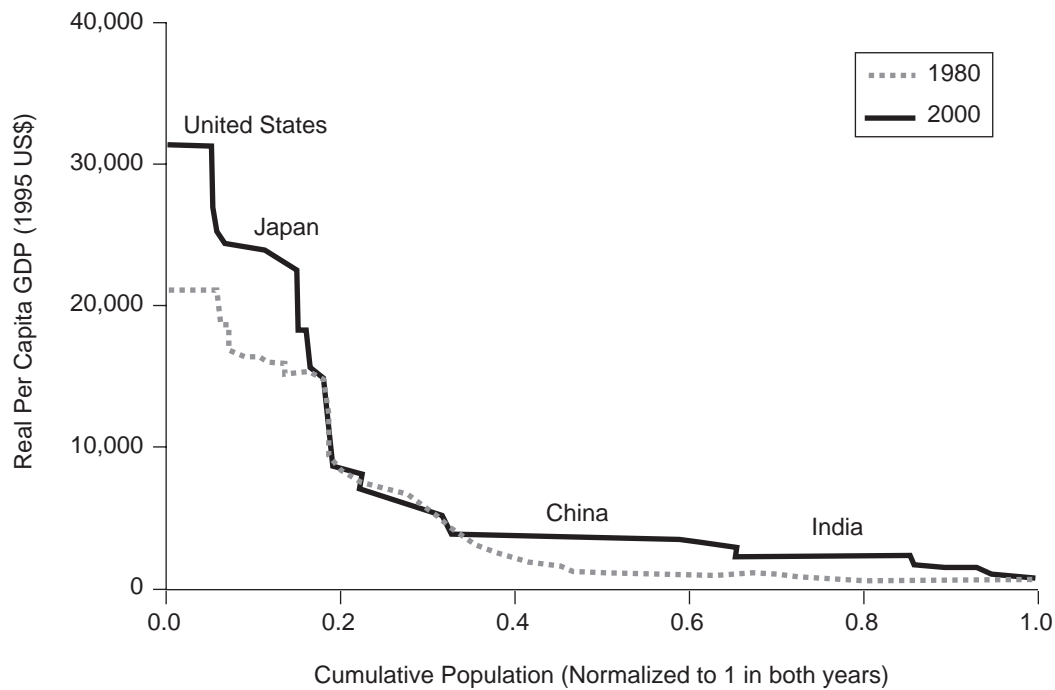
A second point is that globalization tends to benefit the extremes and squeeze the middle. It permits a finer division of labor, enabling the highest-skilled countries to concentrate on skill-intensive tasks, and the lowest-skilled to concentrate on low-skill tasks—subject to crossing a capability threshold. What happens to middle-income countries during this process? They do not have an “extreme” comparative advantage to exploit, and at the same time have been faced with changing terms of trade, due largely to increased supply from Asia. Price changes of this magnitude have brought gains to consumers worldwide, but have also placed producers under pressure. The pressure has not fallen primarily on producers in high-income countries but has instead been felt in middle-income countries, which are producing goods that are technologically relatively unsophisticated. This is one of the reasons why globalization appears not to have benefited many middle-income countries.¹⁵

The relative income gains of people in countries at different points in the world income distribution are illustrated vividly in figure 2, which is based on Leamer (2007). The horizontal axis of figure 2 is cumulative population shares, with the poorest country at the extreme right, and richest at the extreme left, while the vertical axis is per capita income. Comparing world income distributions in 1980 and 2000, it is striking that the populations of high- and low-income countries have done relatively well. A group at the very bottom has seen no progress, and neither has the middle-income group.

Of course, this figure masks a lot of detail and it would be incorrect to attribute all the changes to globalization. But it illustrates our two points. The lowest-income countries have remained below the threshold and failed to see income growth. Also, the finer division of labor that is facilitated by globalization encourages specialization at extremes, while tending to squeeze the middle.

¹⁵See also Summers (2006).

Figure 2: Changes in the World Income Distribution



Source: Leamer 2007.

4. Policy Issues: Threshold Effects and Coordination Failures

What are the policy implications of the economic environment that we have described? There are multiple market failures and plenty of arguments for policy intervention, yet at the same time spatial policy—regional policy in particular—has generally been a failure. Researchers in new economic geography have been hesitant to make policy recommendations, and this paper will not go far outside that tradition.

In thinking about policy there are (at least) two difficult sets of issues that need to be understood. The first set of issues is concerned with the threshold effects and coordination failures that arise in the presence of external economies of scale, and we discuss them in this section. The second set is concerned with linkages and spillover effects; how do changes in one country or region have an impact on other countries and neighboring regions? We discuss this issue in section 5.

