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THE ECONOMIC VITALITY OF METROPOLITAN REGIONS IN THE KNOWLEDGE ECONOMY : DEFINING THE PRE-CONDITIONS FOR SUCCESS

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INTRODUCTION

This paper explores the role of urban areas in economic growth, with special emphasis on their evolving role in the new knowledge-based economy, and the resulting challenges for the governance of metropolitan regions, both in industrialized and developing nations[1]. The manner in which metropolitan regions are structured, governed and managed can have a profound impact on levels of economic welfare, job creation, and poverty reduction. Large metropolitan areas play an increasingly strategic role in the new knowledge economy. By the same token, metropolitan governance will become increasingly complex as regional economies become more globalized and information-rich. The task of urban managers, planners, and other regional actors will not be any easier. However, much can be learned from both the past mistakes and successes of metropolitan regions in the industrialized world.

THE CONTRIBUTION OF CITIES TO NATIONAL ECONOMIC GROWTH

The evidence on the positive link between cities (urban areas) and economic development is overwhelming. An abundant literature has accumulated demonstrating the positive contribution of urban areas to national economic growth. Numerous studies have, time and again, confirmed the positive relationship between per capita income and levels of urbanization (Jones and Koné, 1996; Lemelin and Polèse, 1995; Tolley and Thomas, 1987). Other studies have repeatedly demonstrated the disproportionate contribution of urban areas to national income and tax revenues (Petersen *et al.*, 1991; World Bank, 1991). Others again have demonstrated the positive link between productivity and the agglomeration of people and economic activity in cities (Ciccone and Hall, 1996; Glaeser, 1998; Henderson, 1988; Krugman, 1991; Rauch, 1993; Quigley, 1998).

The basic evidence is summarized in Figures 1 and 2 and in Table 1. Thus, Mexico City, with approximately 15% of the national population, generated some 34% of GNP. In Argentina, Greater Buenos Aires accounts for 35 % of population, but generates 53 % of GNP. For all cities, the contribution of urban areas to GNP is greater than their share of the national population. In sum, cities mean higher per capita incomes and higher productivity.

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[1] Parts of this paper draw on a presentation prepared for the World Bank Institute Core Course on Urban and City Management, May 2000, in Buenos Aires, Argentina, entitled “How Cities Create Wealth in the New Information Economy: Challenges for Urban and City Management in Developing Nations”.

Table 1 - The economic importance of cities*

Urban Area	Country	(A) Population	(B) GNP	Ratio
		Percentage of National Total		
		(%)	(%)	B/A
Sao Paulo	Brazil	8.6	36.1	4.20
Buenos Aires	Argentina	35.0	53.0	1.51
Santiago de Chile	Chile	35.6	47.4	1.33
Lima	Peru	28.1	43.1	1.53
Guayaquil	Ecuador	13.1	30.1	2.30
Mexico	Mexico	14.2	33.6	2.37
All Cities	Mexico	60.1	79.7	1.33
San Salvador	El Salvador	25.8	44.1	1.71
Port au Prince	Haiti	15.1	38.7	2.56
All Cities	Haiti	24.2	57.6	2.38
Casablanca	Morocco	12.1	25.1	2.07
Abidjan	Ivory Coast	18.1	33.1	1.83
Nairobi	Kenya	5.2	20.1	3.87
All Cities	Kenya	11.9	30.3	2.55
Karachi	Pakistan	6.1	16.1	2.64
All Cities	India	19.9	38.9	1.95
Shanghai	China	1.2	12.5	10.42
Manila	Philippines	12.1	25.1	2.07
Bangkok	Thailand	10.9	37.4	3.43
Moscow	Russia	5.8	10.9	1.88
All Cities	Turkey	47.1	70.1	1.49

* Results are for years within the range 1975-1995, depending on the case.

Sources: World Bank, 1991; De Mattos, 1999; Economist, 1997; PRISMA, 1996.

The results in Table 1 hold for countries with different economic systems and histories (note the figures for Russia and China), and as such cannot simply be explained by what some would call the unequal development patterns of (capitalist) free market economies. Clearly, there is something in the very fact of urban agglomeration that contributes positively to economic growth.

