

Competitiveness and attractiveness of Canadian cities: A new deal
Background paper

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Executive summary

The continuous process of urbanization that we can observe around the world demonstrates the advantages of concentrating people and economic activities in cities. In that sense, we can say that cities always mattered but they matter even more today in the new era of the knowledge-based economy. The information and technological externalities generated by the spatial concentration of activities become an integral part of the value creation process of businesses. Investments that local firms make in R&D and human capital benefit not only them, but all other firms in the region. In that regard, it is no longer cities as such that really matter, but the geographical areas that encompass the majority of such externalities and where institutions exist that facilitate the diffusion of information and knowledge. These geographic areas are called city regions.

City regions matter as the main engines of Canadian prosperity and growth. They derive this potential from the spatial concentration of the main ingredients of the innovation process: industrial clusters, research centres, skilled labour, infrastructure and supporting institutions. This combination of knowledge-based assets, firms and institutions generates externalities that benefit everyone in the region and helps attract capital and skilled labour.

The problem is that Canadian city regions in general are not very competitive in the globalized economy. Using real GDP per capita as an indicator of competitiveness, the OECD ranked 65 metropolitan areas around the world. Boston came in first, while Toronto was the top-ranked Canadian metropolitan area, coming in 30th. Montreal and Vancouver were ranked 38th and 44th, respectively. In the top 30, we find 22 US metropolitan areas. Looking at average labour productivity, the ranking of Canada's largest metropolitan areas is even worse. Toronto was ranked 35th, while Montreal and Vancouver were 49th and 50th, respectively. Finally, based on OECD data, it appears that differences in the labour productivity of Canadian metropolitan areas are largely due to low levels of complementary production factors such as the stock of capital, education, expertise, etc.

Although Canada must invest in all factors of its cities' competitiveness, the paper singles out one factor in particular: public capital investment. It analyzes how important such investment is and how it can improve productivity and stimulate growth. The conclusion is that infrastructure spending has not kept pace with economic growth and there has been no increase in private investment to offset the shortfall. This decline in public capital investment is largely attributable to the federal and provincial governments whose shares of public expenditures declined substantially while the share of local governments increased, but not enough to compensate. According to the Canadian Society for Civil Engineering the cost of rebuilding Canada's infrastructure is \$60 billion and the gap is increasing by \$2 billion per year.

Considering the importance of the challenge, the paper invites the federal and provincial governments to strike a new deal with the Canadian city regions for:

- Investing to accelerate growth
- Partnering to coordinate and fund public investment
- Sharing the benefits of new prosperity
- Reinvesting in capacity building and research

The paper also proposes certain general principles which should guide the revision and modernization of the co-operation between governments and municipalities. Firstly, the partners should agree on the priorities particular to each city region. Secondly, they should negotiate stable, long-term financing which includes the transfer of growth revenues to the cities in order for them to better plan their interventions. Finally, they should work out a framework for evaluating the economic impact of the interventions and, if need be, revising the strategies.

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Introduction

The importance of cities as main contributors to the value creation process, innovation and growth has long been acknowledged by European countries and the United States. These countries have taken strong measures aimed at increasing the competitiveness and attractiveness of their cities. In this overall competitive environment, Canadian cities find themselves in a poor competitive position. Their infrastructure is inadequate, their quality of life is deteriorating and they face increasing responsibilities with limited fiscal options.

A new deal aimed at the increasing competitiveness and growth potential of Canadian cities is urgently needed. The national forum of Canada's big city mayors to be held in Montreal in June 2004 is designed to pave the way to this new deal. This deal should first recognize the need to invest in the main ingredients of wealth creation: human capital, innovation, infrastructure and quality of life. Secondly, it should define a new partnership among the three levels of government that includes identifying and funding initiatives aimed at increasing the competitiveness of Canadian cities. Finally, to ensure sustainability, it should allow for some form of revenue sharing when it comes to the benefits of future growth.

This document provides general background information on the main challenges faced by Canadian cities. It proposes a new deal with other levels of government in order to raise the competitiveness of our cities and stimulate growth. In the first section, we present the main reasons why cities matter and why they matter even more today in the knowledge-based economy. The second section looks at the various factors of competitiveness and attractiveness and shows how Canadian cities rank in these factors in comparison with their main competitors. The third section gives some general information on the importance of total and local public capital investment in Canada. It also analyzes the impact of public capital investment on Canadian productivity and growth. The last section presents the main elements of the new deal: investing in new growth, partnering to co-ordinate and fund public investment and sharing the benefits through new revenue sources for cities.

1. Why cities matter

The continuous process of urbanization that we can observe around the world demonstrates the advantages of concentrating people and economic activities in cities. In that sense, we can say that cities always mattered but they matter even more today in the new era of the knowledge-based economy. The information and technological externalities generated by the spatial concentration of activities become an integral part of the value creation process of businesses. Investments that local firms make in R&D and human capital benefit not only them, but all other firms in the region. In that regard, it is no longer cities as such that really matter, but the geographical areas that encompass the majority of such externalities and where institutions exist that facilitate the diffusion of information and knowledge. These geographic areas are called city regions.¹

Canadian city regions matter not only because that is where most of the population lives but because they are at the centre of the innovation and wealth creation process. Like many other countries, Canada has experienced a continuing process of urbanization over the years. In 1921, there were only six urban areas with populations of 100,000 or more. In 2001, there were 27 such areas, accounting for 68% of the total Canadian population. Moreover, most of the wealth is concentrated in these city regions. Canada's seven largest metropolitan areas generate almost 45% of the country's GDP. Metropolitan areas

¹ The concept of city region encompasses urban cores, inner and outer suburbs, outlying semi-rural and rural areas. They exhibit a high level of economic and social integration. In the case of Toronto, Montreal and Vancouver, the spatial limits of the city region are very similar to those of the corresponding census metropolitan area. See [Vinodrai, 2001]

such as Vancouver, Calgary, Edmonton, Winnipeg and Montreal account for more than half their respective provinces' GDP.²

City regions also matter as the main engines of Canadian prosperity and growth. They derive this potential from the spatial concentration of the main ingredients of the innovation process: industrial clusters, research centres, skilled labour, infrastructure and supporting institutions. This combination of knowledge-based assets, firms and institutions generates externalities that benefit everyone in the region and helps attract capital and skilled labour.