The world we have described is one of lumpiness and quite extreme specialization. A corollary is that it is difficult to get started in a new industry or location, although the activity is viable once scale economies have been attained. There are several policy responses. The first is to increase the confidence with which investors see future benefits, and also increase the ability to borrow

against future returns. The second is to internalize any external benefits that new entrants create. The third response is to offer temporary support through some form of industrial policy. We discuss these options through two examples; the growth of new cities and prospects for African export diversification.

Threshold Effects—Growing an Urban Structure

Cities are areas of high productivity and, in many developing countries, of rapid economic growth. But economies of scale are balanced against diseconomies of urban congestion and pollution, suggesting that there is an optimal urban size. We know little about what this size is; it will vary according to the geography, industrial structure, and governance of each city.¹⁶ Threshold effects do however suggest that there may be a tendency for cities to become larger than is optimal. The reason is that external economies of scale make it hard to start new cities. Small cities do not benefit from urban-scale economies. Therefore, they are unattractive to firms and as a consequence fail to grow into large cities. Instead, migration flows into existing cities, leading to the growth of megacities. Since new urban centers are hard to establish, existing cities grow well beyond their optimum scale and possibly to the point where, at the margin, diseconomies such as congestion outweigh positive economies of scale. Such an outcome is clearly inefficient and the policy question is: how should growth of new cities—or the deconcentration of existing ones—be promoted?

There are likely to be two distinct market failures here. One is that increasing returns to scale gives rise to externalities, so that the benefits *created* by a single economic agent (a migrant to the city or a relocating firm) are not internalized. The other is that the benefits *received* by a single economic agent (these are reciprocal externalities, so firms and migrants receive as well as transmit benefits) accrue over time and their future development will be highly uncertain. These two issues require different policy responses, and let us take the second one first.

When does it become worthwhile for a single “small” firm or individual to make a decision to invest in a new city?¹⁷ The answer is that it will be sooner the more confident the investor is in the future development of the city, and the greater is his ability to capture the future economic benefits, most obviously by having secure property rights to the land on which the investment takes place. It will also be sooner the easier it is for the individual to borrow against these future benefits. These are all areas where policy can have a direct and important impact. The first may require government investment, playing the dual role of constructing the new urban infrastructure and also signaling to investors that this particular city (as compared to the numerous other potential city sites) is one in which there is commitment to growth. Given this, long-term property rights in

¹⁶ See Au and Henderson (2004).

¹⁷ This section draws on Henderson and Venables (2008).

urban land and access to credit are then standard prescriptions for making markets work.

Adopting these measures increases the incentives to be an early mover from an existing megacity to a new secondary city, but does not move the economy to a “first best optimum.” Investors are investing in the expectation of receiving the external benefits of a dynamic growing city, but they are not capturing the benefits of the externalities that they are themselves creating. There are two textbook solutions to this problem. One is to internalize these benefits through “large developers” who buy up the land in the city, attract firms and immigrants, and then take all the land rents. The other is for the public sector to offer subsidies for the creation of external benefits. In practice, neither of these solutions is likely to be satisfactory. Developers play this role in shopping malls and office developments, but are unlikely to be large enough to capture more than a fraction of the benefits of a city. Public subsidies to the myriad externalities created by urban activity are expensive, difficult to target, subject to abuse, and consequently difficult to recommend.

The important point to take away from this discussion is that, even without compensating for the externalities, policy can move a large part of the way towards efficiency just by the first set of policy measures. Creating confidence that a particular urban site will develop and having property rights such that forward-looking individuals will be induced to invest in the site solves the coordination failure, even if it does not internalize the externality.

Threshold Effects—Can Africa Export Manufactures?

Threshold effects matter for countries, as well as for cities. As we argued above, Africa has, at least until recently, been below the threshold required to be an attractive location from which to source imports.

What is the role for policy? A number of observations follow by analogy with our discussion of cities. Provision of a good business environment and appropriate infrastructure has direct benefits and may also have the effect of signaling commitment to development. Government may reinforce commitment by high-level engagement—the idea of a “developmental state.” Delivering these things in a particular location—perhaps a special economic zone—has two advantages. The first is that provision of a full set of high-quality complementary inputs and utilities is relatively cost effective; complementarity means, roughly put, that it is better to provide inputs well in one place than half as well in two places. The second advantage of a special economic zone relates to our discussion of urbanization. In the long run there are efficiency gains from clustering activity, and in the short run it is important to signal this by committing to a particular location.

