Chapter 12

Urban and Regional Growth

Peter Sunley

The Mysteries of Urban and Regional Growth

In economic terms, 1998 was a hard year in the Scottish Borders. The long decline in the region's woolen textile industry, due in large part to increasing foreign competition, was compounded by the closure of electronic components plants in response to over-capacity in world markets. The region has lost 3,000 manufacturing jobs in three years, and local commentators bemoan the region's poor communications and predict entrenched unemployment and out-migration. Just fifty or so miles to the North however, the economy of the city of Edinburgh provided a striking contrast. Buoyed by the devolution of political power to a new Scottish Parliament, media, legal, and other business services mushroomed, and financial services and tourism continued to thrive, despite rising congestion costs. The aim of this chapter is to review recent work on the causes of such pronounced local differences in economic growth. One of the key themes of recent economic geography is that despite the ever-increasing integration of local economies into global flows of trade and capital, such local economic differentiation remains endemic to capitalism, and may even be intensifying as transport and communication costs fall. Despite the numerous glossy predictions of the death of distance and the end of geography, local and regional differences in growth may be intensifying across the industrialized world. Thus, in the era of slower growth since 1973, convergence between sub-national regions has at most been slow, and authors have suggested a resurgence of regions as meaningful economic units (Scott, 1998). Similarly, widespread urban decline associated with deindustrialization has been replaced by talk of an urban revival (Frey, 1993), and recentralization in some cities (Cheshire, 1995). Above all, the search for simple trends in urban and regional disparities has been confounded by the new complexity and unpredictability of local economic changes. In the developing world too, regional and urban inequalities have reached unprecedented scales. Thus, it seems more important than ever to understand the processes causing local economic growth.

Writing a decade ago, Schoenberger (1989) claimed that while geographers have a good understanding of the factors underlying economic growth, much less is known

about precisely how these factors combine in specific places. In retrospect this conclusion seems over-confident, as the certainty about basic factors has been brought into question. Partly this reflects a sense of unease surrounding economic growth, with the recognition that aggregate economic growth is not an end in itself but a possible rather than inevitable means to higher standards of living. It also reflects an increasing awareness of the difficulty of measuring growth when many economic outputs and inputs, as well as the real costs and externalities of growth, are hard to quantify and to price, and remain invisible to official statistics. More specifically, however, this uncertainty reflects a widespread dissatisfaction with conventional theories of economic growth and a renewed search for more realistic insights into its prerequisites and dynamics. As this chapter will show, many of these new approaches attempt to incorporate increasing returns and more intangible factors into accounts of economic growth. There has been a shift, both in economics and geography, towards a focus on "softer" factors such as knowledge, innovation, and learning. Advantages have come to be seen less as natural and pre-given and increasingly as constructed and accumulated endogenously over time through economic activity itself. However, despite these common themes, major methodological and theoretical differences exist in the approaches taken to such issues. While economists and regional scientists have dusted off their parsimonious formal models of abstract locational landscapes, economic geographers have been more inclined to adopt evolutionary approaches to the understanding of growth. Instead of distilling the fundamentals of the growth process into mathematical models, this evolutionary economic geography has highlighted the social and institutional advantages of more successful regional and urban economies. This chapter compares the relative strengths and weaknesses of these two types of approach.

The Rediscovery of Increasing Returns

Increasing returns occur when any defined increase in inputs generates a disproportionately larger increase in quantities of outputs. It has long been known that one means of achieving increasing returns is through agglomeration economies. Two sorts have conventionally been identified. Localization economies arise where firms in the same industry cluster together. Marshall (1919) described the three classic types of localization economies: the formation of a pool of skilled labor, the nearby presence of supplying and supporting industries, and the local circulation of trade knowledge and secrets. Urbanization economies, on the other hand, arise when different industries locate in an urban area and benefit from general infrastructural advantages and common externalities. Cramming different trades and industries together in close quarters may also stimulate innovation so that a diversity of industries may increase growth (Jacobs, 1970). Increasing returns were fundamental to Myrdal's (1957) cumulative causation approach which identified types of centripetal backwash effects.[1] Keynesian and Kaldorian approaches also argued that regions with fast-growing outputs and exports would benefit from increasing returns through faster productivity growth.

