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Innovation, creativity and governance: Social dynamics of economic performance in city-regions

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ABSTRACT

The pressure towards a globalizing, knowledge-based economy raises questions about the underlying determinants of economic performance in city regions. The creation and diffusion of new knowledge drives innovation in knowledge-intensive production and service activities, which in turn, drives economic performance and growth. Although these processes are strongly shaped by national institutions and global knowledge flows, recent analyses of innovation and creativity emphasize the continuing relevance of regions in general and urban regions in particular as critical sites for determining economic performance. This work also suggests that the underlying social dynamics of urban regions are particularly significant in shaping economic outcomes. This paper explores some recent evidence on the social nature of innovation dynamics in urban regions, the increasing significance of talent and creativity in urban economies and their implications for the economic performance of city regions. It concludes with a discussion of the need for the strategic management of urban economies to cope with the challenges they face.

Keywords: knowledge-based economy, city/region economic performance, innovation dynamics, urban economies, strategic management

INTRODUCTION

The pressure towards a globalizing, knowledge-based economy raises questions about the underlying determinants of economic performance in city regions. The creation and diffusion of new knowledge drives innovation in knowledge-intensive production and service activities, which in turn, drives economic performance and growth. Although these processes are strongly shaped by national institutions and global knowledge flows, recent analyses of innovation and creativity emphasize the continuing relevance of regions in general and urban regions in particular as critical sites for determining economic performance. Many aspects of contemporary economic changes make cities more, not less,

important as principal sites for innovation, creativity and the production of knowledge-intensive goods and services.

This work also suggests that the underlying social dynamics of urban regions are particularly significant in shaping economic outcomes. The interactive and social nature of innovation makes city-regions the ideal space in which social learning processes can unfold. Knowledge transfer between highly skilled people happens more easily in cities because the sheer density and concentration of economic players in large cities offer multiple opportunities for contact, interaction and knowledge circulation (Orlando & Verba 2005). From this perspective, the foundations of economic success in an increasingly competitive world are the social qualities and properties of urban places. Decisions that shape the social character of cities also have a direct impact on our economic well-being.

A number of pressing questions remain. First, while there is an emerging consensus around the role that city-regions play in facilitating the circulation of knowledge that underlies innovation, a debate remains over precisely *how* knowledge circulates within cities. Some analysts view the most important dynamics arising from the inter-firm, labour market and knowledge externalities that occur within individual sectors or clusters (Porter 2000), while others emphasize the learning opportunities that arise from knowledge circulating across sectoral and cluster boundaries within the city-region (Audretsch 2002). In this view, ideas that are commonplace within one particular sector may have novelty value in another and the possibility of inter-sectoral (or cross-cluster) knowledge exchange and spillovers arising from this economic variety enhances the learning potential for local economic actors. This dichotomy is usually framed in terms of the diversity vs. specialization – or Jacobs vs. Marshall-Arrow-Romer (MAR) debate (Glaeser et al. 1992). The issue of industrial concentration versus diversification also has key implications for the ability of city regions to cope with the changing competitive dynamics flowing from the rapid globalization of industries, including knowledge-based ones. Second, while there is substantial agreement on the advantages that accrue to the largest city-regions as centres of innovative activity, there is less consensus on the prospects for mid-size and smaller urban regions in this regard (Orlando & Verba 2005; Duranton & Puga 2005). Small and medium cities often operate from a narrower and more specialized industrial base that benefits from the MAR externalities, but their economic future may be closely tied to the specific industries in which they have historically specialized. An alternative perspective suggests that specialization vs. diversity may be less important than what sectors a city-region is specialized in.