Active industrial policy going beyond these measures is controversial. There are multiple market failures in the environment we have described, and hence a case for intervention to reduce coordination failure and internalize externalities.

But direct interventions are hard to target, difficult to withdraw, and subject to political economy manipulation. An alternative policy instrument that merits consideration is trade preferences.¹⁸ Unlike other forms of industrial policy, trade preferences in OECD markets are under the control of OECD governments. This gives them some major advantages over the policies that are available to African governments to provide the (temporary) advantage needed to get cluster formation. First, they are relatively immune from recipient country political economy problems, since they are set by foreign, not domestic, government. Thus, there is no way that trade preference levels can be escalated in support of failing firms. Second, since trade preferences support exports, they offer a performance-based incentive—firms benefit only if they export. Firms therefore face the discipline—on quality as well as on price—imposed by international competition. Rodrik (2004) argues that this discipline was an important positive factor underlying the success of export-oriented strategies, as compared to import substitution. Finally, they are fiscally costless to African governments and virtually costless to OECD governments and so compete with neither government spending on social needs nor aid.

Current practice with trade preferences is not particularly successful in promoting the growth of manufacturing export clusters. However, current practices typically set conditions at variance with some of the characteristics of modern international trade that we noted above. As we saw, much world trade now takes the form of trade in tasks, with production fragmented between many countries and high levels of intermediate trade. This fragmentation is potentially beneficial for sub-Saharan Africa because it is much easier to develop capabilities and grow economies of scale in a narrow range of tasks than in integrated production of an entire product. However, most preferential trading schemes have rules of origin that prohibit this sort of trade, insisting that a high proportion of value added (or transformation) is performed within the country or region, and ruling out sourcing intermediate inputs from the lowest cost source (often China). The implication for preferential trading schemes is that rules of origin must be liberal enough not to exclude countries from participation in such production networks.

The second point is that preferences should be open to countries that are close to the threshold of developing globally competitive clusters of activity. Preference schemes that just favor the least-developed countries have the effect of excluding countries such as Kenya and Ghana, which have just arrived at the threshold and are manifestly more likely to develop manufacturing exports than are Liberia and Somalia. The effect of concentrating on the least-developed countries is therefore to exclude precisely those African countries best placed to take advantage of preferences for export diversification.

¹⁸See Collier and Venables (2007).

In practice, if preferences are offered with rules of origin allowing specialization in tasks, and open to members beyond least-developed countries, will export diversification occur in response? These conditions are offered by one policy regime, the special rule for apparel contained in the U.S. African Growth and Opportunity Act (AGOA), and the evidence is of a strong export response, with apparel exports from Kenya, Madagascar, Lesotho, and other areas of Southern Africa soaring from around US\$300 million to US\$1.5 billion per year (Collier and Venables 2007).

5. Policy Issues: Spatial Linkages and Spillover Effects

Some countries stand little chance of breaking directly into world manufacturing export markets, perhaps because of very low starting positions, or perhaps because of natural geography, such as being landlocked. These economies are relatively dependent on the performance of their neighbors. This is an aspect of a larger question: given some established pattern of economy activity between cities or regions, what are the spatial linkages between regions? At one level this is a straightforward question of comparative statics. How do the effects of some exogenous or policy change spread out across regions? Yet it is a question about which we do not yet have all the answers. This is partly because the specification of the policy shock often needs clearer thinking: is it contained within one region, does it affect many, or is it an “integrative shock,” affecting regions only via its effect on the links between them? But even given the specification of the policy shock, the presence of increasing returns means that comparative statics is difficult, and effects can be qualitatively ambiguous depending in a delicate way on characteristics of the regions and the linkages between them.

Spatial Linkages: Complementary or Competing Regions?

How does change in one region affect neighboring regions? An analytical structure to address this question was developed in work for the U.K. government, and deals with the effects of shocks (such as infrastructure or house supply) on the region directly affected, and on other regions.¹⁹ The work sought to provide a simple diagrammatic framework within which interregional linkages could be analyzed. The framework is based on three key relationships that shape interregional linkages. The first is the employment–earnings relationship, a within-region relationship relating earnings in a region to the size of its labor force; the relationship may be increasing or decreasing, depending on returns to scale. The second is the employment–cost of living relationship; within a region, how does additional population change the cost of living? There are

¹⁹Overman, Rice, and Venables (2007).

some factors that would make this negative (more intense competition and more varieties of nontraded goods meaning that an economically large region has a lower cost of living) and others that make it positive, mainly commuting costs and the prices of land and houses. The third relationship is migration; an interregional relationship, measuring the responsiveness of population to regional differences in real earnings.