In contrast, mainstream economics has conventionally been dominated by the decreasing marginal returns[2] assumed by neoclassical growth theory and by comparative advantage. However, in recent years increasing returns have also entered

the economics mainstream for four main reasons. First, there has been mounting theoretical dissatisfaction with the neoclassical growth model. It assumes that there are decreasing returns to the main factors of capital and labor, so that the long-term rate of growth is determined by the growth of technology (Rigby, this volume). Despite this, technological change is left as an unexplained residual. Second, the empirical predictions of this model have looked increasingly untenable. The model predicts long-run convergence in rates of growth across both countries and regions, but there is little corroborating evidence. Studies of the movements of regional incomes per head in North America, Europe, and Japan have found that regional incomes over the long term converge at a rate of about 2 percent per annum (Barro and Sala-i-Martin, 1995), which is much slower than one would expect from the standard neoclassical model. Third, trade theory also looks inadequate, as it sees trade as driven by differences in factors and resource endowments and as allowing mutual gain (Grant, this volume). It cannot account for the growing importance of intra-industry trade between countries with very similar factor endowments. In response, trade theorists propose models of imperfect competition in which increasing returns allow different regions and countries to specialize in different varieties of similar products. Finally, advances in mathematics mean that it is also now possible to incorporate increasing returns in formal mathematical models.

The key point in the new location theory is that increasing returns are primarily realized through agglomeration. As Krugman (1991) argued, the primary means for increasing returns is the concentration of industries in particular localities. Much of this new location theory has offered different models of how it is that agglomeration raises the rate of growth. Local specializations of industry have been modeled using the trio of Marshallian external economies. Some new location models have also drawn on the new growth theory, which tries to make increasing returns endogenous to the growth process (Romer, 1986). There are several main types of endogenous growth theory (Martin and Sunley, 1998). One focuses on the returns to capital investment, another on learning-by-doing and the improvements in knowledge, skills, and human capital that workers accrue as a result of being employed. Another variant is called Schumpeterian and is based on the temporary monopoly rents[3] which companies gain from innovations, which in turn drive the growth process. In all three cases some of the increasing returns generated in human capital and through innovations may be geographically defined.

Drawing on these ideas, new location models depend on three main types of externality[4] at various spatial scales: pecuniary externalities, productivity externalities, and innovation externalities. For example, the formation of cities and industrial regions can be partly explained in terms of the operation of pecuniary external economies, in which firms benefit through having access to larger and more diversified markets. Larger markets allow firms, for example, to increase their output without reducing their prices. Productivity externalities may be realized by having a wider variety of intermediate inputs available locally. Productivity is also raised through external returns in human capital. These may drive city economies as workers learn faster in cities and earn more, thus attracting further migrants (Lucas, 1988). Innovation externalities arise primarily from the local diffusion of technological knowledge, which raises the technological capability of firms. Very little is known at present about the geographies of these technological spillovers,

although Jaffe et al. (1993) show that, within the USA, citations of patents, which occur when firms make use of innovations, tend to be concentrated in the local area where the innovation originated. This implies that there is a distance-decay effect in learning about new technologies (Rigby, this volume).

The most applied parts of the new location theory have predicted the regional effects of globalization and trade integration, and considered the future of cities. Krugman and Venables (1990) argue that external market economies become more important as trade costs fall, meaning that regional integration in Europe, for example, will increase the specialization of European regions. Moreover, capital and labor mobility may reinforce the concentration of production. In North America, on the other hand, it is predicted that manufacturing will concentrate on the US border with Mexico in order to provide components to Mexican producers (Hanson, 1996). If regions do become more locally specialized as integration proceeds, then it is imperative to understand the various possible adjustment mechanisms, such as population mobility, capital mobility, and fiscal transfers through tax systems, through which regions cope with demand shocks.

These new location theories formalize ideas of cumulative causation by modeling the ways in which similar regions can endogenously differentiate into cores and peripheries (Ottaviano and Puga, 1997). They have also highlighted the importance of what has been called path dependence – a systems or biological metaphor referring to the way that the evolutionary path of a system depends on its past history (Arthur, 1996). It can be argued, for example, that the initial location of many industrial cities and industries was accidental. Once established, however, industrial cities and sites benefit from cumulative advantages and may dominate their rivals. Such cumulative causation has also been described as a type of "lock-in," which refers to the way in which the interactions between components of a system fix its behavior. The most familiar economic case is where a technology becomes dominant because of user externalities.[5] Although the QWERTY keyboard, for example, is relatively inefficient, the more people use it the harder it is to shift to another layout of the keys (David, 1985). New location theories have at least begun to ask questions about the social capability of different states and regions to absorb innovations introduced elsewhere and thus to catch up, and they have re-opened a debate on whether diversity or specialization are more conducive to growth. Some argue that localization economies are more important, but others insist that employment growth is faster in diversified cities (see Harrison et al., 1996).

