Regions in the Knowledge Economy

The Periphery in the Knowledge Economy

The Spatial Dynamics of the Canadian Economy and the Future of Non-Metropolitan Regions in Quebec and the Atlantic Provinces

Mario Polèse and Richard Shearmur
in collaboration with
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and Marc Johnson

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REGIONS ET ECONOMIE DU SAVOIR

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The Canadian Institute for Research on Regional Development

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Preface

This volume is the synthesis of two years' work, and represents the conclusions of discussions, conferences and reports between and by members of a core research team. The team was put together at the instigation of Economic Development Canada (EDC) which had the prescience to foresee the usefulness of an in-depth analysis of trends and policy options in eastern Canada's peripheral regions well before the 2001 census results brought these trends to the front pages of our daily papers. The Atlantic Canada Opportunities Agency (ACOA), made aware of this initiative, saw fit to extend the research, and the research team, to include Atlantic Canada.

The core research team, co-ordinated by Mario Polèse and Richard Shearmur, of the Institut National de la Recherche Scientifique (INRS) in Montreal, consists of four other researchers. Pierre-Marcel Desjardins (Université de Moncton) and Marc Johnson (Canadian Research Institute on Regional Development) co-ordinated the research and participated in the elaboration of this final report from the perspective of Atlantic Canada. Serge Côté (Université du Québec à Rimouski) and Marc-Urbain Proulx (Université du Québec à Chicoutimi) undertook research in the Québec peripheral regions, authored the background reports on these regions, and were instrumental in organising the authors' visits there and in shaping their understanding of the complex phenomena observed.

Beyond this core team, a group of European specialists were invited to Montreal in October 2001. These specialists from Scotland (John Bryden and Andrew Copus), Norway (Arne Isaksen), Sweden (Lars Olof Persson) and Finland (Aki Kangasharju) were presented with the core team's preliminary results and, for two days, discussed these and shed light upon them from a northern European perspective. Their background papers, prepared for the October conference, can be found on the web site. We would like to thank these researchers for responding to the invitation and for presenting stimulating, apposite, and enlightening contributions to and comments on the work being undertaken by the Canadian team.

Contributions to the research effort did not stop at the core team and the five European researchers. Throughout the project, the

authors have benefited from conversations with development officers, policy analysts, and, most importantly of all, local business people, community groups and concerned citizens, all of whom have shed invaluable light upon the complex issues hidden behind the sometimes stark trends which our research portrays.

We would like to emphasise that we do not expect to teach anything new to the people who most generously welcomed us to their peripheral communities and shared their anxieties, concerns and hopes with us. At most we hope to have given substance to the analyses and ideas which they expressed, and to have backed these up with some data and theory.

Last but not least, the invaluable support provided by Johanne Archambault and Julie Archambault regarding matters of translation, presentation and printing cannot go unmentioned: without them the report would have remained an interesting (maybe) but unappealing (definitely) word-processor print-out.

All that being said, this final report has two principal authors and two collaborators. The authors accept full responsibility for the report's contents, and it is they who have made the final decisions concerning the report's contents.

We therefore wish to extend our thanks to the core research team, to our European colleagues, and to all the participants from the regions visited. We wish to thank EDC and ACOA for initiating this research project and for their full co-operation in its elaboration. In particular we wish to acknowledge the untiring support of Hervé Duff (EDC), Wade AuCoin (ACOA), and of all the development officers and analysts from EDC and ACOA—too many to name here—who provided logistical support and key insights into the economies of outlying regions.

We would, in addition, like to thank our families, friends and colleagues for their patience during this captivating, exciting, but sometimes all-consuming adventure.

Finally, we wish to emphasise that we alone are responsible for this report's contents.