Figure 1 - GNP per capita and urbanization levels
Each dot represents a nation

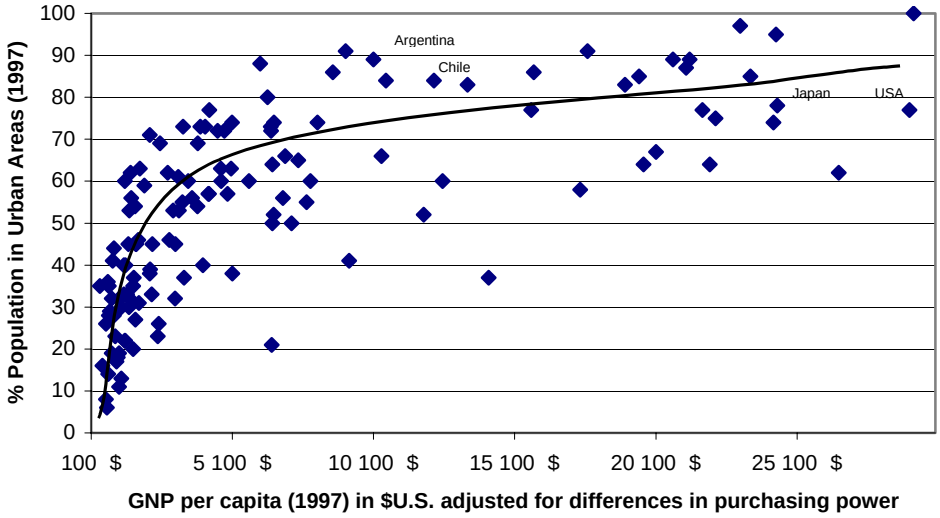
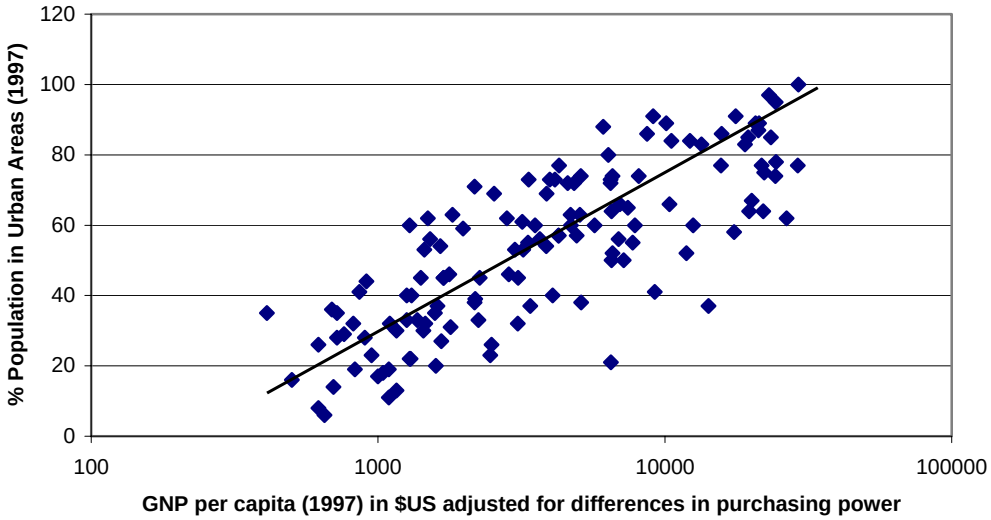


Figure 2 - GNP per capita (*Logarithmic Scale*) and urbanization levels
Each dot represents a nation



Source : World Bank 1999

However, the evidence also shows that high levels of urbanization and the presence of large cities are not necessarily sufficient to ensure First World levels of development. This is most clearly evident in the Southern Cone nations of Latin America (Argentina, Chile, Uruguay) with levels of urbanization above 80% (higher even than the United States), yet with real per capita incomes about a third that of the United States (Figure 1). Clearly, these nations have not drawn the full benefits of urbanization. Given their levels of urbanization, they should "normally" show much higher levels of economic welfare. By the same token, urban size does not necessarily guarantee economic prosperity. The presence of mega-cities (such as Sao Paulo, Lagos or Calcutta) is manifestly not a sufficient condition to ensure First World levels of development. Cities, in other words, are a necessary condition for economic development but they are not a sufficient condition.

Unravelling the effects of national and local policies

Why do some metropolitan regions succeed better than others in realizing the economic benefits associated with size and agglomeration? There is little doubt that national economic policies, history, accident, and factors such as culture and values will continue to be dominant in explaining the relative wealth (and poverty) of regions: see Landis (1998) for a historical perspective. The economic potential of cities is necessarily limited by national conditions. Levels of economic development will very much depend on macro-economic and monetary policies, regulatory frameworks (i.e. the rule of law and property rights), and public education systems. These are all what Olson (2000) calls "public goods", requiring collective action. Without these, the potential benefits that can be reaped from metropolitan economies will necessarily be limited.

How important are local and regional policies? The answer is not simple, not least because the dividing line between local, regional, and national policies may vary from one nation to another. In one nation, water may be a national responsibility (whether privately or publicly provided) while it may be municipal in another. Legislation at the national level (or state in federations) will largely define the political-administrative structures by which metropolitan regions are governed. In most nations, local levels of government or administration (municipalities, towns, specialized public service agencies, etc.) are creatures of senior levels of government. Many policies affecting transportation (petrol taxation, highway construction, etc.) will generally be decided at the state or national level. The mix of policies that affect the economic potential of metropolitan regions will necessarily be diverse, and will vary from nation to nation. In this respect, Krugman (1996) draws an essential distinction between cities or metropolitan regions (as policy-making units) and cities as places for production; the attributes of places (metropolitan regions) will necessarily affect their economic vitality. The emphasis in this

paper is on local and regional policy choices. The challenge for urban policy makers is understanding the links between policy choices and economic development.