The importance of cities to the wealth creation process and the creative benefits of proximity have been acknowledged for some time [Jacobs, 1984; Reich, 1992]. Recently, the Canadian innovation strategy [Government of Canada, 2001] described the central role of city regions in the following terms:

"A paradox of the global, knowledge-based economy is that sources of competitive advantage tend to be localized. Communities and regions across Canada use their knowledge resources to create economic value, and it is in communities that the elements of the national innovation system come together."

In the United States and Europe, the renewed importance of city regions has led to concrete policies and programs to raise the competitiveness of city regions.³ Canada must not fall behind. A clear strategy and partnership have to be put in place in order to lead this competitive battle.

Finally, city regions matter because over the years federal and provincial governments have shifted the responsibility for major aspects of social and physical infrastructure to municipal authorities. This decentralization was a response to the failure of other levels of government to provide differentiated and spatially sensitive programs and services. Unfortunately, in many instances, it was not accompanied by equivalent financial resources and the ability to set policy. In fact, part of the fiscal problems of these governments has been downloaded to municipalities, leaving them with numerous challenges but limited means.

2. Competitiveness and attractiveness of Canadian city regions

In the previous section, we described city regions as innovation centres and engines of growth. Successful regions generate spatial externalities that help increase productivity and innovation for firms that decide to cluster, compared to those that remain geographically distant. This is why we talk about the competitiveness of regions rather than firms. In this section, we first identify the main factors of competitiveness and then present the rankings of Canadian city regions in various samples of North American and world cities.

2.1 Factors of competitiveness and attractiveness

There are five factors of competitiveness that cover the main ingredients of the innovation process:

- skilled labour force
- knowledge-based assets
- strategic capacity to mobilize
- infrastructure
- quality of life

² Source: Conference Board of Canada [2003].

³ The main infrastructure program in the US is the Transportation Equity Act for the 21st Century (TEA-21) enacted in 1998. A total of \$217 billion has been allocated over a six-year period for projects including highways, transit and rail. This program has been renewed for another 6 years. For example, during the past decade, an average of \$263 million per year has been invested in the downtown and waterfront areas of ten US cities; roughly five times the amount invested in the City of Toronto. In Europe, the primary vehicle for infrastructure funding is the European Regional Development Fund, with a budget of approximately \$175 billion for the period 2000-2006 [FCM, 2002b].

The first and probably the most important for business in the new knowledge-based economy is a skilled labour force. Indeed, comparative data on cities show a strong relationship between education levels and the level of innovation and GDP per capita.⁴ Moreover, what matters besides a skilled labour force is the extent and quality of the relationship between the users of these skilled workers, mainly the business sector, and the suppliers, that is, universities, colleges and technical schools. Hence, in addition to a skilled labour force, the innovative capacity of a region will depend on the quantity of knowledge-based assets in the city region.

Knowledge-based assets such as investment in research, education and innovation are essential ingredients in the local innovation system. Moreover, the innovation system needs public/private partnerships to link R&D investment to industrial applications and specializations. In fact, innovation thrives in internationally competitive centres or industrial clusters supported by a vibrant entrepreneurial base of interdependent firms and institutions that facilitate linkages between the various actors in the cluster and provide access to risk financing.

This brings us to the third factor of competitiveness, the strategic capacity of a region to mobilize. Studies of innovative regions show that the extent of information and technological externalities depends heavily on the institutional and cultural environment specific to each city region.⁵ Economic competitiveness strategies do not emerge, they have to be fashioned and implemented. Therefore, elements such as leadership, entrepreneurship, partnership and policy are key to shaping long-term development. Of course, such leadership and vision must take place at the city region level.

The last two factors of competitiveness are related to the level and quality of infrastructure and to quality of life. Quality of life is crucial for attracting and retaining skilled labour. It encompasses natural and cultural amenities, as well as safety and fairness concerns. Quality of life appears to be most important for firms that employ high-income workers. Since demand for quality of life is income-elastic, high-income workers are attracted to locations with high quality of life, and the firms hiring these people tend to follow. Therefore, rising income increases the demand for quality of life, causing workers to move to areas that provide it.⁶ There is a kind of virtuous circle between quality of life, skilled labour and income levels. Moreover, the level and quality of infrastructure are an important factor of attractiveness since they support the activities of the private sector, complement private capital and help reduce costs. A clear example of this is the public highway that enables goods to be delivered faster to the market. The most successful city regions have the physical and electronic infrastructure to move goods, services and people quickly and efficiently within the region and to and from the outside.

2.2 Are Canadian city regions competitive?

If we look at the competitiveness factors discussed above, we can use some indicators to rank Canadian city regions alongside sample cities in North America and around the world. First of all, looking at the education levels of the labour force, we can refer to both extremes, those with a university degree and those who have not completed Grade 9. In 2000, among the 25 largest North American metropolitan areas, Toronto, Vancouver and Montreal ranked 15th, 20th and 25th, respectively, with regard to the percentage of the population that holds a university degree, and 21st, 14th and 25th with regard to the percentage of the population that had not completed Grade 9.⁷ However, breaking down these indicators by age group shows that Canadian metropolitan areas are catching up to their US counterparts. For instance, looking at the percentage of the population aged 25-35 with a university degree, the ranking of

⁴ Results of a study presented in Table 4.1 below show that an increase of 1 year of education leads to a 5.5% increase in GDP/capita.