Finally, global shifts in knowledge-intensive production and service activities are associated with a complex set of challenges to the social well-being of cities. There is growing evidence that urban size may be related to significant diseconomies of scale and negative externalities. Population size tends to be positively associated with higher income per capita, but only up to a certain point; beyond that, statistical analysis by the OECD indicates that the size–income relationship turns negative due to significant diseconomies associated with greater transportation congestion, the cost of logistics and transportation, higher rents and environmental degradation. (2006: 51). Another body of work suggests that quality of place is also a significant factor underlying the social dynamics of city regions and, in turn, influences their economic performance (Florida, Mellander & Stolarick 2007; Gertler et al. 2002; Florida 2002). From this perspective, urban regions that are successful in developing tolerant and welcoming attitudes towards tolerance and social diversity are likely to succeed in attracting and retaining highly educated workers. Yet a growing body of evidence in Canada and elsewhere concludes the reverse is occurring, especially in large urban centres; while some benefit from highly-skilled jobs in creative industries, many others remain trapped in low

wage, contingent jobs, resulting in increasing social polarization in urban centres.

This paper explores some of these issues in a more systematic fashion and links the conceptual issues outlined above to the rapidly growing body of empirical research on the economic performance of city regions. This is undertaken in the context of an analysis of the social dynamics of economic performance in city regions across Canada.

Reframing the debate: Industrial evolution and the life cycle of city-regions

A number of theories have been advanced to account for the relative pace of growth and industrial transformation in city regions. This section reviews some of the key issues in these debates and relates them to the broader trends outlined above. Questions about the factors that affect the economic performance of city regions have been framed largely in terms of the relative degree of specialization or diversity that characterizes their economic structure. However, recent research suggests that a number of other underlying factors may exert a determining influence over their respective economic performance. These factors include the size of the individual city, its point of insertion into an evolving global hierarchy of urban nodes, as well as the point of evolution of the industrial structure towards more knowledge-intensive activities that have been labeled the 'cognitive cultural economy' (Scott 2007). The following discussion surveys the way in which this range of factors exerts an important influence over the economic performance of city regions.

Two alternative approaches deal with the impact of knowledge spillovers on industrial innovation and each generate competing explanations for how technological advances contribute to growth and economic performance in city regions. The Marshall-Arrow-Romer externality (MAR) argues that knowledge spillovers in specialized, geographically concentrated industries make the most significant contribution to growth. These localization economies are external to individual firms, but internal to an industrial sector, and draw upon a common labour pool, skill base, specialized suppliers, educational institutions, and other industry-specific complementary assets that contribute to firm-based growth. Transfer mechanisms for spillovers of tacit knowledge and 'learning-by-doing' include the intra-sectoral mobility of specialized labour and serial entrepreneurs, as well as the 'learning-by- observing' effects of densely concentrated industries (Glaeser et al. 1992). In contrast, Jacobs (1969) maintains that the most important knowledge transfers originate outside the firm's specific sector and that the diversity of geographically proximate industries, rather than specialization per se, promotes innovation and growth. Knowledge flows between firms in different industries, where new ideas form by combining older ideas or by applying knowledge that is routine in one sector to emerging problems in another sector, drive innovation and growth. Large urban economies, with their mix of different industries and occupations, increase the potential for knowledge flows between industries and therefore, exhibit faster growth and higher levels of innovative dynamism.

Subsequent empirical research has generated considerable support for both arguments, providing substantial fuel for the ongoing debate. Some results suggested that diversity across complementary industries sharing a common knowledge base stimulates economic and employment growth. In an early study to test the hypothesis, Glaeser et al. measured employment growth in a cross-section of manufacturing industries using data on 170 U.S. cities between 1956 and 1987 and found that, at the city-industry level, 'specialization hurts, competition helps, and city diversity helps employment growth' (1992: 1150). A subsequent study of U.S. knowledge-based industries by Feldman and Audretsch (1998) found that diversity across complementary industries sharing a common science base stimulates innovation and that the

degree of competition for new ideas within a city is more conducive to innovation than local monopoly. Audretsch further argues that the greater the competition for new ideas within a city, the more conducive the urban environment is to innovative activity: 'Perhaps the most important conclusion from these . . . studies, however, is that more than simply an endowment of knowledge inputs is required to generate economic activity. *The underlying economic and institutional structure matters*, as do the microeconomic linkages across agents and firms', (2002:172-73, emphasis added).