THE ROLE OF CITIES IN ECONOMIC DEVELOPMENT

What explains the propensity of cities to generate higher incomes? Economists often turn to the concept of agglomeration economies to explain the higher productivity of firms in urban settings. Agglomeration economies refer to the productivity gains derived from the geographic clustering of firms and people in cities: see Henderson (1988) for an econometric application to Brazilian and U.S. cities. They include, for example, the gains derived from economies of scale, shared fixed costs, information flows, face-to-face contacts, input-output relationships, lower transports cost, and integrated labor markets. In the early 90's, a World Bank study introduced the idea of *urban productivity* to cover the broad range of factors which make cities more productive (World Bank, 1991). However, a rigorous (easily quantifiable) statement of the relationship between cities and higher productivity continues to elude us.

Cities, markets, and the importance of basic public services

Jacobs (1984) argues that cities have historically been the prime movers in national economic growth. Cities, as the medium by which ideas circulate and exchange takes place, become essential vehicles of innovation, change, and development. The countryside is often first to gain from the presence of cities. Farmers can only bring their products to market if there is a market *place*. National markets must be integrated if the gains from trade are to be realized. This requires market centers for exchanging goods, services and information. Efficient market places mean lower costs and higher productivity (and wages). Cities exist to allow goods, ideas, and people to come together for purposes of production and exchange, in turn allowing society to reap the gains from trade, specialization, and diversity (Glaeser, 1998; Quigley, 1998). Goods and services cannot be traded without urban places.

Cities have historically acted as distribution centers and points of contact with the rest of the world, as the warehouses (now often abandoned) in old central areas bear witness. This in turn demands not only working road and transportation systems, but also refuse collection services, public order and safety, and local legal and regulatory structures. International trade also calls for a diverse set of ancillary services, necessarily located in cities: insurance, banking, customs brokers, advertising, etc. It is the combined efficiency of these diverse functions (both public and private) that will in part determine the capacity of the metropolitan region to create wealth. The costs of inferior public services and infrastructures will be born by local firm and translate into lower production and employment levels. The ability of local authorities to provide

appropriate services will bear directly on the productivity and cost structure of firms. Table 2 illustrates the link between local public services and the productivity of firms; in this case, the costs to firms of inferior services.

In sum, if such services are adequately provided, and if national macro-economic policies are sound, then urban areas will create the wealth which agglomeration should normally generate. This is the basic starting point for success.

Table 2 - The Impact of inferior public services on the productivity of local firms

Service	Additional Costs
Power / Electricity	Black-outs; production loss; market share loss; need to purchase own generator; reduced scale economies; impact on telecommunications (see also below).
Water and waste collection and disposal	Water: variability in pressure; unreliability; need to provide or purchase own water. Need to provide or purchase separate waste disposal services.
Security / Protection of persons and property	Theft; personal injuries; insurance premiums (including fire); private security services; protection devices; psychological costs; stress; impacts on labor productivity.
Transportation and distribution (goods)	Delays (opportunity cost of time lost); vehicle repairs and fuel costs (due to poor road conditions); insurance premiums; goods damaged or spoiled; market share loss.
Transportation (persons)	Travel time lost (opportunity costs); reduced possibilities for management and customer meetings; impact on managerial efficiency. Costs born by employees (fatigue; time); impact on labor productivity.
Communications (mail, telephone, internet, etc.)	Time lost (opportunity costs); information lost; impact on efficiency, market penetration, and innovation.

Metropolitan regions in the knowledge economy

The role of cities in economic development is evolving. Since the beginnings of the industrial revolution, cities have been essential for the full realization of productivity gains. However, cities existed before the industrial revolution, as centers of exchange, trade, innovation, ideas and artistic creation. Many would argue that this is the true essence of the city (Hall, 1999). With rise of the knowledge economy, cities are returning to their primary function as centers of creativity and innovation. Cities in the industrialized world are shedding their manufacturing functions (Ingram, 1998); similar trends are observable in most large Latin American cities (Polèse, 1998; Polèse and Champagne, 1999). To quote Glaeser (1998:145): "If cities' only advantage was eliminating transport costs for manufactured goods, then cities would…cease to exist".