⁵ A review of these studies can be found in Lapointe [2003].

⁶ Quality of life may affect attractiveness when workers with a given skill level accept lower wages in a high quality of life city. Firms will then be attracted by this wage/skill discount.

⁷ Looking more specifically at the percentage of the population that holds a master's degree or PhD, the three largest Canadian metropolitan areas stand at the bottom of the ranking. Sources: U.S. Census Bureau, 2000 Census, Statistics Canada, 2001 Census.

Canadian metropolitan areas improves with Toronto, Vancouver and Montreal ranking 7th, 12th and 15th, respectively.

As for knowledge-based assets and high-tech clusters, Canada has several clusters at various stages of maturity: aerospace in Montreal, agricultural biotechnology in Saskatoon, and financial services in Toronto, to name a few. Ranking city regions is always difficult when various studies use different definitions and data. However, looking at employment in high-technology sectors, one such study⁸ ranks Toronto, Montreal and Ottawa 10th, 11th and 14th, respectively, out of a sample of 16 large North American metropolitan areas. Internationally, compared with its main competitors, the G7 countries, Canada's best ranking is fifth position in performance factors such as external and national patent applications, labour force devoted to R&D, and technology balance of payments, while it ranks dead last in terms of government expenditures on R&D.⁹

With regard to infrastructure, it is acknowledged that Canadian city regions have been unable to avoid the deterioration of their infrastructure and provide the investment required to keep up with the level of growth. This is true for general municipal infrastructure, transit and housing.

- According to the Canadian Society for Civil Engineering [2004] the cost of rebuilding Canada's infrastructure is \$60 billion and the gap is increasing by \$2 billion per year.¹⁰ The Conference Board of Canada [2004] reports that, in Quebec, under-investment in municipal infrastructure over the past 25 years has created a need for \$15 billion in investment between now and 2020.
- The Canadian Urban Transit Association [2004] estimates that the country's public transit systems require \$21 billion in infrastructure spending for the period 2004-2008. Of this amount, 32.8% or \$6.8 billion is needed for rehabilitation or renewal, while the remaining \$14.2 billion is needed for expansion and ridership growth.
- The FCM [2002] estimated that 900,000 Canadian households were unable to afford their current housing.

Finally, on quality of life indicators, Canada and Canadian cities usually rank high in international surveys. Quality of life is generally reckoned to be higher in Canadian cities than in American, despite lower income levels and harsh winters. Canada topped the list of countries in the United Nations' annual human development report from 1992 to 2000, after which it dropped to number eight in 2003.¹¹ In the Mercer 2004 quality of life survey¹², all Canadian cities surveyed appear in the top 25 rankings, with Vancouver in 2nd position, followed by Toronto (12th), Ottawa (20th), Montreal (23rd) and Calgary (26th). In North America, Canadian cities outrank their American counterparts, with the exception of San Francisco.

The positions of Canada and Canadian cities in previous indicators have slipped in recent years. The FCM Quality of Life Reporting System (QOLRS) for 2004 has highlighted mounting pressures on income, the environment and poverty. Though post-secondary education, employment, income, poverty rates and homeownership have all improved since 1996, rising income gaps, reduced housing affordability and changes to social programs are increasing the odds against the poor.¹³

⁸ High-technology sectors are information technology, biopharmaceutical and aerospace. The survey on employment covers firms with 100 employees or more. Source: Montreal International [2003].

⁹ Government of Canada [2001].

¹⁰ TD Economics [2002].

¹¹ The index ranks 174 countries in terms of life expectancy, education and income.

¹² Mercer Human Resource Consulting assesses 39 quality of life criteria for 215 cities, including political, social, economic and environmental factors, personal safety and health, education, transport and other public services.

¹³ The FCM [2004] focuses on six quality of life factors in 20 municipalities that account for 40% of Canada's population: local economy; natural environment; personal goals and aspirations; fairness and equity; basic needs; and social inclusion.

Generally speaking, the position of Canadian city regions in each of these factors should impact the standard of living. Using real GDP per capita as an indicator of competitiveness, the OECD ranked 65 metropolitan areas around the world.¹⁴ Boston came in first, while Toronto was the top-ranked Canadian metropolitan area, coming in 30th. Montreal and Vancouver were ranked 38th and 44th, respectively. In the top 30, we find 22 US metropolitan areas. Looking at average labour productivity, the ranking of Canada's largest metropolitan areas is even worse. Toronto was ranked 35th, while Montreal and Vancouver were 49th and 50th, respectively. Finally, based on OECD data, it appears that differences in the labour productivity of Canadian metropolitan areas are largely due to low levels of complementary production factors such as the stock of capital, education, expertise, etc.

Table 2.1 summarizes the ranking of Canadian metropolitan areas for competitiveness where international surveys are available. Unfortunately, the indicators include only the largest Canadian metropolitan areas.