These theories and models have been rightly criticized. It has been questioned whether they really contain anything new or whether they are simply building formal models of old and familiar ideas. The benefits of having larger markets in wealthy regions have long been known, and Pred (1966) argued for an evolutionary approach to urban manufacturing growth that highlighted inventiveness and uncertainty. Much of this earlier work, however, did not try to represent these ideas in mathematical and equilibrium-based models but was more interested in social and institutional questions. In contrast, the new location theories are abstract and, in many instances, they tend to substitute spatial units which are independent of scale for geographical places (Martin, 1999). They also tend to treat cities and regions as laboratories for testing model parameters, rather than as real places and objects of enquiry. Much of the new work has become increasingly preoccupied with the

relative merits of different statistical measures of convergence rather than the underlying processes.

The new location models begin with restrictive assumptions. As Dymski (1997) argues, Krugman's models are based on rational choice equilibria[6] which depart from the neoclassical methodology by relaxing only one of its assumptions, such as by increasing (or: increasing for decreasing) returns (Plummer, this volume). They therefore remain very close to economic orthodoxy and tend to try to control for other factors by focusing on only one aspect of regional and urban growth at a time. Moreover, most of the models assume monopolistic competition,[7] implying that firm strategy cannot be discussed. Furthermore, in this approach factors that cannot be quantified and statistically manipulated are too quickly dismissed as sociological and impossible to study rigorously (Martin and Sunley, 1996). The consequent lack of realism also means that these models seem unable to explain broad historical trends in rates of convergence. For instance, it has been widely noted that rates of regional convergence are more rapid in periods of economic growth, while divergence and stagnation are more typical during recessions. Yet many geographers have argued that a widespread slowdown in economic convergence since the mid-1970s signals a structural change in economic growth (Dunford and Perrons, 1994). It is therefore unsurprising that this resurgence of location theory has been empirically weak and has resolved few issues. Despite statistical studies of trends in regional growth rates, the key ideas on growth have been subjected to very little empirical testing and evaluation. The major problem is that the new location theory is trying to force increasing returns ideas into equilibrium models, when the ideas resist being flattened and squashed in this manner. This partly explains why economic geographers have been drawn instead to examining local characteristics.

The Evolution of Local Competitiveness

In contrast to this revival of formal modeling, most recent accounts of urban and regional economic growth in economic geography have been more concerned with describing the underlying characteristics of economic activity. Rather than simply looking at aggregate outcomes summarized by economic statistics, there has been much more focus on the form of growth. Within this broad approach, however, there has been a major change in the way in which this form is understood: a movement away from macro-structural theories of transitions in the economy, with predictable and deterministic spatial consequences, towards approaches placing much more emphasis on the specific characteristics of particular cities and regions and how these evolve over time. Macro-structural accounts of changing growth identified outcomes in terms of the spatial pattern of growth. For example, the concept of a new spatial division of labor emphasized that aggregate growth conceals a hiearchy in terms of job quality, and predicted regional functional specialization, as high quality control functions concentrate in core cities and peripheral regions become dependent on branch plants (Massey, 1984; Peck, this volume). Similarly, the notion of a transition away from Fordist mass production to a new style of growth based on networks of small firms foresaw the rise of new industrial spaces, supposedly free from the industrial infrastructures and collective institutions of Fordist mass production (Scott, 1988). Again in a deterministic

style, Hall (1985) argued that the appearance of a new long wave of economic expansion (or Kondratieff wave), based on a new set of key innovations, would lead to an inevitable restructuring of regional outcomes, or creative destruction, involving the inexorable decline of old regions and the rise of new technological sites.