The new knowledge-based economy involves moving people and ideas, or as a colleague nicely put it, the new economy is all about "buzz"[2]. The costs of moving people and ideas remain important. Contrary to what is often believed, new information technologies do not reduce the demand for face-to-face interaction. Most evidence suggests that electronic and face-to-face contacts are complements, not substitutes (Gasper and Glaeser, 1998; Hall, 1999:962-63); witness the rapid increase in business air travel. New information technologies increase the demand for face-to-face contact, thus creating further needs for spatial concentration (Jordi and Castells, 1997:376-398). Recent evidence for Canada shows an increasing trend to concentration (Polèse and Shearmur, 2001, 2002). E-mail, teleconferencing, and fax communications often create a demand for personal meetings, either as preludes or follow-ups to electronic communication. By the same token, the nature of face-to-face contacts is changing, dealing less with basic information exchanges and more with personal contact, the establishment of trust, networking, and exchanges of specialized and personalized information. The basic cost of transporting people is the opportunity cost of time and this cost rises as societies develop (Glaeser, 1998). Agglomeration economies are becoming more, not less, important as we move into the knowledge economy

The growing demand for face-to-face business contacts is also being driven by the shift from standardized (goods) production to increasingly information-rich and creativity-rich products. In most industrialized nations, the most rapidly growing sectors are producer services and entertainment (Polèse and Shearmur, 2002). The entertainment and media industry includes activities such as filmmaking, radio and television broadcasting, video clips, printing and publishing, telecommunications, computer animation, the internet, as well as a vast array of activities falling under the

[2] The word "buzz" conjures up the image of a beehive, the noise emanating from coming-together and interaction of thousands of worker bees.

heading of art and artistic creation. Producer services define intermediate services entering into production: technical advice, consulting, computer services, management, accounting, design, marketing, financial services, etc. Activities carried out in national or regional head offices equally fall into this class. These varied (and constantly evolving) activities basically define what is loosely called the knowledge economy.

The activities comprising this new economy are very sensitive to urban size with a high propensity to concentrate in a few large cities and to form local clusters (Anas *et al.*, 1998; Hall, 1999: 962). People working in these activities come together in offices, studios, restaurants, hotels, classrooms, etc. Firms and people cluster to be close to where the "buzz" is, to maximize their chances of getting the latest and best information. Crucial information will often be learned at parties, bars, or other informal gatherings. *The challenge is fostering conditions that allow people to meet and to interact efficiently and pleasantly*. If the "buzz" is sufficiently dense, competitive clusters of firms and workers will form. The existence of talented and diversified labor pool is probably the most important determinant of industrial clustering in knowledge economy (Glaeser, 1998: 146).

Globalization has thrown in an additional ingredient. The talent, people and capital that must come together to form clusters are increasingly mobile internationally, constantly in search of the most dynamic clusters. Particular cities can gain but also lose their competitive advantage for attracting talent. Terms such as "urban competiveness" and "competitive cities" have been coined to reflect this new awareness (Lever and Turok, 1999). As Porter (1996) argues, cities and regions may not compete in the same way as nation-states. However, they do increasingly compete for mobile people and other mobile factors of production, a point also stressed by Weiss (2001). In a nutshell, the game is all about nurturing, attracting, and holding talent.

MANAGING METROPOLITAN REGIONS IN THE KNOWLEDGE ECONOMY

What does this mean for the governance and planning of metropolitan regions? The realization that competitive cities must provide environments where creative people will congregate is giving rise to new concerns, some of which (ironically) take us back to the traditional objects of city planning and city management.

Lively city-centers, public transit, and smart growth

The innovate (and often unconventional) minds that thrive in the knowledge economy seek out creative environments. As such, downtown revitalization and heritage preservation have come to the forefront as priorities (Weiss, 2001). An attractive central business district (CBD) where people can usefully interact is becoming an essential

foundation of an information-rich metropolis. The new information-rich global city is often a walking city, at least in its central areas. This goes together with concerns about public safety, the design of people-friendly public spaces, and urban animation. By the same token, the aesthetics of the city and the design of parks, green spaces, and squares takes on a new importance (CUI, 1999; Weiss, 2001).

The need to move people efficiently has also meant a rebirth in interest for public transit[3], whether private or public (buses, trams, mini-buses, subways, etc.). A functioning CBD requires the daily movement of vast numbers of people, destined for the central area. In most large urban areas, sufficient employment densities cannot be attained without some form of public transit. Metropolitan regions wholly or largely dependent on the automobile are finding it more and more difficult to sustain dense employment centers. Cities with the most vibrant CBD's are generally those that have succeeded in maintaining public transit systems as an alternative to the car. The ability to maintain functioning mass transit systems is in turn linked to land use and density. Profitable public transit systems require minimum levels of population density with, ideally, corridors of settlement. They also require that competing transport modes be priced so that the use of private cars is not implicitly subsidized, compared to public transit.