Table 2.1: Rankings of some Canadian metropolitan areas

	Skilled labour		Knowledge-based assets	Quality of life	Real GDP/capita
Type of Indicator	<i>University degree</i>	<i>Less than Grade 9</i>	<i>High-tech employment</i>	<i>General indicator</i>	<i>Adjusted for PPP</i>
Region covered	North America	North America	North America	Mercer International	OECD International
Number of cities	25	25	16	215	65
Year	2000	2000	2002	2003	2000
Ranking of CMA	15 th	21 st	10 th	12 th	30 th
Toronto	25 th	25 th	11 th	23 rd	44 th
Montreal	20 th	14 th	N/A	2 nd	38 th
Vancouver	N/A	N/A	14 th	20 th	N/A
Ottawa	N/A	N/A	N/A	26 th	N/A
Calgary					

Sources: given in the text

This table shows that Canadian city regions lag behind their competitors on most counts, except quality of life, though even this ranking has slipped in recent years.

2.3 Canadian cities' perceived competitiveness challenges

This section is based on a survey of the competitiveness and attractiveness of Canadian cities.¹⁵ The goal of this survey was to identify the major factors of competitiveness as perceived by the cities themselves and the challenges that they raise. Given the large variety of cities in terms of geography, size and economic base, it is difficult to reproduce the richness of the individual responses. Each city has its own strengths and weaknesses and, to a certain extent, is unique in its needs. Consequently, cities need the decision-making power and tools to address the particular problems of their communities. However, it is possible to group the main challenges facing cities into six broad categories: general economic base, skilled labour force, infrastructure, strategic capacity to mobilize, innovation in firms and organizations

¹⁴ The sample is composed of metropolitan areas with populations of 2 million or more that are essentially urban (less than 15% rural population). Real GDP is adjusted on the basis of national purchasing power parity (PPP).

¹⁵ A questionnaire was sent to the 22 members of the FCM Big Cities Mayors' Caucus, the MMC and the GVRD. It covered macroeconomic objectives, strategic environment and economic strategy relative to competitiveness, knowledge management, attractiveness and international promotion.

and quality of life. These are summarized in Table 2.2 along with the number of times they were mentioned.

When it comes to the general economic base, diversification is seen as a major challenge for those cities highly dependent on one industry or the government sector. Other cities stressed the positioning or branding of their cities in order to attract labour and investment. Finally, some cities highlighted improved productivity, access to markets and growth of firms.

The challenge of creating a skilled labour force implies greater investment in education and better adaptation of labour to specific sector needs. For cities, it raises the problem of how to attract and retain skilled workers, especially immigrants. Given Canada's falling birth rate and ageing population, a real challenge for many big Canadian cities is how to attract skilled immigrants.

Infrastructure is another major challenge facing Canadian cities, given their limited fiscal capacity and the huge amounts of money required. Many cities mentioned that they would not be able to overcome this challenge without new revenue sources and some form of partnership with the federal and provincial governments.

Table 2.2: Perceived competitiveness challenges

Economic base	
Diversification	7
Positioning	15
Market access	5
Productivity	7
Skilled labour force	16
Attraction and retention of skilled workers	17
Business needs vs. curriculum training	11
Declining population and aging	12
Infrastructure	16
Transportation	12
Municipal infrastructure	10
Availability of industrial lands	10
Revenue diversification	13
Strategic capacity to mobilize	14
Innovation in firms and organizations	18
Commercialization of R&D	10
Business/academic relationships	10
Clusters	19
Access to venture capital	18
Foreign direct investments	15
Lack of incentives	3
Quality of life	11
Social cohesion	14
Culture	7
The environment	9

Source: Table A-2 in the Appendix

The strategic capacity to mobilize stakeholders around municipal objectives is an important factor of success. In that regard, it is important to improve regional governance, control the main levers of development and encourage partnerships between the public and private sectors.

Concerning innovation in firms and organizations, many cities mentioned industrial clusters, high-tech clusters and other knowledge-based assets like research centres and universities as a major strength. For others, the development of such clusters represents a real challenge in terms of access to venture capital and relationships between universities and businesses to improve the commercialization of R&D. Overall, this confirms a broad acceptance of the clustering approach to economic development.

Finally, various quality of life elements, including social cohesion, are considered important for attracting and retaining skilled labour. However, many big cities identify the growing income gap, poverty and a lack of social housing as major threats to social cohesion and the overall quality of life, seeing them as major challenges.

3. Public capital investment and competitiveness

Although Canada must invest in all factors of its cities' competitiveness, in this section, we single out one factor in particular: public capital investment. We will analyze how important such investment is and how it can improve productivity and stimulate growth.

3.1 Public capital in Canada: definition and importance

According to Statistics Canada [2001], infrastructure is part of the total public capital investment in educational services, health care/social assistance and public administrations. It refers to engineering constructions carried out by public administrations. In 2002, Canada's infrastructure capital stock was evaluated at \$157.5 billion, 52.4% of which was held by local governments. Infrastructure capital stock represented 75.3% of the total local capital stock of public administrations.¹⁶ Infrastructure is rapidly ageing: Canadians have used almost 80% of the useful life of all public infrastructure [Canadian Society of Civil Engineering, 2004]. The level of investment in infrastructure amounted to \$8.6 billion in 2002.

Infrastructure spending has not kept pace with economic growth and there has been no increase in private investment to offset the shortfall, raising questions about the appropriate level of investment required to support our standard of living. Since 1961, local governments' share of infrastructure capital stock almost doubled while the federal government's share experienced a steady decline. However, if we look at the trend in public infrastructure capital relative to overall tangible produced capital stock, it was more than 8.0% in the 1970s, slipped to 6.9% in the 1990s, and was only 5.5% in 2001. On the other hand, the share of business sector capital stock remained unchanged at 38% during the same period. These trends indicate that, over the years, the business sector has increased the demands it places on public infrastructure. This decline is largely attributable to the federal and provincial governments whose shares of public expenditures declined substantially while the share of local governments increased, but not enough to compensate.