None of these approaches fully captures the logics of contemporary economic growth, and they struggle to explain the complexity of urban and regional outcomes. At root, the notion of clean transitions between different forms of growth has been steadily undermined. For example, there is no simple transition from mass production to a more flexible mode of growth, but rather a variety of types of flexible mass (or diversified quality, or lean) production which do not have simple and obvious geographies (Hudson, 1997). Instead, evolutionary approaches have become dominant in economic geography. As Barnes (1997) argues, evolutionary approaches allow for indeterminacy as well as complex and unpredictable results. At the heart of these ideas are analogies between genes and firm capabilities and routines, and between genes and local economic relations and conventions. Those that are selected by the market, or replicated by imitation and diffusion, survive and shape the trajectory of change. Such gradualism allows a better understanding of the types of path and place dependency through which the historical geography of regions and cities shapes their future development.

This change in emphasis reflects the way in which growing awareness of a global economy has stimulated debates on the idea of competitiveness. Competitiveness is a controversial concept originating in notions of economic evolution, which has often been accepted too uncritically (Schoenberger, 1998). Some authors insist that the real meaning of competitiveness is the growth of productivity (although Maskell et al. (1998) suggest that competitiveness means a high return to all factors of production, including labor – which of course is not necessarily synonymous with high productivity). This has been associated with the increasing popularity of the notion of competitive advantage. In contrast to comparative advantage, competitive advantage suggests that gain is not mutual: winning regions which capture "first mover" advantages can benefit from the increasing returns of leading sectors, at the expense of other localities.

Explanations of success have emphasized the local economic capabilities and assets of the cities and regions themselves. Many studies have implied that if local supply-side characteristics are right, then regions can create their own demand by gaining market share from their rivals and by attracting investment.[8] A remarkably consensual theme has been that agglomeration can help to create and sustain these local economic capabilities. Porter's (1990) identification of clusters of related industries, linked by material and knowledge flows, has been highly influential in arguing that geographical proximity reinforces the interchanges between competitors, supplying industries, factor and demand conditions, and thus provides a major spur to continuous improvement and innovation. Such clusters, he argues, should be the focus of urban and regional policy. The claim that agglomeration is a key to competitiveness has become a stylized fact, which is routinely accepted rather than tested. Yet much of the evidence on agglomeration continues to be anecdotal and based on well-known examples, and some skeptics suggest that its significance has been exaggerated (Amin, this volume). There are only a few dissenting voices,

however, and it is much more frequently argued that agglomeration is the most distinctive feature of the space economy.

Early attempts to explain this feature used the notion of flexible specialization, which suggests that networks of smaller firms can respond more quickly to differentiated and changing consumer demands, and can therefore be both specialized and adaptable (Piore and Sabel, 1984). In this view, mass production gives way to vertical disintegration, as firms contract out their requirements. The transaction costs of such new flexible production systems can be lowered by agglomeration, and the uncertainties faced by producers reduced. Agglomeration is especially effective in reducing those transaction costs that are spatially dependent, where transactions are small-scale, and where they are also irregular and unpredictable – involving frequent changes of specification, and where they depend upon face-to-face contact and the personal exchange of information (Scott, 1988). It was also argued that new methods of lean supply, such as just-in-time, encourage the clustering of suppliers. However, subsequent studies have raised doubts about whether transactions cost advantages explain agglomeration, and have questioned the strength of local linkages. For example, Angel and Engstrom (1995) found that components in the US personal computer industry are sourced from global networks, and that linkages are predominantly inter-regional and international. It is also difficult to distinguish linkages that influence locational decisions from those that are consequences of such decisions. The general conclusion is that transaction costs provide too static a framework, as the real advantages of flexible districts are dynamic.

Many recent accounts of this dynamism have offered interpretations rooted in institutional sociology with its emphasis on "embeddedness," meaning that economic actions are affected by other actors and by the overall framework of social relations (Martin, this volume). For instance, Cooke and Morgan (1994) argued that the key to successful industrial growth is the presence of networks, which they describe as neither market relationships nor firm hierarchies but as co-operative and reciprocal relations. These co-operative networks are based on relationships of trust between firms which enable information sharing and mutually beneficial contracting (Harrison, 1994a). Networks of producers promote new product development by allowing firms to spread the costs and risks involved, and encourage information exchange and joint problem-solving (Saxenian, 1994). Trustful relations reduce monitoring and contract costs, and may be particularly important to the cheap supply of local credit and to co-operative labor relations. According to some, the adoption of new networks can lead to the revival of older industrial regions (Cooke, 1995).