Mario Polèse and Richard Shearmur
INRS-Urbanisation, Culture et Société
Montréal, 2nd April 2002

Glossary

CED/*DEC*	Canada Economic Development (for Quebec Regions)/*Développement économique Canada (pour les régions du Québec)*
ACOA/*APECA*	Atlantic Canada Opportunities Agency/*Agence de promotion économique du Canada atlantique*
CMA/*RMR*	Census Metropolitan Area/*Région métropolitaine de recensement*
CA/*AR*	Census Agglomeration/*Agglomération de recensement*
CFDC/*SADC*	Community Futures Development Corporation/*Société d'aide au développement des collectivités*
—/*CLD*	No English abbreviation in use/*Centre local de développement*
DREE/*MEER*	Department of Regional Economic Expansion/ *Ministère de l'Expansion économique régionale*
RMC/*MRC*	Regional Municipal County; in Quebec only/ *Municipalité régionale de comté*
IT/*TI*	Information Technologies/*Technologies de l'information*

Geographical Designations and Definitions
Découpages et autres appellations géographiques

Acadie	Generic term: refers to those parts of Atlantic Canada populated by French-speaking Acadians/*Renvoie aux parties des régions de l'Atlantique où habitent les Acadiens (de langue française)*
Acadian Peninsula/ *Péninsule acadienne*	The eastern tip of Gloucester County, New Brunswick/*Pointe est du comté de Gloucester, Nouveau-Brunswick*

Abitibi-Témiscamingue	Quebec administrative region and Statistics Canada Economic Region. French spelling maintained/*Région administrative du Québec et région économique de Statistique Canada*
Lower St. Lawrence/ *Bas-Saint-Laurent*	Quebec administrative region and Statistics Canada Economic Region/*Région administrative du Québec et région économique de Statistique Canada*
Chicoutimi	Refers to the Chicoutimi-Jonquière census agglomeration/*Agglomération de recensement de Chicoutimi-Jonquière*
Quebec North Shore/ *Côte-Nord*	Quebec administrative region. Statistics Canada Economic Region includes Northern Quebec/*Région administrative du Québec. La région économique de Statistique Canada comprend le Nord du Québec*
The Gaspé/*Gaspésie*	Quebec administrative region and Statistics Canada Economic Region. Unless specified otherwise, includes the Gaspé Peninsula and the Magdalen Islands/*Région administrative du Québec et région économique de Statistique Canada. À moins d'indication contraire, comprend les Îles-de-la-Madeleine*
Moncton Region/ *Moncton*	Refers to the Moncton census agglomeration. Kent, and Westmorland Counties, New Brunswick. The Statistics Canada Economic Region of Moncton-Richibucto also includes Albert County/ *Agglomération de recensement de Moncton. Comtés de Kent et de Westmorland, Nouveau-Brunswick. La région économique de Statistique Canada, Moncton-Richibucto, comprend aussi le comté d'Albert*
Gloucester	Gloucester County, New Brunswick. The Statistics Canada Economic Region of Campbelton-Miramichi also includes Restigouche and Northumberland Counties/*Comté de Gloucester, Nouveau-Brunswick. La région économique de Statistique Canada, Campbelton-Miramichi, comprend aussi les comtés de Restigouche et de Northumberland.*
Magdalen Islands/ *Îles-de-la-Madeleine*	Islands off the east coast of Quebec. Part of the Gaspé administrative region/*Îles au large du Québec, comprises dans la région administrative de la Gaspésie*

Madawaska	Madawaska County, New Brunswick. The Statistics Canada Economic Region of Edmundston-Woodstock also includes Victoria and Carleton Counties/*Comté de Madawaska, Nouveau-Brunswick. La région économique de Statistique Canada, Edmunston-Woodstock, comprend aussi les comtés de Victoria et de Carleton*
Prince	Prince County, Prince Edward Island (P.E.I.). The Statistics Canada Economic Region covers all of P.E.I./*Comté de Prince, Île-du-Prince-Édouard (IPÉ). La région économique de Statistique Canada comprend toute l'île*
Saguenay Lac St. Jean/ *Saguenay-Lac-Saint-Jean*	Quebec administrative region and Statistics Canada Economic Region/*Région administrative du Québec et région économique de Statistique Canada*
Southern Nova Scotia/ *Sud de la Nouvelle-Écosse*	Digby, Yarmouth, and Shelburne Counties. The Statistics Canada Economic Region of Southwestern Nova Scotia also includes Queens and Lunenburg Counties/*Comtés de Digby, Yarmouth et Shelburne. La région économique de Statistique Canada, Southwestern Nova Scotia, comprend aussi les comtés de Queens et de Lunenburg*
Western Newfoundland/ *Ouest de Terre-Neuve*	Equivalent to the Statistics Canada Economic Region of West Coast-Northern Peninsula-Labrador, minus the latter/*Équivalent de la région économique de Statistique Canada appelée West Coast-Northern Peninsula-Labrador, moins le Labrador.*

Note: unless specified otherwise, all city and town names refer to urban areas or census agglomerations, and not necessarily to municipalities.

