

CHAPTER 2

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

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The role of trade in economic growth—especially exports from the modern sector—has become 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 they are associated with an average increase of 13 percentage points in the share of trade in income (over a five-year period), as well as an acceleration of the rate of transfer of labor into manufacturing. Pattillo, Gupta, and Carey (2005) point to the association between growth accelerations and trade in Sub-Saharan Africa (see also Hausmann, Pritchett, and Rodrik 2005).

This chapter draws on recent work in trade and economic geography to provide a lens through which to assess trade, globalization, and economic growth. It investigates how globalization shapes countries' growth prospects and draws some policy implications. The analysis in this chapter 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

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defining the geographic 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. These facts are discussed in the next section of the chapter.

The chapter then draws out implications from these facts and argues 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 geographic space, it will be uneven being concentrated in some 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 chapter discusses policy implications, focusing on two questions. The first is, 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. The second question is, how should we understand the economic relationship between regions or countries? Are developments in one region complementary or competing with developments in another?

Modern Trade and Production

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

Increasing Returns to Scale

Standard economic modeling draws heavily on the assumption of diminishing returns to scale, although increasing returns are inherent to much modern sector activity.¹ Increasing returns arise through a variety of mechanisms, some narrowly technical and others related to 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 (that is, occur-

1 There is an enormous body of work on increasing returns, dating from (at least) the work of Young (1928).

ring 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. Knowledge spillovers occur 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. A large body of literature points to the spatial concentration of innovative activities (Audretsch and Feldman 2004). Location-specific knowledge spillovers also arise if firms learn about the characteristics (for example, 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 learning about real characteristics of locations, or may simply be a “herding” story as firms 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 reduces 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, an increase in the size of the market and the associated increase in competition will cause higher-productivity firms to grow and lower-productivity firms to exit. This argument supports the empirical finding that much of the gain from trade liberalization comes from a change in the mix of firms within each sector, favoring high-productivity firms at the expense of low-productivity firms (see Bernard and others 2007).

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 upstream firms benefit from the large number of downstream firms. This is simply a modern restatement of old ideas of forward and backward linkages: firms benefit from proximity to both suppliers and customers (see Fujita, Krugman, and Venables 1999).

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 a firm can access the more likely it is to be able to find the exact skills that suit its needs (see Amiti and Pissarides 2005). 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, thereby increasing training incentives (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 (Matouschek and Robert-Nicoud 2005). Such 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 contact is also important for building trust, by observing the body language and a 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 enhance productivity.

Increasing returns are common in the provision of public sector goods and services. The simplest mechanism is technological: many publicly provided services are also public goods, which by definition have declining average costs. An important twist on this is that many inputs—including public services and utilities—have a complementary relation when used in production (see Kremer 1993). Efficiency in production of goods requires the continuous supply of electricity, water, roads, and security. If any of these inputs is subject to increasing returns, 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 broader argument. Provision of fundamental governance services—protection of property rights, maintenance of economic and personal security, and the rule of law—is often suboptimal. One factor determining the quality of the institutional environment for doing business is the level of demand by firms for a high-quality environment, which creates positive feedback. The larger the business sector, the greater the demand for a good business environment, the greater the political payoff from providing these governance services and the better the ensuing business environment. If the initial position was suboptimal, 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 about the externalities cited in 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, the discovery of the characteristics of a particular location. Labor market effects operate within a travel-to-work area. Public goods and utilities are typically not easily traded across space. Institutional effects operate partly at the national level but also at the level of provinces, cities, or special economic zones. The key element of “distance” is slightly different in each of these contexts. Distance matters because it raises the monetary and time cost of trading goods, moving workers, or spreading ideas. It also underlies jurisdictions and hence man-made 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 European Union into a truly integrated market. Distance has an important effect in choking off trade flows; gravity models of trade suggest that the full costs of trade are far higher than those suggested by simply looking at tariffs or transport costs (see Anderson and van Wincoop 2004). Part of the cost is associated with time-in-transit. 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 for each day in transit.

The spatial dimension provides a way of estimating the quantitative importance of increasing returns. A well-established body of literature measures the productivity advantages of large urban centers. A recent survey of that 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 driving time (Rice, Venables, and Patachini 2006). Effects also vary across sectors, generally being larger in higher-technology sectors.