3.2 Economic impact of public capital investment

Public infrastructure can affect social welfare in various ways:

- *directly*, by stimulating the productivity of the business sector and improving the quality of life of those living in the invested area;
- *indirectly*, by influencing location choices, density and ultimately growth

¹⁶ See table A-1 in the Appendix.

Given the difficulty of assessing the value of quality of life factors, much attention has been given to the impact on productivity of the private sector and growth.

The debate over the productivity of public infrastructure in the US really started with the publication of a seminal paper by Aschauer [1989]. Using his findings,¹⁷ he argued that investment in public capital has been a powerful instrument to promote economic growth and that the slowdown in productivity that began in the early 1970s was largely due to the declining rate of public investment. Subsequent studies at the state and metropolitan levels led to much lower estimates of the impact of public infrastructure investment on productivity improvement.¹⁸

While this debate has attracted less attention in Canada, results tend to confirm what has been observed in the US. Using national data, Wylie [1996] found that the rates of return on infrastructure investments have been high in the past and that they had a significant and positive role to play in national economic growth and productivity. A recent study by Harchaoui and Tarkhani [2003] has estimated the contribution of public capital to cost reductions and growth in the standard of living of Canadians. The results indicate that the average marginal benefit for the business sector is 17 cents, which means that each \$1 increase in net public capital stock generates 17 cents in cost saving producer benefits per year. For sectors like transportation, savings were as high as 42 cents, about 34 cents for the wholesale and retail trade, and 20 cents for the construction industry.¹⁹ Moreover, the authors found that public capital complemented private capital. Looking at the impact of public capital on productivity growth during the period 1961-2000, they also found that public capital contributed to roughly 12% of total growth.

Besides being of value to the business sector, infrastructure contributes to quality of life and social welfare. Some public works like public parks and recreational facilities are specifically designed to benefit households alone. Others like transportation and sewer and water systems also provide large direct benefits to households. These quality of life benefits were excluded from previous studies on productivity. It is difficult to evaluate the value households place on public infrastructure. However, by relocating to get access to such infrastructure, they bid up the price of land near such public works in comparison to locations that get no new investment. In light of these repercussions, a recent American study²⁰ estimates that the present value to households of a \$1 increase in net central-city public infrastructure is 39 cents, far higher than the comparable benefit to firms. These quality of life benefits are especially important given the competitive process in which cities are engaged.

The previous discussion indicates that investments in public infrastructure are not neutral with regard to the decisions of households and firms about where to locate. But in order to affect welfare, it has to be more than a simple spatial redistribution of jobs and residences from one place to another within a given geographical area. The location pattern itself must have an impact on social welfare. The mere existence of cities and central business districts implies that firms located in denser urban areas benefit from agglomeration economies: access to a large pool of specialized labour, proximity of specialized suppliers and information externalities. Hence, greater spatial density may be an important contributor to productivity and growth. A recent study by Ciccone and Hall [1996] of the impact of county density level on state productivity in the US shows that doubling density leads to roughly a 6% increase in aggregate productivity.

¹⁷ The author found that a 1% increase in the nation's infrastructure stock would raise aggregate output by 0.39%. This finding suggested that infrastructure was roughly twice as productive as private capital.

¹⁸ In fact, estimates vary from one study to the other, depending on the data and methodology used. Output elasticities vary from 0.0 in Haughwout [2002] to 0.39 in Aschauer [1989].

¹⁹ Moreover, a 1% increase in public capital would increase output by 0.066%, a value much lower than what was found in previous studies. On the basis of such an estimate, the productivity of public capital would be half that of private capital.

²⁰ Haughwout [2002]

The consequences of these findings are important in terms of the government policies governing infrastructure. Since some public infrastructure investments may help spread jobs out spatially, they have the potential to reduce productivity. So, the spatial impact of infrastructure projects should be on the policy agenda. This is a clear case for investing in big cities. Infrastructure investments generate substantial benefits and costs that spill over municipal boundaries. Ideally, the policymaking institution must be large enough to internalize all the relevant externalities. In urban areas, this would suggest a regional authority that could finance and make investments to benefit the whole region.

4. A new deal for Canadian cities

Given the contribution of public capital investment to productivity and growth, the state of local public infrastructure and the financial constraints of local government, what is really needed for Canadian cities is a new deal based on a new partnership. In this section, we present the main elements of this proposed new deal.