Conversely, however, a well documented study by Henderson (2003) found strong evidence of MAR externalities for single plant firms that benefited from the scale of their own past industry activity but no evidence that these firms benefited from the diversity of activity in the local economy outside their own industry and limited evidence of Jacobs type externalities from the overall scale of local economic activity. He argues that industrial specialization generates MAR benefits through the realization of scale economies, while also conserving on local rent and congestion costs. Many smaller metropolitan areas tend to be specialized in more standardized manufacturing activities, such as textiles, food processing, autos, steel and wood products. However, he concedes that large cities tend to specialize in knowledge-intensive services, such as finance, real estate, insurance and new industries like electronic components and instruments (Henderson 2003).

The extensive and rapidly growing research in the field thus appears to provide empirical support for both assertions that specialized *and* diversified industrial structures stimulate economic performance in city regions. Sorting through the conflicting conclusions lies beyond the scope of the current paper but recent overviews suggest some reasons for the contradictory results. The range of industries selected for different studies partly explains some of the different empirical outcomes – industries with more traditional, standardized production technologies evince the benefits of MAR externalities to a greater extent than higher tech sectors. Similarly, the level of industrial classification at which the analysis is conducted can introduce a greater degree of specialization or diversity into the results – studies conducted at a lower level of industrial classification have a greater tendency to uncover Jacobs' externalities than those conducted at higher ones. The empirical results have also been affected by the different indicators selected as evidence of the degree of economic performance, including employment growth, productivity, and innovation, each of which has a different effect on the conclusions reached.

More recent contributions have begun to suggest a synthetic basis for reconciling these contradictory results. The influence of city size and the industrial life cycle of cities have been suggested as factors which may account for the differing importance of MAR vs. Jacobs' externalities. Variation in city size affects the ability to create and diffuse new knowledge. Brezis and Krugman link industrial activity, economic fortunes, and city size, arguing that while large, diversified cities are more insulated from the impacts of economic change, 'smaller cities with narrow export bases . . . appear to go through a life cycle of growth and decay' (1997: 369). Levels of innovative activity are linked to city size – with R&D, patenting, and major product innovations concentrated in larger urban agglomerations (Audretsch 2002: 170). A recent analysis using the Canadian survey of innovation data reinforces this finding: establishments that face a large degree of technological change are more likely to locate in large urban centres, while firms facing less technological uncertainty are more likely to choose localized environments (Strange et al. 2005).

Agglomeration economies play different roles in innovation at different phases of the product life cycle. Synthesizing some of the findings discussed above, Duranton and Puga (2005) suggest that firms often develop new products in diversified, creative urban contexts and relocate to spe-

cialized cities in the mass production phase in order to exploit urban cost advantages. Larger cities tend to be more diversified and knowledge-intensive than medium and small cities; where large cities tend to have multiple specializations, medium-sized cities may have just one, two, or worse yet, none (Duranton & Puga 2000; Audretsch 2002; Drennan 2002). While some medium-sized cities do experience growth due to their industrial specialization, their economic fate is more closely tied to the prospects for those specific sectors. Once they lose their industrial edge, they often lack the knowledge base or quality of place to compete with larger, more diversified cities, and are faced with the daunting task of rejuvenating their local economies with limited resources and factor endowments. These findings underscore the importance of industrial evolution, suggesting that innovation and economic performance do not depend solely on diversity, but also on the type of industrial activity and its stage in the product life cycle.

However, it is also important to differentiate between the effects that specializations in certain kinds of industries have on the economic performance of city regions. Places that specialize in certain kinds of knowledge-intensive service activity generate stronger economies than places without any specialization (Drennan 2002). The globally exported information sector is the fastest growing part of the U.S. economy, and is concentrated in the largest U.S. metropolitan areas. Drennan's comparison of changes in specialization in goods and services-producing industries across 46 large U.S. metropolitan areas (with populations over 1 million) between 1969 and 1996 suggests that cities experience variations in their economic fortunes according to their industry specialization and that 'some specializations are better than others', 'some specializations can be worse than having no specialization', and 'not all specializations are good for all time periods' (2002: 6).[1] The point is reinforced by work on the geography of the Internet economy; the spatial clustering of the Internet-related production of goods and services is not distributed according to population patterns, but according to the geographic concentration of the information economy (Zook 2005). The large concentrations of the same industries documented by Drennan in advanced producer services, finance, media, entertainment, health, technology and related industries constitute the control center of the information economy. The growing impact of telecommunications and computer networks reinforce these concentrations of high-value added producer services in a few large metropolitan centres (Castells 2001: 222-31).