Fragmentation

A third characteristic of globalized trade is fragmentation, also known as unbundling or splitting the value chain. Fragmentation refers to the fact that the different stages of producing a final good are now often performed in many different countries. Particular tasks may be outsourced (or offshored) and undertaken in different places. Fragmentation is a response to differences in productivity or factor prices; it may take place within a single multinational firm or through production networks of supplier firms (see Arndt and Kierzkowski 2001; Grossman and Rossi-Hansberg 2006; Markusen and Venables 2007).

Although widely reported, solid evidence on the extent of fragmentation is hard to obtain. For the United States it is estimated that just 37 percent of the production value of a typical American car is generated in the United States. Grossman and Rossi-Hansberg (2006) report that the share of imports in inputs to U.S. goods manufacturing doubled to 18 percent over a 20-year period. In China it is estimated that domestic value added amounts to about 60 percent of the value of exported goods (the figure falls to less than 30 percent in the electrical, communications, and transport sectors) (Cuihong and Jianuo 2007). 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, mastery of which requires a much easier learning process.

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, this reducing their returns and giving convergence to 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.

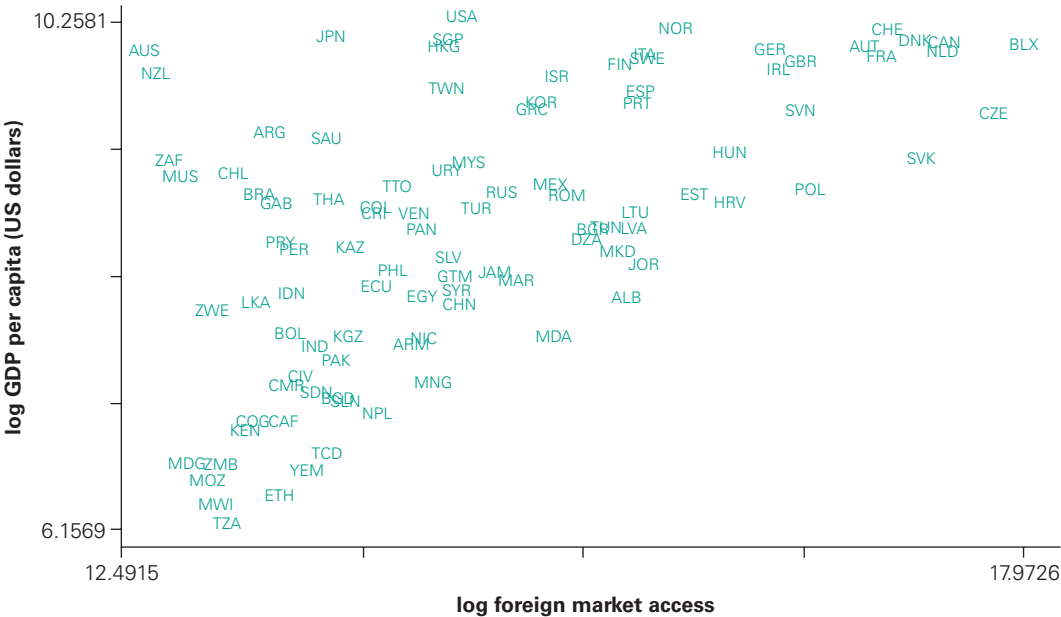
Spatially concentrated increasing returns offer a very different view. If a city or country offers high returns to firms or workers then they are attracted to the area, this increasing their returns further and amplifying any initial differences. The process may be unbounded: some regions could empty out altogether, with all world production of some commodity taking place in a single location. Alternatively, if beyond some point diminishing returns dominate scale effects, the process would be bounded. 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 across several locations because of transport costs (or time 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, reducing 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 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 one should expect to observe wage or income gradients as one moves from central to peripheral locations. Redding and Venables (2004) use international trade data and a gravity model to measure each country’s access to foreign markets. They then compare this measure with per capita income. Several points stand out from this relation (figure 2.1). The first is the empty bottom right part of the figure: 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 European Union and a similar one (at lower income) for transition economies. In the top left, it is clear that a substantial number of countries have escaped the problem of poor foreign market access. Some have done so as a result of good endowments of natural resources; others have done so as a result of the large own-market effect, which reduces 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

Figure 2.1 GDP Per Capita and Foreign Market Access



of robustness checks, Redding and Venables 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 growth is lumpy or uneven across space. Rather than growing in parallel, regions will have a tendency to grow in sequence. Some countries or regions may grow rapidly, as increasing returns set in and they transit from one “convergence club” to another. 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, which have manufacturing activity, and low-income countries, which do not. This is an equilibrium, because wages in the high-income countries 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—for example, technical progress—is going on in the world economy as a whole 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. Running this process 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.