Some of these arguments exaggerate the co-operative nature of successful clusters, and downplay the importance of rivalry and competition between firms. In Baden-Württemberg, for example, frequently cited as a competitive networked region, Staber (1996) found there is in fact little evidence to suggest that business relations are marked by collaboration and co-operation, and that while some firms experiment with decentralization and collaboration, others are reasserting conventional methods of hierarchical control. While Storper (1997) also highlights the importance of non-market interdependencies, he insists that these cannot be captured by a single formula as they vary significantly between regions. In some cases high trust

relations can delay change and represent a form of closure, preventing groups from grasping new opportunities (Scott, 1998). Decentralized networks may also prevent co-ordinated responses to radical technical change (Glasmeier, 1994). Local clusters typically depend on a combination of competition and co-operation, and the key issue is to understand why competition does not take a destructive form and undermine product quality and wage levels (cf. Sheppard, this volume). However, to date there is a lack of comparative systematic work on these issues: much of the analysis has been generalized from single case studies.

Networks are not just created by smaller companies. The largest firms can also decentralize and create all sorts of alliances and networks without losing their power and control (Harrison, 1994b). Changes in corporate form and specialization continue to be one of the key forces shaping local growth, and there are a variety of firm and organizational structures underlying industrial agglomerations (Markusen, 1996). One of the key factors underlying the most successful regions and cities is that multinational firms are strongly embedded in these areas. Large firms are undoubtedly attracted to regions with established specializations and reputations in particular industries. In contrast, direct investment in peripheral regions is typically weakly embedded, with only a small fraction of inputs purchased locally, and the plants and sites created by such investments are inherently vulnerable to closure. As globalization and regional integration continue, and firms concentrate through mergers and alliances, it is likely that larger companies will concentrate their headquarters in world or global cities, while rationalizing employment in less favored regions. Thus regional policies focusing on stimulating endogenous enterprise are unlikely to be a sufficient corrective to the centralization of corporate control. Development policies need to attract higher-quality, more embedded investments, but in many peripheral areas this is a difficult task. At the same time, however, the geographical agglomeration of investment in particular regions and cities does not in itself guarantee the achievement of high rates of long-term growth, as agglomeration is not sufficient to produce a high rate of technological innovation and the generation of new, valuable knowledge.

Innovations and Institutions

The search for a recipe for local economic dynamism, rather than simply static cost advantages, has increasingly been drawn to technological innovation. There is much evidence that some areas are more innovative than others, and most recent explanations highlight the interaction of several factors. Firms rarely innovate in isolation: their performance is determined by their interaction with the local network of actors and institutions. Product innovation tends to be concentrated in places that have a well-developed technological infrastructure, including industrial and university R&D, plus a concentration of related industries and business services (Feldman and Florida, 1994). Such places have been described as innovative milieu,[9] consisting of both physical structures such as configurations of firms, the local labor market, scientific institutions, and the availability of risk capital, as well as non-material factors such as the regional technical culture and know-how, and common representation systems. These may form regional innovation systems in which different types of networks produce different forms of technology transfer and

vocational training. The recurrent idea is one of synergy, that is, an elusive combination of factors which needs to be institutionally constructed and guided. Just as technologies follow distinct trajectories shaped by conventions and practices, so it is argued that local milieu also follow distinct trajectories depending on the interaction of such factors as market demand, local and external capital, the adaptability and skill of the labor force, and technological opportunities (Castells and Hall, 1994). However, while painting a rich local picture, some of this work has neglected the importance of central government research policy and the immense influence of military spending.

This emphasis on local infrastructure acknowledges that markets are not free-floating phenomena but are made possible through a framework of institutions and conventions. While markets provide allocative efficiency they are also prone to fail under certain conditions, and collective regional institutions may be necessary (Scott, 1998). For example, firms may have a tendency to under-invest in new technology because it is difficult to prevent knowledge leakage and design imitation, making collective research and design services especially useful. Similarly, market failures are also common in worker training, so that local vocational training and educational institutions, including colleges and universities, may increase growth. Market failures are common also in financial systems, where lenders often find it prohibitively costly to assess and monitor risks, particularly among small firms. Local community and mutual institutions may possess better information about borrowers and may be better able to supply cheap, long-term credit, as has been argued to be the case in the Third Italy and in Germany's Mittelstand (Dei Ottati, 1994). Amin and Thrift (1994) use "institutional thickness" to describe high levels of interaction amongst a wide range of institutions in an area, leading to high levels of contact, co-operation, and information exchange. However, other authors have argued that institutional thickness may itself be a source of lock-in. Old industrial regions in particular may be resistant to diversification and become overly dependent on central government (Grabher, 1993). Thus, while institutional context may be necessary for growth, it may not be sufficient, and the interactions between economic conditions and institutional effects remain poorly understood. We still know little about the feasibility of the geographical transfer of institutional frameworks across regions and cities. Nevertheless, there is an increasing focus on identifying those types of institutional thickness that facilitate collective learning.