Note : à moins d'avis contraire, les noms de villes désignent les régions urbaines et les agglomérations de recensement; ils ne renvoient pas nécessairement aux municipalités.

Executive Summary

Canada's population is spread out over vast spaces. Geography is everywhere, creating unique challenges for regional economic development. Like all industrialised nations, Canada is affected by current mega-trends: the rise of the knowledge-based economy, aging populations; globalization; and the introduction of new information technologies (IT for short). The arrival of IT has raised hopes that the tyranny of distance will be reduced in the future, opening up new perspectives for regions that have hitherto been handicapped by their peripheral location. How realistic are these hopes? What is the likely impact of current mega-trends and what are the implications for public policy?

The study focuses on the prospects of *peripheral regions*. Other names could apply: non-metropolitan regions; remote regions; resource regions; etc. No entirely satisfactory term exists. The regions that are the focus of this study all share certain attributes: low population densities, the absence of a large urban metropolis, distance from major markets. Taking distance as our benchmark, approximately 28% of all Canadians lived beyond an hour's drive of a major metropolis (with populations of over 500,000 in 1996). Although the study examines trends for Canada as a whole, the focus is on Quebec and Atlantic Canada. Eleven regions were selected for in-depth analysis.

The study is the result of a broad-based research effort, involving experts in Quebec, Atlantic Canada, and Nordic nations. Seventeen background studies were produced:

— A review of recent literature on regional economic development, with a focus on the knowledge-based economy and Nordic nations

— An in-depth statistical analysis of geographical trends in population and employment for Canada from 1971 to 1996.

— Five country studies, looking at similar trends and regional policy, for Finland, Sweden, Norway and Scotland. These nations were chosen because their geography and development levels most resembled that of Eastern Canada.

— Specific studies for eleven regions of Quebec and Atlantic Canada. These studies entailed statistical analysis and fieldwork, the latter based in large part on consultations with local experts, entrepreneurs, and practitioners. About 200 persons participated in focus groups.

A two-day workshop was held in Montreal in October 2001 with researchers and practitioners. Findings were brought together, discussed, and digested. The study seeks to summarize this mass of information and accumulated experience. However, the opinions expressed remain the sole responsibility of the authors.

Findings

1. **Population and employment continue to concentrate in and around large urban centres.** Trends in Canada and in Nordic nations are similar and show no signs of reversal. Peripheral regions continue, with minor exceptions, to be regions of net out-migration. On the whole, this is the continuation of long-term trends whose roots lie in the origins of industrialisation. There is no indication that new technologies will alter this pattern. The evidence suggests that new technologies will continue to fuel the concentration of employment in and around large urban centres.

2. **The net effect of technological change has been to facilitate the geographic concentration of employment.** The impact of IT is analogous to that of earlier inventions such as the telephone and the internal combustion engine. Reduced communications costs allow firms to broaden their markets and realize scale economies. A primary obstacle to higher productivity in Canadian peripheral regions is the difficulty in attaining necessary volume. Improvements in communications increase competition between regions. They allow firms in large urban centres with an initial scale advantage such as Montreal or Toronto to expand their markets. The concentration effects are visible for sectors such as wholesaling, distribution, and food processing.

3. **Distance is not dead.** Information technologies (IT) have lowered the cost of transmitting information, improving the access to information of firms in peripheral regions. However, IT has had little effect on the cost of transporting goods. Merchandise must still be shipped from A to B. For firms in Western Newfoundland or the Saguenay, the additional cost (in money and time) of bringing goods to major markets remains a handicap. When selling to Boston or New York, one is better located in Southern Quebec, which in part explains why regions such as the Beauce and the Eastern Townships have out-performed others.

4. **Distance is not dead *bis.*** IT has not significantly reduced the costs of travel or the need for travel. Business people meet for numerous reasons:

to negotiate; to establish and renew trust; etc. The need for face-to-face meetings is increasing. The knowledge-based economy depends on frequent information-rich interactions. IT does not reduce the need to meet, but rather (like the telephone before) creates new demand. The comparative advantage of large urban centres for information-rich activities remains strong. Firms in outlying regions will continue to bear the additional costs of travel to and from large urban centres.