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 related to endowments, institutions, and geography. Proximity to existing centers may be an important positive factor accounting for development in Eastern Europe and regions of China, East Asia, and Mexico.² Institutional failure, a bad macroeconomic environment, and civil war are powerful negative factors.

² Puga and Venables (1999) investigate the implications of market size and trade barriers. They assess the export-oriented versus import-substituting manufacturing development. Kremer and Chamon (2006) build a model of a development queue.

The second aspect of lumpiness is that growth is uneven over 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 of lumpiness is that growth may be lumpy across products, because it is likely to be concentrated in particular sectors. This type of lumpiness occurs as many of the sources of increasing returns are sector specific, requiring the acquisition of skills and capacity in narrowly defined sets of products or tasks. A corollary of narrow specialization is that growth will be highly export dependent. This is consistent with the Asian experience, and with the empirical work on growth accelerations (for example, Hausmann, Pritchett, and Rodrik 2005) that we noted above. Hausmann and Rodrik (2003) provide direct measures of the sectoral concentration of exports. They look at exports to the United States by Bangladesh, the Dominican Republic, Honduras, Pakistan, the Republic of Korea, and Taiwan (China), using data at the highly disaggregated six-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 similar countries (only six product lines are in the top 25 for both Bangladesh and Pakistan; Bangladesh is successful in exporting shirts, trousers, and hats, 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.”³

Initial Difference: Who Gains and Who Is Left Behind?

The preceding argument emphasizes that inequalities could emerge even between similar (or ex ante identical) countries. Given that there are underlying differences between countries, what sort of countries might expect to do well and which countries poorly as a result 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 exports of manufactures has raised wages and been contagious across the region. In Africa this process has yet to start. Africa has lagged behind partly because its economic reforms lagged those of Asia: in the 1980s, when Asia first broke into global markets, no mainland African country provided a comparable investment climate. Lumpiness in

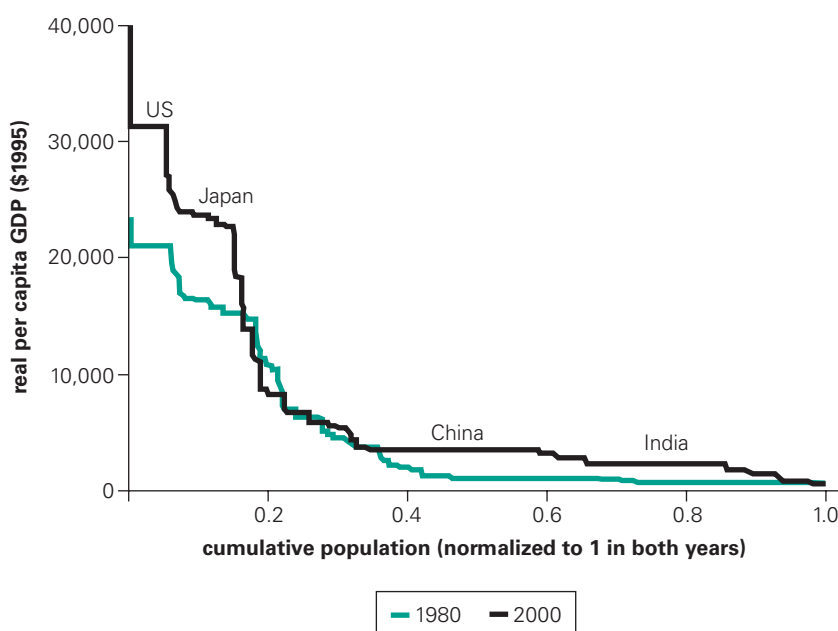
3 Imbs and Wacziarg (2003) note that the degree of diversification increases in the earlier stages of diversification before declining.