Learning and Knowledge Economies

While knowledge has always been an important resource in economies, new information technologies, patterns of flexible production, and rising costs and rapidity of innovation have given learning and knowledge a new significance (Morgan, 1997). All layers of the firm must engage in interactive learning; multi-skilling and networking are critical, and the capability to learn and to rapidly apply this learning to production and sales, are the most important components of firm viability. Again it is argued that interactive learning is facilitated and encouraged by spatial proximity between actors, implying that durable patterns of agglomeration are not the result of cost efficiency but are created by the demand for rapid knowledge transfer. In this view, while information has become abundant, knowledge is a scarce

resource. Tacit knowledge, individual skills, organizational routines, and relation-specific skills are difficult to replicate elsewhere as they rely on high levels of trust, and may therefore sustain a region's advantage even in the context of rapid product imitation. Storper (1997) argues that conventions and relations of co-ordination are the means to collective reflexivity, which in turn forms the basis of learning in dynamic regions. These localized and intangible capabilities are not only of relevance to high-technology industries but may also be the basis of competitiveness in low-technology, labor-intensive production, such as the Danish wooden furniture industry (Maskell et al., 1998).

In one sense this learning approach to local economic growth is still in its infancy, nevertheless it has already faced a number of criticisms. In the first place, there is an apparent temptation to represent local cultures too unproblematically and to overlook the politics of representation surrounding any local culture. Instead of examining how cultures are constructed to suit particular groups, and are shaped by political entrepreneurs, some accounts succumb to using culture as a pre-given explanatory factor (Gertler, 1997). Furthermore, the depiction of learning as the most important contemporary economic process could be taken to imply that lack of economic growth can be explained by the relative absence of learning and knowledge accumulation. There is indeed mounting evidence that poorer neighborhoods suffer from a lack of social capital, and a dearth of social networks connecting them to employed individuals and hence knowledge about the labor market. In disadvantaged areas, low economic status may be transmitted from generation to generation, and trust and co-operation are often undermined by suspicion, cynicism, and opportunism. Poor economic performance is likely to be reinforced by poor levels of educational attainment. However, these appear to be contributory factors rather than the primary causes of low economic growth, and arguing otherwise risks attributing poverty to dysfunctional behavior and cultures.

If competitiveness means higher returns to current employees only, rather than to the entire local potential workforce, then higher competitiveness can be compatible with employment decline and greater economic inequality. However, excessive inequality may be incompatible with sustained economic growth. Several authors argue that neoliberal economic growth in the south-east of England during the 1980s could not be sustained because of increasing disparities and overheating of the local economy (Allen et al., 1998). It may well be that inequality restrains growth and perhaps intensifies the business cycle. Many recent studies of economic growth in geography have focused on high-productivity, high-cohesion forms of growth, while leaving other less desirable, but widespread, types of growth under-researched. This is illustrated by the debate on service employment and city growth. The knowledge-based, specialized cluster approach is clearly appropriate to some high-status producer service and media industries. Leyshon and Thrift (1997), for example, show that in the City of London the increasing amount of information available has to be interpreted and therefore necessitates more face-to-face contact and localized growth. However, this is only a part of service-based growth. Pollard and Storper (1996) note that service employment growth in the USA is not only occurring in specialized service cities but is also found in a wide range of cities. Furthermore, expansion of producer services in the south-east of England has been dispersed across the region (Coe and Townsend, 1998). To some extent this

undoubtedly reflects a decentralization of back office and routine functions away from central city locations, but it also points to other logics of regional cumulative growth, such as new firm formation through spin-offs, and the attractions of more suburban locations.