The realization of the interrelationships between downtown revitalization, density, and public transit has given rise (especially in North America) to a growing opposition to urban sprawl and low density car-oriented urban development (Leo *et al*., 1999). The movement is also fuelled by environmental concerns and cost-efficiency considerations. Low density and discontinuous, settlement patterns increase the maintenance costs of infrastructures and services (water and sewage, streets and roads, refuse collection, etc.), while the combined effects of high automobile use (CO^2 emissions) and low-density land use run counter to most environmental objectives (Blais, 1995; Tassaonyi, 1997). Many North American urban areas are discovering that their settlement patterns, however positive they may have appeared in the recent past, are poorly adapted to future needs. To quote a Bank of America (1999:2) report "(The) acceleration of sprawl has surfaced enormous social, environmental costs, which until now have been hidden, ignored, or quietly borne by society. The burden of these costs is becoming very clear. Businesses suffer from higher costs, a loss of worker productivity, and underutilized investments in older communities". Referring to Southern California, specifically the Los Angeles area, the authors fear that the growing gridlock on its freeways, which raises the cost of moving people, and the high capital investment costs for public transit infrastructures resulting from low density development, will on the long run throttle the creative potential of the region.

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[3] The term "public transport" is used here as a synonym for collective modes of transport, without any necessary implications as to ownership.

However, the new emphasis on core-oriented, denser, settlement patterns does not mean that more peripheral locations should be neglected. From an economic perspective, the metropolis is an integrated market, with numerous interrelated units. A strong core is vital for a strong periphery. Space-extensive activities such as manufacturing and wholesaling, but also laboratories, will generally seek out suburban locations. Here, the need to interact will lead to the formation of business clusters, often around industrial parks and major transport axes. Knowledge-intensive and high-tech manufacturing (and R& D) activities will often locate near amenity-rich locations (in terms of access to green spaces, better residential districts, airports, etc.), precisely because, here again, we are dealing with highly mobile talented labor. This, in turn, means the identification of clusters and the provision of appropriate services, amenities, and associated greenfield infrastructure planning. Here again, transportation is vital, in order to ensure fluid links with central areas and other parts of the metropolis, which brings us back to the necessity of marinating an efficient balance between motorized transport and public transit, if the kind of gridlock mentioned in the previous paragraph is not to take hold.

Taming the car: Avoiding past mistakes

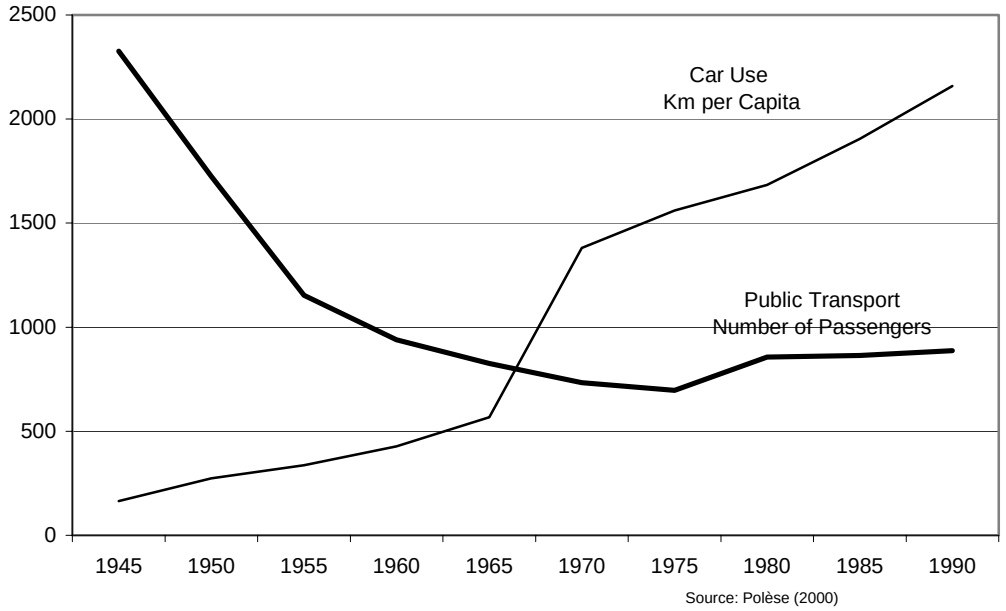
The cities of the North made mistakes that the South need not reproduce (Polèse 2000). This is nowhere truer than for urban transportation planning. The sprawled cities of the American West and South are not the inevitable outcome of market forces, although market forces are certainly at play. They are largely the (unintended) result of policies such as low petrol taxes, generous subsidization of appropriately named freeways (including intra-urban freeways) and subsidies to stand-alone single-family land-extensive housing. It is entirely possible to destroy public transit with sufficient neglect and mismanagement (see Figure 3). Public transit today accounts for less than 10% of daily journey-to-work trips in most major U.S. cities, with New York a major exception (Newman and Kenworthy, 1991, 1998). In metropolitan regions such as Los Angeles, Dallas and Atlanta, the percentage of public transit users has fallen below 5%. The difference with European and Canadian cities is instructive; the respective percentages (for public transit use) is close to 30% in Montreal, 37% in Stockholm, and 40% in Paris (TAC, 1996; World Bank, 1999) according to figures for the early 1990's.