The growing centrality of knowledge-based activity for urban competitiveness suggests that the growth potential of cities increasingly depends on their ability to develop knowledge-intensive specializations, which introduces a distinctly Schumpeterian dimension into the analysis. New economy sectors are 'endemically given to continuous learning and hyper-innovation in all phases of their growth' (Scott 2006: 2). Sector-based notions of the modern economy are being rendered obsolete by the 'merging roles of manufacturing and service activities', where firms must be able to master both mass production and knowledge-based activities (Simmie & Wood 2002: 150). In this new creative economy, 'dynamic cities are constantly reinventing themselves by moving from one field of specialization to another' and traditional industries may be 'a stepping stone to the success of a new creative industry' because 'a creative idea that works well in one industry often can be licensed or further developed in other industries' (Wu 2005: 7,13). The successful development of creative clusters, many of which involve information–intensive activities,

1 Drennan (2002) distinguishes between the traditional manufacturing sector and the information sector. The latter includes financial producer services, producer services and advanced consumer services (16-17). He reports that information sector exports were $133 billion in 1999, accounting for more than two thirds of the $193 billion in high tech exports of computers, semiconductors, aircraft, telecom equipment and scientific instruments.

is a path dependent, endogenous process, which builds on the distinctive knowledge and industrial bases of individual cities.

The capacity of urban centres to effect transformations in industrial activity depends to a great extent on the sophistication of their institutional structures. Those that develop innovation capacities in knowledge-intensive goods and services are more likely to do well. Older centers that remain invested in existing technologies in which they are already efficient are often overtaken by 'upstart metropolitan areas' that can more easily take up undeveloped new technologies because of their lower rent and wages. While some older industrial cities in the U.S. have experienced recent economic growth and resurgence due to an ability to shift to knowledge–intensive activities, others have not, and 'the Silicon Valleys of the Second Industrial Revolution had names like Akron, Detroit, Pittsburgh, and Rochester' (Safford 2004a: 16). Cities and peripheral regions that lack technological endowments and are locked into specializations in mature manufacturing are often handicapped. Peripheral regions, in particular, tend to be less innovative because of their lower R&D intensity, their reliance on incremental product and process innovations, and the fact that many firms are externally controlled (Tödtling & Trippl 2005). As a result, the dynamic aspect of knowledge-based economic growth may afford a better explanation of urban growth and the resurgence of older industrial cities than simple agglomeration economies: 'the important question may not be specialization vs. diversity but whether a city has specialized in the right thing at the right time' (Storper & Manville 2006: 1250).

Diversity and the emergence of an international hierarchy of cities

The importance of size is not limited to an urban centre's relative standing within its national economy but increasingly depends on how it is embedded within an emerging international hierarchy of cities that affects its growth prospects. Certain cities, with diverse knowledge-intensive production and service activities, simultaneously act as economic hubs in both national and global economies (Simmie 2002a, 2002b, 2003; Simmie & Wood 2002). Knowledge flows more easily in big urban centers, which are advantaged in their abilities to draw on both local and global sources of knowledge (Audretsch 2002; Audretsch & Feldman 1996), and attract the best 'talent' (Florida 2005), thereby insulating themselves from the effects of population and industrial change (Drennan 2002). Medium-sized cities that are specialized in a narrower range of industrial activity, serve as hubs for their regional economies but have less access to global knowledge flows and trade (Simmie 2003: Duranton & Puga 2000). Only the most dynamic medium-sized cities appear to specialize in knowledge-intensive industrial activities. They tend to make the best use of local institutional research supports (universities) and social networks (Safford 2004b).