5. **Geography and low population density compound the effects of distance.** Transport modes (trucks, air, rail, water) are subject to scale economies. Firms in peripheral regions often face higher unit transport costs. Low density and awkward geography translate into lower volume, resulting in reduced service. IT is also subject to scale economies, resulting in higher access cost to wide-band communications. Without volume, infrastructures cannot be maintained (at competitive prices). Rail lines have been dismantled. Transport services are increasingly determined by market forces as governments reduce subsidies to transporters, liberalize regulations, and withdraw from the management of ports and airports. Regions with low population densities, outside main transport routes, remain at a transport cost disadvantage.

6. **Knowledge-intensive industries continue to locate in or near the large urban centres.** Location patterns for knowledge-intensive industries have remained remarkably stable in Canada. High-tech services and high-tech manufacturing remain sensitive to city size. Their propensity to locate in (or near) the largest urban centres has changed very little. This is not to say that knowledge-intensive industries are absent from smaller cities or that they cannot succeed there. Numerous success stories exist. However, the *relative* position of smaller cities and peripheral communities, compared to that of large urban centres, is unlikely to change significantly.

7. **Low and medium value-added manufacturing is de-concentrating, but within limits.** Low and medium value-added manufacturing industries increasingly locate in small and medium sized cities. The cities that have chiefly benefited from this shift are those located within an hour's drive of large urban centres Beyond the one-hour threshold, cities have been less successful in attracting manufacturing employment. This is especially true for medium value-added industries (transport equipment; electronics; etc.). The distance threshold shows little indication of weakening. Peripheral cities have been more successful in attracting resource-based and low value-added industries: pulp and paper; food processing; refining and smelting of ferrous and non-ferrous metals; textiles and clothing. How-

ever, even for these sectors, relative levels of employment are generally higher in small and medium sized cities located near large urban centres.

8. **Small rural communities (below 10,000) can grow, but location matters.** Rural peripheral communities face very different challenges from rural communities located close to large urban centres. *Central* rural areas, located within an hour's drive of a large urban centre, grew by 16% between 1981 and 1996, compared to 2% for *peripheral* rural areas. Small communities within an hour's drive of a large urban centre have an advantage for attracting manufacturing and also fall within urban tourist, fresh-produce, and long-distance commuting sheds. Within this radius, horticulture is more profitable, yearlong tourist activities are easier to develop, and urban (computer connected) professionals easier to attract. This is a very different reality from that faced by peripheral communities of similar size located on Quebec's Lower North Shore or the Acadian or Gaspé Peninsulas.

9. **Many peripheral communities will enter a phase of sustained population decline; this is a break with the past.** This is not simply the result of industrial location trends. New developments are impacting peripheral communities: growing constraints on (natural) resource exploitation and the effects of the demographic transition. Most peripheral regions have historically been areas of net out-migration. Until recently, the effects of out-migration on population were hidden because of the countervailing effects of births. This is no longer the case. Low birth rates mean that net out-migration will now automatically trigger population decline. Migration has become a critical variable.

10. **Out-migration of the young and the educated makes job creation more difficult.** From the perspective of the individual, out-migration is a natural reaction to unemployment. Individuals who move are generally better off. However, the cumulative effects on the community left behind can be dramatic. In the knowledge-based economy, the effects of out-migration will be even more severely felt than in the past. Out-migration of the young and the educated puts the community at an increasing disadvantage compared to large urban centres. Time and time again, entrepreneurs told us that the primary obstacle to expansion (besides distance) was the difficulty of recruiting skilled workers. The perception of the link between employment growth and workforce quality and diversity is so strong that one entrepreneur reversed the usual (economic) reasoning, stating: "we do not have a big enough labour force to create jobs". In the knowledge-based economy, this statement is not as unreasonable as it sounds.

11. **Knowledge-based institutions are sensitive to volume.** The density of knowledge workers is linked to the quality and quantity of knowledge infrastructures: research centres, technical training facilities, laboratories; etc. To state that such institutions are a vital ingredient for local economic development has become a truism. In Canada, as in Nordic countries, peripheral cities with universities (especially with a strong engineering or applied arm) have been more successful. However, the development of a strong university centre requires a population base. The city of Oulu in Northern Finland (the home of Nokia) services a hinterland with a population of about half a million. Tromsø in Northern Norway services a hinterland of similar size. This is not say that smaller regions cannot house universities or research centres, but rather that the link between population and knowledge institutions cannot be ignored.