Hall (1999: 966-970), contemplating the future of the modern metropolis, is especially brutal in his assessment of the social and environmental costs of car-dependent urban development. Hall compares America's infatuation with the motorcar to a Faustian bargain. It gave citizens mobility, but its negative consequences were not apparent at first. Now, the bill is coming in. Repairing the damage and reversing the trend is turning out to be very expensive. The American federal government and

American cities are today investing billions of dollars on public transport. Many U. S. cities (New York, Boston, San Francisco, etc.) are tearing down highways in their central cities (CUI, 1999). Most European cities have continued to invest in new and improved public transportation systems, parallel with restraints on the free use of the car: pedestrian malls, preferential access for surface public transport. The recent tax imposed on cars entering the center of London is a good example.

Once urban spatial structure is in place, it cannot be undone. Once public transit has declined, it is difficult (and very expensive) to revive. Herein lies an important lesson for urban planners and managers, especially in developing nations. To maintain effective public transit systems, the public sector must act early when demand for mass transit is still high. As incomes rise, car ownership will inevitably rise and enter into competition with collective modes of transport. Demand for public transport is still high and still profitable. In most developing cities, public transit use is above 50% (World Bank, 1991, Table 3.11).

Figure 3 - Urban Transport by Mode, United States, 1945-1990



Source: Polèse (2000)

This is an opportunity for urban managers in developing countries. However, this also often translates into a false sense of security with respect to public transit. Transport routes are coveted and exploited by private operators. But, this situation will not last. Demand for public transport will eventually fall below levels where it is profitable, setting off a circle of decline (Figure 4). That is, unless urban managers at all levels have had the foresight to "plan" settlement patterns, land use, and transit systems (including the pricing of competing transport modes) so as to encourage the continued use of modes other than the automobile, including incentive mechanisms (often via the tax system) so that consumers of urban space (and transport) increasingly pay the true costs of their decisions. The Canadian and European experiences demonstrate that the maintenance of effective public transit systems is not incompatible with high automobile ownership.

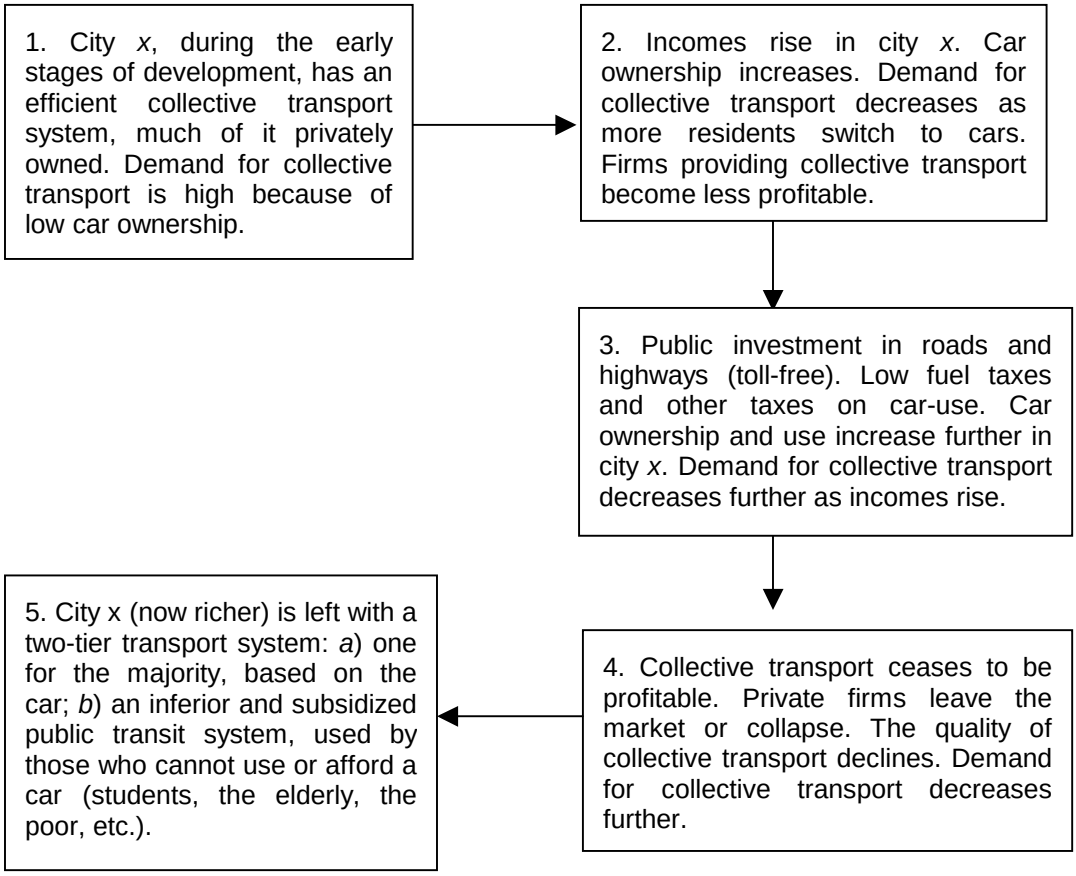
Mechanisms that promote social cohesion and a shared regional vision

The rise of the knowledge economy has fostered a new interest in metropolitan governance. In most nations, large metropolitan areas remain politically and administratively fragmented. Political boundaries do not necessarily correspond to the functional boundaries of urbanized areas. However, most of the policy areas essential for regional economic vitality require some form of coordination at the metropolitan level. Public transit systems need to be managed at the regional level.