This fact signifies the emergence of an international hierarchy of city-regions, where the largest super cities have become 'knowledge hubs of the international economy', and smaller, but still large, regional capital cities with specializations in knowledge-intensive activities act as hubs in their respective national and regional economies (Simmie 2002a: 900). Both international hub cities like Paris, London, Tokyo, New York and Los Angeles, and national or regional hub cities, like Toronto, Montreal, Boston, Lyon/Grenoble, Frankfurt, Stuttgart, and Milan, can be innovative and economically competitive. Though different in size and scope, successful large cities share two characteristics: they contain high levels of elite business and political decision-makers, which endows them with a measure of autonomy to make private and public investment decisions locally and they have the advantages of agglomeration economies that offer a 'rich mixture of possible collaborators' (Simmie 2002a: 899). The 'international gateway cities' at the top of the urban hierarchy outperform because of their con-

centration of innovative firms and because they have access to large pools of professional and technical labour. Capital cities occupy a 'singular place in their respective urban hierarchies' because they are 'subject to a bombardment of new ideas and practices as knowledgeable people come and go from other parts of the global economy' (Simmie 2002b: 213).

Simmie argues that knowledge-intensive innovation is concentrated in a minority of the largest urban regions for several reasons (2002a; 2002b). First, the ability to capture both local and global knowledge flows – 'local capacity and international connections' – is necessary to reduce the inherent uncertainty of the innovation process. The most successful cities are 'able to combine both rich local knowledge spillovers and international best practice in the design and specifications of innovation' (Simmie 2002a: 885–886). Second, knowledge-intensive, innovative and world first trade and exports, concentrated in the largest cities, are stronger determinants of urban economic competitiveness than is co-location in clusters. Third, the ability to capture the global knowledge flows that result from trade and knowledge spillovers from international clients and customers drives the development of an economy where national and international markets are more important than local ones.

Using data from the Community Innovation Survey (CIS 3), Simmie demonstrates that a firm's ability to capture market share outside its own region is linked to novel innovations, indicating that innovative firms use more external sources of knowledge than less innovative ones, so 'the ability to access external knowledge seems to play a significant role in the innovative capacity of the most innovative firms' (2003: 615). Finally, the minority of cities at the top of the emerging 'international hierarchy of regions' tend to transfer specialized knowledge among themselves (Cooke 2007). Transfers between places like Silicon Valley, Route 128, Berlin, Stockhom, Greater Southeast London, Baden-Wurttemburg, and Ile de France occur 'because they are often repositories of leading edge knowledge in the activities in which they are specialized. These regions are the leading nodes in the international distributed system of innovation' (Simmie 2003: 617).

The privileged position of the largest cities in the international hierarchy poses particular challenges for smaller countries with smaller urban centres. Canada's showing in the international hierarchy of globally competitive cities is less than stellar, with only one city – Toronto – in the 10-member 'beta' group of world cities (no Canadian city ranked in the top-most 'alpha'group), and the 12 member 'well-rounded global cities' category (Beaverstock et al. 1999, cited in Brender et al. 2007). The city hierarchy *within* Canada, however, operates differently and 10 major cities – Halifax, Montreal, Ottawa-Gatineau, Toronto, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, and Vancouver – generate a large proportion of national wealth. In 2005, these cities accounted for 51 per cent of gross domestic product (GDP) and 51 per cent of employment. Between 1995 and 2005, 65 per cent of the 3.1 million net new jobs created in Canada were located in them (Brender et al. 2007). Though these cities vary somewhat in size, each is a 'hub city' that acts as the primary economic driver in its respective province or region. However the Conference Board of Canada argues that these 'hub cities' face major challenges; while they are expected to drive economic growth, they lack the investment and political autonomy to fully develop this capacity (Brender & Lefebvre 2006).