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, Dar es Salaam, Maputo, and Mombassa, now offer investment climates as good as those offered earlier in Asia. However, these cities now face the obstacle that Asia has a head start, 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; they therefore face an entry threshold (or chicken-and-egg) problem. Until clusters are established, costs will be higher than those of Asian competitors; because costs are 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 are faced with changing terms of trade, largely as a result of increased supply from Asia. Price changes of this magnitude have benefited consumers worldwide, but they have also put pressure on producers. The pressure has fallen primarily on producers in middle-income countries, which produce goods that are technologically relatively unsophisticated. This is one of the reasons why globalization appears not to have benefited many middle-income countries (Summers 2006).

The relative income gains of people in countries at different points in the world income distribution are illustrated vividly in figure 2.2, based on

Figure 2.2 Changes in World Income Distribution



Leamer (2007). The horizontal axis shows cumulative population shares, with the poorest country at the extreme right and the richest at the extreme left; the vertical axis shows per capita income. Comparison of income distributions in 1980 and 2000 indicates that the populations of high- and low-income countries did relatively well while those in middle- and very-low-income countries saw no progress.

Of course, this figure masks much detail; it would be incorrect to attribute all changes to globalization. But it illustrates the two points posited above. First, the lowest-income countries have remained below the threshold and failed to experience income growth. Second, the finer division of labor that is facilitated by globalization encourages specialization at extremes while tending to squeeze the middle.

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. But spatial policy—regional policy in particular—has generally been a failure. Researchers in new economic geography have been hesitant to make policy recommendations. This chapter will not venture far outside that tradition.

At least two difficult sets of issues need to be understood in thinking about policy. One has to do 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 other has to do with linkages and spillover effects: how do changes in one country or region affect other countries and neighboring regions? We discuss this issue in the following section.

The world described here is one of lumpiness and extreme specialization. This means that it is difficult to get started in a new industry or location even if an activity would be viable once scale economies were attained. There are several policy responses to this problem. The first is to increase both the confidence with which investors view future benefits and the ability to borrow against future returns. The second is to internalize any external benefits that new entrants create. The third is to offer temporary support through some form of industrial policy. These options are analyzed through two examples: the growth of new cities and prospects for African export diversification.

Threshold Effects: Growing an Urban Structure

Cities have high productivity and, in many developing countries, enjoy rapid economic growth. But economies of scale are balanced against diseconomies of urban congestion and pollution, suggesting that there is an optimal urban size. Little is known about what this size is; it varies according to geography, industrial structure, and governance (Au and Henderson 2004). Threshold effects suggest, however, that there may be a tendency for cities

to become larger than is optimal, because external economies of scale make it hard to start new cities. Small cities do not benefit from urban-scale economies; they are therefore 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. Because new urban centers are hard to establish, existing cities grow well beyond their optimum scale, possibly to the point at which, at the margin, diseconomies such as congestion outweigh positive economies of scale. Such an outcome is clearly inefficient. The policy question is, how should the growth of new cities—or the deconcentration of existing ones—be promoted?

Two market failures are likely to be present in this situation. One is that increasing returns to scale give 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?⁴ Investment will take place sooner the more confident investors are in the future development of the city and the greater is their ability to capture the future economic benefits, most obviously by having secure property rights to the land on which the investment takes place. Investment will also occur earlier the easier it is for an individual to borrow against these future benefits. These are all areas in which policy can have a direct and important impact. The first may require government investment, which plays the dual role of constructing the new urban infrastructure and signaling to investors that a particular city (as compared with numerous other potential city sites) is one in which there is a commitment to growth. Given this, long-term property rights in urban land and access to credit are 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 it does not move the economy to a first-best optimum. Investors invest in the expectation of receiving the external benefits of a dynamic growing city, but they are not capturing the benefits of the externalities they create. 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

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

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 externalities, policy can move a large part of the way toward efficiency just by adopting the first set of policy measures. Creating confidence that a particular urban site will develop and establishing property rights so 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 the discussion of cities. Provision of a good business environment and appropriate infrastructure has direct benefits; it may also signal commitment to development. Government may reinforce commitment by high-level engagement—the idea of a “developmental state.” Concentrating attributes 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 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 the discussion of urbanization. In the long run there are efficiency gains from clustering activity; in the short run it is important to signal this by committing to a particular location.