Other infrastructures will equally be best managed at the regional level if scale economies are to be realized (water and sewage, refuse disposal, etc.). Land-use planning to ensure efficient settlement patterns and the maintenance of a strong core (and / or corridors of settlement) requires some form of authority at the metropolitan (or supra-municipal) level. As Weiss (2001) points out, there is in no one model of metropolitan governance. The range of institutional arrangements is almost endless (Bourne 1999), including special purpose agencies such as the New York Port Authority or the RATP (*Régie autonome des transports parisiens*) in Paris.

Whether we use designations such as "global cities" or "city-regions", the question arises of what kind of structures are best suited to represent (and defend) large metropolitan areas in the global arena. Competition for mobile talent essentially takes place between city-regions. Inter-municipal competition (within metropolitan areas) can be counter-productive. Who, for example, should speak for metropolitan Paris, Mexico City, Los Angeles on the global stage? The need to be seen and heard on the global stage has given rise to various forms of metropolitan coordination, sometimes led by private sector institutions such as Chambers of Commerce, especially in the United States. In Canada, the municipalities of greater Montreal have recently entrusted a single (non-profit) agency to manage international prospecting for the region.

Figure 4 - Rising Incomes, motorization, and the decline of public transit



The metropolis forms, by definition, one integrated labor market. As such, the region (metropolis) is in principle the appropriate level at which to mobilize stakeholders to formulate economic development strategies. In the absence of formal regional structures, such mobilization can occur via parallel and ad hoc structures, involving public and private actors. Informal structures, often with a strong private sector involvement, are particularly prevalent in the Unites States, precisely because of the general absence of metropolitan governments. This is in part explains why Weiss (2001) puts such a strong emphasis on the need to build a regional consciousness and citizenship. The issue takes on particular significance in regions with important social (or ethnic) divisions. The greater the social (or ethnic) divide within the metropolis, the more difficult it will be to convince actors to share resources. Herein lies a major dilemma: the more urgent metropolitan governance structures are for social cohesion, the more difficult they are often to put into practice. As the South African example demonstrates, metropolitan cooperation in such cases will often come about through pressures from above; that is, from the national government.

Here again, urban managers in the developing nations can learn from the errors of the North. American authors have been particularly vehement in denouncing the divisive social effects of fragmentation (Levine, 2000; Rusk, 1993; Weiher, 1991). The high concentrations of poverty and crime in many American inner cities (close to the central core) can in large part be explained by the fiscal imbalance between the central municipality and the (richer) suburban municipalities. This imbalance often translates into differences in the quality of local public services (which in the U.S. includes primary education) in turn inducing the wealthier citizens to abandon the central parts of the city, setting in motion a self-reinforcing circle of residential segregation and social exclusion (Bourne, 1992; Polèse, 2000). The link with economic development is important. Divided and fragmented metropolitan regions, often plagued with problems of crime, will have more difficulty in attracting and holding the talent and mobile resources essential in the knowledge economy.

Some authors, most notably Sassen (1991), have suggested that globalization may widen the gap between rich and poor in cities. Where no region-wide mechanisms exists to oversee the equitable distribution of public services, investment decisions will often serve to widen the welfare gap between rich and poor areas. Both Levine (2000) and Lungo (2000) point out the links between urban form, social equity and metropolitan governance. In developing cities, where the poor are often located at the urban periphery, strategies to combat poverty must necessarily look beyond the central city.

THE GROWING IMPORTANCE OF COLLECTIVE ACTION

We can now come back to questions asked earlier. Why are some metropolitan regions more successful in creating wealth than others? Part of the answer lies in Figures 1 and 2. The positive link between urbanization (*y*) and GNP per capita *(x*) can be expressed as a linear relationship (*x* is a linear function of *y*) when GNP per capita is measured on a logarithmic scale (Figure 2). However, on a normal scale, the relationship takes on the form of a lopsided “L” (Figure 1). The urbanization curve rises very steeply early-on in the development process to flatten out after about $5,000 (GNP per capita). Fairly high levels of urbanization are attained at relatively low income levels. In other words, the “pure” gains from urbanization (i.e. the geographic agglomeration of people and activity) rapidly diminish after a certain point. Beyond that point, GNP gains derived from increased urbanization and city size become more difficult. Why should this be so?