Depending on the shape of these relationships equilibrium could be stable or unstable. Concentrating, for obvious reasons, on stable equilibria, regions may be in either a “complementary” or a “competing” relationship with each other. When regions are complementary the effects of a positive shock that originates in one region are spread across other regions. Thus, an increase in productivity in one region will trigger in-migration, which tends to dampen the productivity increase in this region while increasing productivity in others. When regions are competing, economic adjustment has the opposite effect, amplifying the impact of a productivity shock in one region while causing productivity in other regions to fall. This might arise because increasing returns mean that an increase in the labor force is associated with *higher* productivity, and equilibrium is restored only by large changes in population and regional living costs. Understanding whether parameters are such that regions are “complementary” or “competing” is fundamental for evaluating policy. For example, the U.K. government has launched debate on whether to relax planning regulations to allow more housebuilding in the booming southeast of England. If regions are in a competing relationship, the effect of this will be to *increase* house prices in the region and amplify regional differentials. The mechanism is population inflow combining with increasing returns to scale to generate higher earnings, which induces further population inflow until choked off by higher house prices.

While this example may not be directly relevant to developing countries, it contains several lessons. First, it is possible to synthesize key relationships from the many theoretical models in this area in a simple “reduced form” manner. The way in which these relationships interact to determine interregional linkages can then be studied in a straightforward way. Second, these relationships are amenable to empirical investigation, both by looking at the separate relationships, and by the behavior of the system as a whole—whether regions are competing or complementary can be identified from the data. And third, doing this is a necessary input for undertaking regional policy; without it, even the sign of response to policy change is unknown. These approaches need to be applied to developing countries, for example to analyze the problem of lagging regions in a fast-growing economy. To do this requires both analytical work on the main channels through which regions are interlinked, and empirical work establishing whether regions are complementary or competing.

Integrative Shocks: A Force for Convergence or Divergence?

Much spatial policy deals not with shocks within a region, but shocks aimed at changing the relationship between regions—for example trade policy or road and communications improvements. What do we know about effects of such integrative shocks?

Here too there are ambiguities. Under some circumstances a reduction in trade costs between two regions will reduce disparities, while under other circumstances it may increase them. The mechanisms essentially derive from interplay between product markets and factor markets. The product market mechanism is that firms want to locate where there is good market access. Furthermore, if one region is slightly larger than the other, then reducing trade costs will cause firms to move to the larger location and export to the smaller one. Differences between regions are therefore amplified. The factor market mechanism is that firms relocate in response to wage differences and will be more likely to relocate to a low-wage region the lower are trade costs. Putting these effects together in a general equilibrium framework (in which both the location of demand and wage rates may be endogenous) typically yields an inverse-U shaped relationship between trade costs and regional disparities. Reducing trade costs from a high to an intermediate level tends to increase dispersion. But reducing them from an intermediate level to a low level will reverse this, leading to convergence.

What is the evidence? Some work on this has been done in the EU. There has been a continuing worry that the centripetal forces would dominate, drawing activity into the center of the EU at the expense of peripheral regions. However, most recent research suggests that trade costs are low enough for further reductions to have the effect of reducing rather than increasing disparities. This EU-based work leaves issues open for developing countries. Once again these are perfectly researchable issues that need to be studied as input to policy formation.

6. Conclusions

There are many reasons for variation in the prosperity of countries and regions. Some factors are truly exogenous—such as first nature geography—and others are a function of political and institutional history. On top of these exogenous factors, we need to place a theory of the location of economic activity. International trade theory gets us part of the way, and the new economic geography approach broadens this out to capture (in a micro-founded and evidence-based way) endogenous variations in productivity. The approach offers an explanation of the emergence of disparities between countries and regions, and offers an explanation of their persistence. It suggests that even as globalization causes dispersion of activity, so economic development will be in sequence, not in parallel; some countries will experience rapid growth while

others will be left behind. At the micro level, it points to the importance of overcoming coordination failures and threshold effects in growing new cities and in establishing new industries in developing economies.

This literature provides a basis for new and innovative thinking about policy, but a note of caution is essential. Policy is difficult because there are multiple market failures. Even in the simple world of theory policy does not map continuously (and perhaps not even uniquely) into outcomes, because there is rapid change and there may also be multiple equilibria. We have seen in section 5 the way in which comparative statics may depend in a delicate way on characteristics of the economy. But the fact that policy is not straightforward is not surprising to researchers on growth and development, and the lens of economic geography provides some further insights for grappling with these problems.

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