Perhaps the most important limitation of learning approaches is their tendency to overlook the importance of more conventional price and cost conditions, and exchange and market relations. In many cases social cohesion is as much a result of economic growth as a cause. Moreover, some of these approaches ignore fixed capital and transport infrastructures, which remain crucial for accumulation. Partly as a result, these approaches seem to have an exaggerated sense of the possibilities of local endogenous development and to neglect the constraints imposed by national state and financial regimes. Indeed, regional and urban theorists may be singing a tune that policymakers want to hear (Lovering, 1995). Many of these approaches are being developed in a policy context of heightened territorial competition between authorities for investment, and it undoubtedly suits them to claim that distinctive local capabilities can be the basis for economic growth. However, the learning economy ideas are too imprecise and vague to be interpreted simply as policy derivatives. Indeed, their fuzzy nature often makes their policy implications difficult to pin down (Markusen, 1998).

Conclusion: Models Versus Metaphors

This chapter has argued that while explanations of spatially uneven growth generally have shifted towards softer and knowledge-based factors, such as innovation, training, and learning, economists and geographers have adopted very different approaches and methods in their efforts to explain these factors. While economists continue to use spartan formal models, with the aim of making their assumptions explicit, geographers have used a discursive style in order to represent the complex relationships underlying economic growth. Clark (1998) has recently described this difference as one between economists' reliance on theory-enslaved stylized facts, as against geographers' preference for "close dialogue" with economic actors, allowing a better appreciation of the depth and diversity of local economic circumstances. However, it is also important not to overlook the metaphorical character of recent economic geography.

Key metaphors, such as embeddedness, networks, evolution, and learning economies, have provided the basis of accounts of regional and urban growth. There is nothing necessarily superficial or frivolous about using such metaphors: they can provide new ways of thinking and supply unexpected insights (Barnes, 1996). Metaphors may be useful, in the sense that they can be used to capture and signal processes that are suspected to exist but are not fully understood. However, most metaphors are vague and open-ended and, in my view, their lasting value can only be established over time by systematic empirical research and grounded analyses. Because metaphors are unfinished and open, their implications must be carefully overseen. For instance, evolutionary metaphors appear to suggest that economic conventions and innovations are selected and copied according to how competitive or efficient they are, rather than how they suit the interests of economic decision-makers and powerful social groups. The two are, of course, not always synonymous.

Recent work also seems to use metaphors that smooth out conflicts of interest, implying that the most competitive types of growth are also the most cohesive and equitable, without providing much supporting evidence.

The rush of metaphorical tropes into theories of uneven growth in economic geography has been so rapid that the systematic evaluation and empirical validation of these ideas has not kept pace. While the development of new theories has undoubtedly been enriching and has provided many insights into the causes and conditions of economic growth, there is a widely noted lack of empirical evaluation of their utility. Ironically this may partly be a product of the institutional embeddedness of researchers, who are under increasing pressure to publish quickly rather than to make long commitments to time-consuming empirical analyses. Thus, for very different reasons, both the new location theories and recent economic geography have empirical weaknesses, and some of the key processes behind regional and urban growth continue to remain a mystery.

Endnotes

1. According to Myrdal, spatial flows of capital and labor increase the growth of expanding regions at the expense of lagging regions. Capital and labor are attracted to expanding regions and increase their labor supply and market size, and can also strengthen the backward linkages of firms to their suppliers and forward linkages to firms next along the production chain.
2. The law of diminishing returns states that, beyond a level of input, further increases in the input of a factor of production result in decreases in the additional marginal output of the product per unit of input.
3. A monopoly rent in this context refers to the profits, which a firm can make by selling a new product under monopoly conditions, before the product has been marketed by rival firms.
4. The broadest definition of an externality is where the actions of one actor have unintended consequences for another actor. These may, of course, be both positive and negative. In economics, externalities are often defined as technological externalities whereby one firm's production affects the production process of another firm in the absence of a market transaction between them. Recently, however, it has been argued that pecuniary externalities, which affect prices in market exchanges, may also be important.
5. These occur where the adoption of a technology by several users creates incentives for, and lowers the cost of, its adoption by other users. Where a certain technology becomes dominant within a network of users, entrants to this network will face a strong incentive to adopt the same technology in order to be compatible and to benefit from externalities.
6. A rational choice equilibrium is a stable pattern, which can be derived by modeling the behavior of numerous individuals who are assumed to make rational decisions.
7. Monopolistic competition is a model of market equilibrium based on competition among similar firms producing differentiated products, which are close but not perfect substitutes. It has been widely used as a means of modeling imperfect competition.
8. These ideas were anticipated by Chinitz (1961) who noted that supply factors and social structures and market organization shape local entrepreneurship.
9. Innovative milieu are an example of the embedding of economic activity with the social relations of a particular place.

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