At the same time, some of the largest cities are facing their own challenges. The advantages of diversified agglomeration economies, rich knowledge infrastructures, and greater endowments of human capital, may be offset by negative externalities that threaten their economic and social fabric. Bigger does not necessarily mean better in all cases and 'the growth capacity of metro-regions should not be over-estimated as metro-regions are not always synonymous with success'

(OECD 2006: 15). Not all big cities are the same and assuming that innovative capacity is directly correlated with size may be misleading. For example, while patents may be registered at corporate headquarters in large cities, they may have been generated at research sites located elsewhere. The critical challenge for urban centres, regardless of size, concerns their institutional capacity to generate and sustain the knowledge-intensive activities that increasingly are the basis for innovation and growth.

Urban agglomeration and the concentration of talent and creativity

The critical link between innovation, economic growth, and personembodied knowledge spillovers makes the most prized locational resource highly educated and creative workers – what Cooke (2007) calls 'regional talent pools of global significance' – who have the potential to attract and embed globally mobile investment and generate innovative growth. An emerging view suggests that the attributes of places which make them attractive to talented workers are of paramount importance in determining local economic prosperity (Floridam 2002, 2005; Gertler et al. 2002). Such talent is attracted to and retained by cities, but not just *any* cities; those that offer rich employment opportunities, a high quality of life, a critical mass of cultural and entertainment activity, and social diversity are said to exert the strongest pull (Glaeser & Gottlieb 2006). An alternative line of reasoning maintains that the relationship between large pools of talented, 'creative' workers and regional economic growth may be less linear than has been suggested. The line of causality may be reversed and instead of skills driving economic growth, the preference of firms to locate in urban settings with large agglomeration economies may be the primary driver of innovation (Scott 2006: 2007; Storper & Manville 2006). Though person-embodied 'talent' remains a critical input into innovation, it needs to be considered in the context of the other factors discussed above, such as city size, industry specialization, local institutional infrastructure, and knowledge flows.

A major contribution of recent theories that link the skills of workers to the economic prosperity of cities, such as Florida's 'creative class', is the measurement of knowledge-intensive or 'creative' industries by individual occupation rather than the activities of firms (Florida 2002 2005; Florida et al. 2007; Knudsen et al. 2007). The creative class idea captures a range of human capital-driven outputs from 'people whose job it is to create new ideas, new technology, and new creative content' (Wu 2005: 2). It is not just the presence of scientists and engineers, but also of other idea-generating, knowledge occupations that drive innovation in the creative economy. However, not all occupations have the same effect and certain occupations drive innovation and regional development more than others. Recent empirical research has found positive correlations between agglomerations of artists, other non-science occupations, and entrepreneurs, and economic dynamism, and there are relatively high correlations between artistic and entertainment occupations and regional labour productivity (Wojan et al. 2007; Markusen & Schrock 2006; Florida et al. 2007). Likewise, scientists and engineers have the greatest impact on growth when their presence is combined with a large and diverse pool of skilled workers, and 'cities with large concentrations of degree holders in non-science, non-culture occupations experience more robust science and engineering growth than others.' The growth effects of these factors are also reinforced by the presence of a broad-based measure of urban amenities (Beckstead et al. 2008: 7). These findings suggest that there are similar labour market effects to Jacobs' arguments about industrial diversity and that the positive contribution of human capital to growth rests on a diverse labour pool.

Not only is labour a critical input for innovation but the more concentrated the talent, the more innovative the output. Cities reduce the cost of knowledge transfer and act as centres of idea creation and diffusion where talent 'clusters'.

Recent research finds a strong correlation between population density in general, and the density of creative workers, and metropolitan patenting activity, which suggests that urban density is critical for knowledge spillovers and innovation (Carlino et al. 2007; Knudsen et al. 2007). There is also a correlation between city size, industrial specialization, and knowledge– intensive occupational density. Consistent with emerging findings that the largest cities attract the strongest knowledge flows discussed above, the effect of creative density on innovation is, in absolute terms, largest for the largest cities (over 1 million), and the relationship appears to be significant only at that level, suggesting that innovative advantages accruing to big cities arise from 'lopsided concentrations of technologically intensive manufacturing sectors and an uneven distribution of well-educated people' (Ò hUallàchain 1999: 614 cited in Knudsen et al. 2007). A corollary finding is that human capital levels are becoming more divergent and 'places that have more of it thrive, while those with less stagnate or decline' (Florida et al. 2007: 3). Glaeser and Gottlieb suggest that the resurgence of cities like London, New York, Boston and Chicago is partly attributable to the increase in the importance of knowledge to economic activity, so that 'the biggest, densest cities appear to have a comparative advantage in facilitating the flow of knowledge' and partly to rising consumer preference for sophisticated urban amenities such as entertainment (2006: 1275).