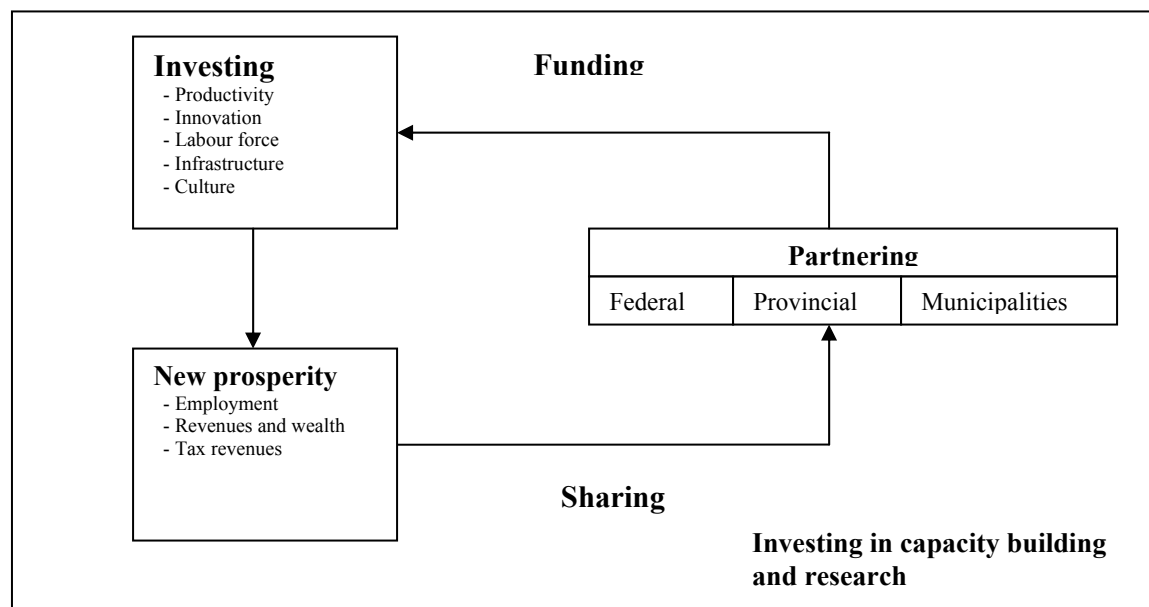
4.1 Investing to accelerate growth

As seen in previous sections, Canadian cities are ready to take up the challenge of competitiveness and innovation. They perceive investments in education, a skilled labour force and productivity as the main engines of growth and wealth creation. They are also conscious that cities are central to the process of innovation. Most of them have adopted a development model based on the strengthening of clusters, improved relations between the public and private sectors and a general context of governance that favours a clear definition of development objectives and better mobilization of stakeholders. Cities cannot take up such challenges alone given their level of responsibilities and fiscal resources. So, they invite the federal and provincial governments to strike a new deal for:

- Investing to accelerate growth
- Partnering to coordinate and fund public investment
- Sharing the benefits of new prosperity
- Investing in capacity building and research

As illustrated in Figure 4.1, governments have to invest in all elements of competitiveness like human capital, innovation and infrastructure: the main factors of productivity and the well-being of Canadians. The need for such investment appears relatively obvious, given where Canadian cities stand compared with their competition.

Figure 4.1: A new deal to improve competitiveness



Such investment in physical and human capital will trigger improved productivity and new prosperity. Providing education and better skills enables workers to be more efficient. Workers efficiency increases if they can work with more and better equipment. Moreover, this equipment will be more efficient if it is complemented by better public infrastructure. Finally, increased investment will impact productivity indirectly through increased innovation as it encourages new technologies and new ways of doing things.

As shown in Table 4.1, general measures to improve productivity such as investment in human capital, physical capital and innovation will have a substantial impact on growth and the standard of living. Moreover, the improved growth resulting from these measures will benefit governments in terms of higher revenues.²¹

Table 4.1: Relation between productivity, growth and government revenues

Impact of evolving productivity factors on GDP per capita¹⁾		
Factors	Change	Impact
Human capital	+ 1 year	5.5%
Physical capital	+1.0 percentage point	1.3%
Innovation	+0.1 percentage point	1.2%
Impact of growth on government revenues²⁾		
Real GDP	+1.0 percentage point	\$1.9 billion(federal revenues)
Real GDP	+1.0 percentage point	\$1.7 billion (provincial revenues)

1) From the Budget Plan 2004 [2004] p. 298. These estimates are not specific to Canada. They were derived from a sample of 21 OECD countries during the period 1971-98.

2) The impact on federal revenues comes from the Budget Plan 2004 [2004] p. 81. As for the impact on provincial own-source revenues, it is generally accepted that elasticity to real GDP growth is around 1.

²¹ The MMC recently presented a discussion paper that reiterates the notion that city regions are now major players in the creation of the wealth of nations. It gives, as an example, the ambitious goal for growth set by the Montreal Metropolitan Community and the factors required to successfully achieve it. Two phases of the proposed model are explained in greater detail: the creation of a new partnership to accelerate public investment and sharing the revenues of this new growth so that they may be reinvested in our communities. See: CMM [2004].

One can expect the same kind of impact from infrastructure investments. They will help increase productivity, stimulate economic activity and create employment. We have seen that public capital complements private capital. A \$1 public capital investment will generate private cost savings of 17 cents on average, and a 1% increase in public capital will reduce costs by 0.062% or increase private output by 0.066%.

It is a known fact that Canadian municipal infrastructures need rehabilitation, maintenance and improvement in the context of increasing competition. In its attempts to assess the long-term investments needed to face the problems of ageing infrastructure and the development of new infrastructure, the Federation of Canadian Municipalities [2001a; 2002b] has identified three general areas of intervention:

- environmental and core municipal infrastructure
- sustainable and clean transportation
- affordable housing

A specific type of intervention was also proposed relative to the cleanup and redevelopment of brownfields: vacant sites or orphan properties where past actions have caused real or suspected environmental contamination. The overall investment needed is estimated at approximately \$9 billion annually or nearly \$90 billion over a 10-year period. The specific target for the federal government is set at \$4.3 billion annually, with equivalent funding from other levels of government.

Given the level of investment needed and their poor fiscal situation, cities invite the other levels of government to form a new partnership to coordinate and fund initiatives aimed at clearing the backlog in infrastructure investments, improving competitiveness and ensuring that a virtuous circle of wealth creation takes place.

4.2 Partnering to coordinate and fund public investment

Cities have to provide services such as roads, public transit, water and sewers but also services that enhance quality of life such as parks, libraries and recreational facilities. There is a growing gap between the services Canada's cities and municipalities must deliver and what they can afford. These services are essential, yet the resources do not match the need. Of every tax dollar collected, only 8 cents goes to municipal governments. From 1999 to 2003, federal government revenues increased 16%, provincial/territorial revenues 21%, and municipal governments only 4%.

In order to manage their own deficit problems, other levels of government have shifted more expenditures and responsibilities to cities while simultaneously reducing transfers.