The first part of the answer is simply mathematical. Once urbanization levels of 70% or higher are reached, it is to be expected that increased urbanization, in and off itself, will contribute only little to GNP growth. However, what this also suggests is that the gains beyond this point will depend on more than automatically reaping the “pure”

benefits of urbanization and agglomeration. This means that as nations develop the economic performance of metropolitan regions becomes increasingly sensitive to the provision of public services and the ability to provide cooperative environments conducive to complex business transactions. Public policy and collective action set the upper limits of the potential gains to be reaped from agglomeration. This in part explains why the mere presence of large cities, although a necessary condition for economic development, is not a sufficient condition. In sum, while large cities are more and more vital in the knowledge economy, their success is increasingly dependent a complex mix of public policy choices and collective actions.

The provision of the services that make cities productive require collective action (recall Table 2), with taxation perhaps the clearest expression of a society's will to act collectively. Admittedly, what Olson (2000:175) calls spontaneous markets will arise in the absence of a functioning public sector. The vitality of the informal sector in many cities of the developing world bears witness to this. However, these are limited markets where the costs of doing business (what economists call transaction costs) are high, due in large part to the absence of clear collective mechanisms for contract enforcement, property rights, and long-term credit. Sustained economic development requires the creation of more sophisticated markets. Globalization means that mobile capital and talent will move to those places (regions) where the provision of public services is most conducive to the efficient functioning of complex markets; *places* where people can productively, securely, and conformably come together and work together. The successful participation of the private sector will, in almost all most cases, depend on the existence of an efficient public sector (i.e. concessions and sub-contracting). Such public-private arrangements are complex, requiring a skilled (independent, well-paid, and honest) civil service and an established legal framework.

Many local services needed for the efficient operation of complex markets are "pure" public goods that must be financed through taxation. The private sector can *build* roads, streets, lampposts, parks, police stations, fire stations, traffic lights, etc. Local government can subcontract services such as road maintenance, street cleaning, fire-fighting, residential refuse collection, and even policing. But, in all these cases (with the possible partial exception of residential refuse collection), these are subcontracts where the public sector must in the end pay the subcontractor, whose feasibility thus invariably depends on the capacity of the public sector to collect taxes. This scenario implies prerequisites that are not always present in local authorities in the developing world. The administration of property taxes presents problems that are well documented (Bahl and Linn, 1992). Tax coverage and collection are often spotty. This in turn decreases the incentive for local authorities to promote economic development. Here we confront one of the most difficult dilemmas, whose effects are severely felt in cities in the developing world: the circular feedback process between public service provision and public revenue. The more a region is successful in providing services the more its revenues

will increase and the more services it will be able to provide in turn, further strengthening its tax base; and so on. This cumulative process favors well-established and well-managed regions.

CONCLUSION: SEVEN QUESTIONS

Information-rich activities are highly dependent on face-to-face contact and the clustering of talent. New telecommunications technologies are accelerating this trend, creating new and more complex demands for *places* where face-to-face contact can occur. In the past, the primary economic advantage of large cities lay in their capacity to move goods. In the future, the competitive advantage of cities will depend more and more on their capacity to move people, to bring them together, and to create places where ideas and information can be usefully (and pleasantly) exchanged. The interactive potential of urban places, their knowledge density, their creative buzz, and their overall quality of life will increasingly become strategic considerations, defining the competitive advantage of metropolitan regions.

The combination of factors that together make up a successful region is growing increasingly complex, and can include a wide range of formal and informal institutional options. No two cases are exactly the same, which is why it is difficult to provide ready-made solutions. Finding the right mix will vary from region to region, depending on the level of development of the host nation, its institutional traditions, and the particular strengths and weaknesses of the region. We shall conclude by drawing up a checklist of conditions for success in the form of seven questions. No metropolitan region will necessarily score positively on all:

1. Do the local authorities (municipalities, special purpose agencies, etc.) that make up the region possess the necessary taxing powers, revenue base, and administrative capacity to provide quality public services needed for economic development (recall Table 2)?
2. Do revenue-sharing (or revenue raising) mechanisms exist at the level of the region, which:
    - Allow for the financing of region-wide services and infrastructures such as public transit, wastewater treatment plants, street maintenance, and public safety?
    - Promote social cohesion via a (perceived) equitable local tax system for all citizens of the region?
3. Do mechanisms exist that allow for land-use and infrastructure planning at the regional level, notably with respect to transportation and major industrial infrastructures (i.e. business parks)?

4. Is the region (or other levels of government) applying policies that seek to "tame the car", and in turn to promote public transit and alternative transport modes (bicycles, walking, etc.), including heritage protection, pedestrian malls, and the residential and commercial revitalization of downtown neighborhoods?
5. Does the region possess an agency or authority with the mandate to market and represent the region internationally, and perhaps also to devise region-wide economic strategies?
6. Is the region (or other levels of government) investing in education, cultural institutions, and other amenities that will allow it to nurture, hold, and attract the best talents?
7. Does a public-private forum exist (formal or informal), with actors from all levels of society, where metropolitan economic strategies are discussed, and where a common vision is being (or has been) developed?

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