From the 'creative class' to the 'creative economy': cities as 'Schumpeterian hubs'

These studies have firmly established the positive correlation between talent and human capital and innovation and economic growth. Emerging critiques, however, suggest that high concentrations of human capital are positively correlated with many beneficial externalities, and that skills-led explanations of economic growth downplay other critical inputs such as city size, industry specialization, institutional infrastructure and knowledge flows. These critiques argue that the locus of economic growth in cities is not primarily the preferences of skilled workers but of firms (Scott 2006 2007; Storper & Manville 2006). Pointing to the fact that economic resurgence has occurred not just in Sunbelt cities but also in 'old, cold, dense city-regions', Storper and Manville argue that recent population growth in cities, both older, northern and new, southern ones, is linked to shifts in regional economic geography and industrial activity. Instead of amenities such as shopping and entertainment, which are ubiquitous and readily available in all cities of a certain size, they maintain that workers are drawn to centers where employment opportunities are the greatest (2006: 1254):

> Jacobs, Florida, and Glaeser are all on to something in claiming that skills and amenities go together, but they may have got their causality reversed. It is the fact that these skilled workers are congregated in certain places that leads to the presence of amenities and, in some cases, makes the places tolerant and bohemian as well .

The argument that workers are attracted by employment opportunities more than consumer, lifestyle, and social amenities, does not necessarily negate theories that emphasize skills-led growth, but does suggest that explanations of regional economic growth need to be more nuanced. While many industrial activities still occur in identifiable industry sectors staffed by identifiable, industry-specific occupations, many emerging activities are less easily categorized. Changing patterns of urban development are similarly ambiguous. Scott (2006, 2007) describes these shifts in terms of an emerging 'cognitive cultural economy' where leading edge economic growth and innovation is driven by 'technology-intensive manufacturing, diverse services, 'fashion-oriented neo-artisanal production', and cultural products industries'; the progressive adoption of digital technologies has facilitated the 'deroutinization of labor processes and the destandardization of out-

puts' (Scott 2007: 1466, 1471). In this characterization of modern urban dynamics, creative class and labour supply arguments alone cannot account for local economic growth. Urban economic growth is the result of path-dependent trajectories where the supply of, and demand for, labor move in mutually reinforcing fashion. An urban node is developed through the mutual attraction of capital and labor in an interdependent spiral but labor is a subordinate factor; local economic growth is anchored primarily by the preferences of firms (Scott 2007: 1477).

This interaction effect is directly related to city size, and the 'cognitive cultural economy' is most evident in large metropolitan areas, or 'flagship hubs' like New York, London, Paris, Amsterdam, and Tokyo, where production activities are densely concentrated in firms with global market reach. New information technologies permit the simultaneous dispersion and concentration of economic activity, which allows producers in large, productive urban centers to benefit from local knowledge flows by remaining anchored in a specific location, as well as from global knowledge flows and markets (Castells 2001). Virtuous cycles of growth result as the number of producers increases and local growth accelerates, leading to the deepening of localized increasing returns and the intensification of agglomeration. Signs of this developmental dynamic are evident in large metropolitan areas, both in rapidly growing 'cognitive cultural sectors', and in the formation of 'intra-urban industrial districts devoted to specialized facets of cognitive–cultural production', such as high tech and software in the San Francisco Bay area, movies in Hollywood, business and financial services in New York and London, and fashion in Paris and Milan (Scott 2007: 1470). This emphasis on growth driven by agglomeration economies, and the virtuous interaction between skilled labor and firm preferences, characterizes cities as environments where value chains and networks of actors can be reconfigured rapidly and efficiently because of their efficiency at coordinating and accelerating the search processes that are the basis of innovation and growth. In this sense, cities are like giant 'Schumpeterian hubs', or 'switchboards which permit the constant creation and reshaping of the chains linking producers, consumers, and different kinds of indirect players of the economy' (Veltz 2004).