- Municipal governments deliver programs that support immigration, the environment, affordable housing, public health, emergency preparedness and public security. Many of these responsibilities are new, under-funded and require improved co-ordination with other levels of government.
- Total transfers to municipalities from federal and provincial governments, as a percentage of municipal revenues, have been cut by 44% over the past 10 years. This trend can be observed in every province except Quebec where the relative share of transfer payments (8% in 1988) was well below average. It increased to 14% in 2001.
- Drastic cuts in transfers leave municipal governments relying on property taxes: 49.6% of municipal revenues in Canada come from property taxes, compared to only 27.6% in the US in 2000.²² US municipalities have access to more diversified revenue sources: in Canada,

²² Compilation done for the FCM by the ICURR, May 2004.

other taxes represent 1.1% of municipal revenues vs. 18.5% in the US in 2000, while reliance on user fees is about the same at 27%. In the US, most of these other taxes are growth taxes such as sales and income tax.

With their fiscal structure and increasing responsibilities, Canadian cities need new sources of revenues in order to address the challenges of competitiveness. The strongest arguments for intergovernmental transfers are based on externalities and equalization. In the former case, transfers are needed because municipalities do not take into account the benefits outside their jurisdiction when they make decisions. This could lead to a sub-optimal level of investment. In the latter case, transfers are needed because some municipalities do not have the fiscal capacity to provide a minimum level of services. The federal and provincial governments have recognized to a certain extent that more transfers are required if municipalities are to shoulder their responsibilities.

- The federal government has initiated various programs to support infrastructure investment: the \$2 billion *Canada Strategic Infrastructure Fund (CSIF)* and the \$1 billion *Municipal Rural Infrastructure Fund (MRIF)*. The CSIF and MRIF provide bipartite and tripartite funding to provincial/territorial and municipal infrastructure projects. The \$4 billion currently allocated to CSIF is expected to be fully committed in 2004-2005. The \$1 billion in MRIF will likely be committed fully in the next few years. Investment in existing infrastructure programs must continue.
- Two complementary programs were also initiated: the \$200 million *Green Municipal Investment Fund (GMIF)* to provide interest-bearing loans and loan guarantees to encourage private sector financing and a \$50 million *Green Municipal Enabling Fund (GMEF)* to provide grants to municipal governments for the eligible costs of feasibility studies. Established in 2000, the GMIF has leveraged more than \$1 billion in projects with \$118 million in loans to communities investing in sustainable community development. The Green Municipal Investment Fund is on track to commit its entire \$200 million endowment to projects in 2005/06.
- Concerning affordable housing, a Federal/Provincial/Territorial Affordable Housing Framework Agreement was signed in 2001. In the last federal budget, \$1 billion was committed to the *Affordable Housing Initiative*, a capital grants program aimed at increasing the number of affordable rental housing units, and \$500 million was earmarked for various renovation programs.
- Finally, in the last federal budget, municipalities were granted a full refund of the GST. Over a 10-year period, the estimated value of this measure is \$7 billion.

All these initiatives are steps in the right direction to help alleviate fiscal pressures on the delivery of quality services.

In addition to these initiatives, the new partnership with municipalities should receive some form of official recognition from the Government of Canada. Without altering the existing constitutional balance, a formal statement to this effect would give the new deal a firm political foundation. Such recognition must be complemented by new mechanisms and approaches aimed at ensuring enhanced consultation, collaboration, and coordination among all levels of government. This could lead to more effective and resource-efficient results on the ground.

Finally, besides program spending, municipalities need a new sharing agreement that will generate stable and predictable net revenues to address the large and growing infrastructure deficit.

4.3 Sharing in the new prosperity

Revenue sharing is distinct from program spending, which tends to be more transitory, subject to review, modification, and even cancellation. This jeopardizes municipal budgets, planning cycles, service delivery and, ultimately, the local ability to implement sustainable strategies. The current fiscal situation of municipalities is unsustainable. Too many services have to be financed by property taxes and there is a clear case for broadening the tax base. An OECD report [2002] concludes that the high degree of reliance on property tax lies at the root of the growing fiscal difficulties of Canadian municipal governments. The report also states that Canadian cities have “relatively weak powers and resources” and should be given “some limited access to other types of taxes” to meet their increasing responsibilities.

Three potential candidates are provincial personal income tax, sales tax and the fuel excise tax. Simulations presented in Table 4.3 show the impacts on municipal revenues of various new sources: a surtax on provincial income tax, an additional percentage point on the provincial sales tax and an additional 1 cent per litre provincial fuel tax.

Table 4.3: Impacts on municipal revenues of various provincial taxes

Cities	Estimated municipal revenues (in millions of \$)		
	Surtax on provincial income tax	1% provincial sales tax ¹⁾	1 cent per litre tax on fuel ²⁾
St-John's	1.8	14.5 – 15.2	1.7 – 1.8
Halifax	6.1	44.8 – 46.9	6.0 – 6.4
Fredericton	0.9	6.7 – 7.0	1.3 – 1.4
Quebec City	3.9	18.0 – 18.9	2.2 – 2.3
Montreal	25.3	108.8 – 114.3	22.7 – 29.1
Ottawa	16.1	131.6 – 137.8	13.4 – 14.1
Toronto	44.6	360.6 – 377.7	36.3 – 38.3
Hamilton	6.4	60.1 – 62.9	7.2 – 7.6
London	4.9	44.0 – 46.0	5.3 – 5.6
Windsor	3.4	31.2 – 32.7	4.0 – 4.2
Sudbury	2.0	19.2 - 20.1	2.4 - 2.5
Thunder Bay	1.5	14.5 – 15.2	1.8 – 1.9
Winnipeg	10.9	84.7 – 89.3	11.1 – 11.9
Saskatoon	3.3	46.1 – 49.1	8.9 - 9.4
Regina	3.2	25.4 – 27.1	5.0 – 5.4
Calgary	18.6	N/A.	15.1 – 16.5
Edmonton	9.2	N/A.	11.6 – 12.6
Vancouver	10.8	79.8 – 84.2	118.2 – 119.5

Source: Kitchen and Slack [2003]

- 1) These estimates take into account the impact of the higher rate on the tax base. Simulations are based on elasticities of -.60 and -.25, respectively.
- 2) Elasticities used are -1.00 and -.25, respectively.