Active industrial policy that goes beyond these measures is controversial. There are multiple market failures in the environment we have described, and hence there is 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 (Collier and Venables 2007). Unlike other forms of industrial policy, trade preferences in Organisation of Economic Co-operation and Development (OECD) markets are under the control of OECD governments. This gives them several major advantages over policies available to African governments to provide the (temporary) advantage needed to get cluster formation. First, such policies are relatively immune to recipient country political economy problems, because they are set by foreign, not domestic, governments. There is thus no way in which their level can be escalated in support of failing firms. Second, because 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 price—imposed by international competition. Rodrik (2004) argues that this discipline was an important positive factor underlying the success of export-oriented strategies relative to import

substitution. Third, such policies are fiscally costless to African governments and virtually costless to OECD governments; they do not compete with government spending on social needs or aid.

Current trade preferences are not particularly successful in promoting the growth of manufacturing export clusters. They typically set conditions that are at variance with some of the characteristics of modern international trade identified above. As we saw, much world trade now takes the form of trade in tasks, with production fragmented across 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) be 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 Ghana and Kenya, which have just arrived at the threshold and are manifestly more likely to develop manufacturing exports than are Liberia or 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.

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 of the African Growth and Opportunity Act (AGOA). The evidence suggests a strong export response, with apparel exports from Kenya, Lesotho, Madagascar, and countries in southern Africa soaring from about \$300 million to \$1,500 million a year (Collier and Venables 2007).

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, and 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 com-

parative statics. How do the effects of some exogenous or policy change spread out across regions? Yet it is one about which all the answers are not known. This is partly because the policy shock needs to be clearly specified: is it contained within one region, does it affect many regions, or is it an “integrative shock” that affects regions only through its effect on the links between them? Even given the specification of the policy shock, the presence of increasing returns means that comparative statics analysis is difficult; 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 British government, and deals with the effects of shocks (such as infrastructure or house supply) on the region directly affected, and on other regions (Overman, Rice, and Venables 2007). The work provides a simple diagrammatic framework within which inter-region linkages could be analyzed. The framework is based on three key relationships that shape inter-region 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? Some factors make the effect negative (more intense competition and more varieties of nontraded goods mean that an economically large region has a lower cost of living); others, mainly commuting costs and the prices of land and houses, make it positive. The third relationship is migration; an inter-regional 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 have either a complementary or a competing relation with one another. When regions are complementary, the effects of a positive shock that originates in one region spread across other regions. Thus an increase in productivity in one region will trigger in-migration, which tends to dampen the productivity increase in the region while increasing productivity in other regions. 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. The British government launched debate on whether to relax planning regulations to allow more house building in the booming southeast of England. If regions

are in a competing relation, allowing more housing construction will 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, this inducing further population inflow until choked off by higher house prices.

Although 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 inter-regional linkages can then be studied in a straightforward way. Second, these relationships are amenable to empirical investigation. By looking at both the separate relationships and the behavior of the system as a whole, researchers can determine whether regions are competing or complementary. Third, doing this research is a necessary input for undertaking regional policy; without it, even the signs of a response to policy change are unknown. These approaches need to be applied to developing countries, to analyze the problem of lagging regions in a rapidly growing economy, for example. Doing so requires both analytical work on the main channels through which regions are linked 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 is known about the effects of such integrative shocks?

Here, too, there are ambiguities. Under some circumstances a reduction in trade costs between two regions reduces disparities; under other circumstances it may increase them. The mechanisms derive from the interplay between product markets and factor markets. The product market mechanism is that firms want to locate where there is good market access. If one region is slightly larger than the other, then reducing trade costs will cause firms to move to the larger location, and to 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 relation 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 does the evidence show? There has been a continuing worry in Europe that centripetal forces would dominate, drawing activity into the center of the European Union at the expense of peripheral regions. In fact, 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.

Conclusions

There are many reasons for variation in the prosperity of countries and regions. Some factors are truly exogenous—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. This 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, since there is rapid change and there may also be multiple equilibria. 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 of growth and development, and the lens of economic geography provides some further insights for grappling with these problems.

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