Attractive as the prospects are for talent-based approaches to economic development, the uneven distribution of creative occupations and highly skilled labour, coupled with growing degrees of social polarization in the largest and most successful urban agglomerations, signals potential pitfalls for urban growth strategies. The pursuit of more inclusive talent-based strategies is seen to be essential for tapping into the full knowledge resources of the labour force; the greater the degree of social inclusion, the larger the potential pool of participants available to contribute to the creative processes essential for innovation. This point is underscored in Florida's recent admonition: 'If we are to truly prosper, we can no longer tap and reward the creative talents of a minority; everyone's creative capabilities must be fully engaged' (2005: 35). The key question is how to pursue sociallyinclusive, talent-based economic development strategies at the urban level while recognizing that some of the key institutional underpinnings are the responsibility of senior levels of government. Clearly, a major challenge facing urban regions in Canada and elsewhere is to generate the institutions capable of dealing effectively with the challenges of social integration and inclusion.

Strategic management of urban regions

Economic prosperity in city-regions, driven by the knowledge-intensive innovation embodied in knowledge transfers and the dynamic relations between talented workers and the cognitive creative dimension of the economy, is a desirable goal. The foregoing discussion suggests, however, that the fruits of knowledge-intensive economic activity are distributed unequally between cities of different sizes, industrial specialization, and

labour markets, as well as between individuals within those cities. Efforts to improve the economic performance of city-regions, therefore, need to address the institutional capacity of urban regions to support their industrial transformation. Increasing analytical attention is focused on cities' capacities to formulate responses to their own particular set of challenges. Relatively few cities enjoy the same endowments as Paris, New York, or London, but each has its own institutional assets and capacity for the development of its local economy. In this sense, there is growing theoretical interest in the abilities of cities to alter their own economic fortunes and in how 'communities can affect the tenor and trajectory of regional economies through a concerted, organized, *organizing* approach' (Safford 2004a: 39).

While local factor endowments strongly shape the trajectory of economic change within regions, arguments about political agency assume that cities have a measure of control over the direction of economic and social change (Simmie & Wood 2003; Savitch & Kantor 2002). One response to the growing trend towards knowledge-intensive production on a global scale has been an increased emphasis on 'strategic management policy' at the regional and urban level. At the heart of this approach is 'the development and enhancement of factors of production that cannot be transferred across geographic space at low cost' (Audretsch 2002: 174). Variation in cities' innovative capacities depends as much on 'collaboration between agents and their ability to mobilize assets', as on the ability to create and diffuse new knowledge (Simmie & Wood 2002: 149). A key question for policymakers at the local level is how to create the right conditions for generating the growth of more knowledge–intensive forms of economic activity within the context of dynamic local innovation systems. Rather than concentrating on the zero-sum competition for inward investment or 'talent', the most successful places will focus on searching for and generating new economic knowledge that drives innovation and export success. Much depends on their ability to develop the 'organizational and institutional infrastructure within which collective action [can] be taken' (Safford 2004b: 4).

The successful adoption of a 'strategic management policy' at the urban level requires not just a new category of policy but a new style of policy development, deploying what Gertler and Wolfe label 'local social knowledge management' exercises. Successful regions must be able to engage in regional foresight exercises that identify and cultivate their assets, undertake collaborative processes to plan and implement change, and encourage a regional mindset that fosters growth. These circumstances place new demands on the role of strategic planning exercises at the regional level. The policy challenge, then, is to establish effective systems for social knowledge management at the local scale (Gertler & Wolfe 2004). The successful implementation of such an approach ultimately assumes that 'different imaginaries are possible . . . and can be harnessed in the service of political action directed to social change' (Scott 2007: 1466).

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