These results show that extending an additional percentage point of the general sales tax to municipalities would generate the highest revenues for cities.²³ Increasing sales tax instead of income tax is also more in line with the general pattern of taxation in most countries with which Canada competes that depend more on consumption-based taxes and less on income taxes. Sales tax allows municipalities to collect revenues from those who benefit from municipal services such as visitors and commuters, who cannot be charged through property taxes. Finally, sharing the fuel tax would be justified to finance public transit.

City governments support revenue sharing as opposed to increasing taxes because this will help give cities a share of the fiscal revenues that they help generate within their boundaries and avoid the negative impact of higher taxation on Canadians. Revenue sharing should generate at least \$2.5 billion annually for cities.

4.4 Investing in capacity building and research

Targeted investments, stronger partnerships, enhanced cooperation and revenue sharing all represent important steps forward, but they are not enough to ensure the sustainability of Canada's cities. Investment in capacity building for sustainable community planning is essential to success. New tools, training and the development of best practices and pilot projects are needed to move toward more cost-effective and environmentally sustainable infrastructure decisions and create the capacity to undertake long-term, integrated community and regional planning. Tools, training, best practices, pilot projects and demonstrations are needed to support the efficient allocation of resources and the development of indicators and targets to support new deal outcomes.

Finally, given the complex interactions and interdependence among jurisdictions that play out at the community level, a collaborative research agenda has to be developed with a particular focus on identifying the factors of success needed to achieve a high quality of life through sustainable community development, including indicators for tracking progress toward outcomes.

5. Conclusion

Cities group the main ingredients of the innovation process into one location: industrial clusters, research centres, skilled labour, infrastructure and supporting institutions. The spatial concentration of knowledge-based assets, firms and institutions generates externalities that benefit everyone in the region. It helps attract capital and skilled workers.

This document has tried to show that Canadian cities lag behind their main competitors in OECD countries with regard to various factors of competitiveness, including GDP per capita, and that we need to invest heavily in education, training and infrastructure to improve our competitiveness and attractiveness. It has also stressed the central role of city regions as engines of growth.

Despite the central role of city regions, they cannot meet the challenge of competitiveness on their own. They lack the funding needed to clear the huge backlog of municipal and transportation infrastructure investment.

This calls for some form of partnership with upper levels of government. However, given that public policies regarding economic, social, environmental and cultural development involve all level of governments, the relations between municipalities, the federal and provincial governments and the various stakeholders within city regions must be altered dramatically and modernized.

²³ This is not surprising given that it represents an increase of 17% (on a 6% tax rate).

In particular, it is necessary to better co-ordinate the interventions of various public partners in order to maximize the impact of public capital on overall economic growth. However, considering the complexity and diversity of the problems facing Canadian city regions and the specific needs of each city region, it is not possible to envisage standard solutions everywhere.

Nonetheless, certain general principles should guide the revision and modernization of the co-operation between governments and municipalities. Firstly, the partners should agree on the priorities particular to each city region. Secondly, they should negotiate stable, long-term financing which includes the transfer of growth revenues to the cities in order for them to better plan their interventions. Finally, they should work out a framework for evaluating the economic impact of the interventions and, if need be, revising the strategies.

Recent economic changes were characterized by the emergence of city regions as engines of the globalized economy. The federal and provincial governments and big cities must therefore work out innovative policies, which will be better adapted to this new context. This will enable Canadian city regions to improve their competitive position in the ranking of North American regions.

Appendix

Table A.1: Infrastructure and total capital stock in Canada (2002)

Capital stock of public administrations			
Total	Federal	Provincial	Local
\$227.5billion 100.0%	\$40.1 billion 17.6%	\$77.9 billion 34.3%	\$109.5 billion 48.1%
Infrastructure capital stock of public administrations			
\$157.5 billion 100.0%	\$10.6 billion 6,8%	\$64.3 billion 40.8%	\$82.4 billion 52.4%
Share of infrastructure in total capital stock of public administrations			
69.1%	26.5%	82.4%	75.3%

Source: Harchaoui, Tarkhani and Warren [2003]

Table A.2: Perceived competitiveness challenges

	Brampton	Calgary	Edmonton	Gatineau	Halifax	Hamilton	Kitchener	Laval	London	Longueuil	Mississauga	Montréal	Québec	Régina	Saskatoon	St-John's	Surrey	Toronto	Vancouver	Windsor	Winnipeg	
Synthesis - challenges																						
Economic diversity																						
Positioning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Market access	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Productivity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Skilled work force																						
Attraction and retention of skilled workers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Business needs vs. Curriculum training			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Declining population		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Infrastructures																						
Transport infrastructures	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Municipal Infrastructures	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Industrial lands	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Revenue diversification		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strategic capacity to mobilize	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Innovation in firms & organizations	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Commercialization	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Business/academic relationships			✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Clusters	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Venture capital	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Foreign Direct Investments	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lack of incentives			✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Quality of life			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Social cohesion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Culture	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Environment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Source: CIMM - Survey of the BC22, 2004.

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