12. **Constraints on natural resources (coupled with higher productivity) mean declining employment; this is a break with the past.** Employment decline in resource industries is the result of the meeting of two curves: 1. Declining manpower needs per unit extracted; 2. Constant or declining resources (or demand for resources). Until the early 1990's, employment in most resource sectors in Canada was either growing or stable, despite increases in productivity. Since, there has been a generalized downturn, most dramatically in the fishing industry. Sharp declines in employment have occurred in the past, especially in mining. The difference today is that the constraints appear to affect all the traditional resource sectors: fishing and fish processing; mining and smelting; forestry and wood products; electricity-intensive industries (i.e. aluminium). The precise nature of the constraints varies from one sector to another. Even for renewable resources such as trees, fish, and hydroelectric power, we have by-and-large arrived at the limits of what is economically feasible. In some cases (notably, hydroelectricity, fishing, and forestry), ecological considerations and native/non-native relations also place new constraints on the use of the resource. Ecological considerations and natural constraints are pushing in the same direction: a more parsimonious use of resources.

13. **We can expect job losses in highly resource-dependent communities.** Closures are easiest to forecast for communities that depend on mining and smelting. Among the communities studied, Val-d'Or (Abitibi), Port-Cartier (North Shore Quebec), and Bathurst (New Brunswick) appear vulnerable. Closures (or downsizing) in the pulp and paper sector are more difficult to predict, but will undoubtedly occur, especially if the trend to recycling accelerates. Employment in aluminium smelting does not appear threatened, although the individual plants may downsize as labour productivity continues to increase.

14. **Entrepreneurs in peripheral communities are dynamic and innovative.** We encountered men and women in all regions who sought to start businesses. They were, without exception, highly motivated, well informed, and entirely conscious of the challenges of doing business in their chosen communities. The issue is not the lack of motivation, but the lack of profitable business opportunities, compared to those in large urban centres. Notwithstanding, businesses do succeed in small peripheral communities, proof of the dedication and ability of their founders. Successful firms can be found in almost every community, often in novel niches, everything from exotic berry jams (Newfoundland's Northern Peninsula) to chitosan, a pharmaceutical by-product derived from shrimp residue (Gaspé Peninsula). However, the jobs created by local success stories rarely compensate for job losses in other sectors.

15. **"Peripheral" regions can succeed; but again, city size and location matter.** Some peripheral communities have grown and will continue to do so. Among the ingredients for success are: location on a major transport axis; a diversified regional metropolis; a competitive wage structure and business environment. The greater Moncton area is a model case. With a population of over 100,000, Moncton is the service centre for a large market area, due in part to its central location in the Maritimes, a role further consolidated by the fixed link with P.E.I. Moncton is located: a) in a low-wage province; b) in a region that is not dominated by capital-intensive resource-based industries; c) on a major land transport axis. Added to these location advantages, Moncton has developed into a cultural centre for the French-speaking Acadian community, with a unique blend of institutions and a bilingual labour force. This, plus a vibrant business community (each reinforcing the other), has allowed the region to build a diversified economic base, compensating for past job losses, as well as contributing to the revitalisation of surrounding rural counties.

16. **Differences in performance among regions are often due to unique factors.** The eleven peripheral regions studied showed significant differences. The Moncton region and Madawaska County (in New Brunswick) as well Prince County (P.E.1.) generally out-performed the others in job growth and industrial diversification. At the other end of the spectrum, the Gaspé region, Western Newfoundland, and Quebec's North Shore were among the worst performers. As a group, Quebec's peripheral regions did less well as those studied in the three Maritime Provinces. The comparative under-performance of the Lower St. Lawrence is unexpected, given its comparatively favourable location on the Halifax-Montreal transport axis and it proximity to Quebec City.

Various factors contribute to the explanation of differences in regional performance:

a) *Some peripheral communities are high wage-cost locations*. This is specifically so for small and medium sized towns dominated by capital intensive-industries paying high wages, which set the norms for the community: large pulp and paper mills; mines; aluminium smelters; etc. We have dubbed this the *Intrusive Rentier Syndrome*. Its impact can be devastating on local entrepreneurs seeking to diversify into other (wage sensitive) sectors, acting as a major impendent to the creation of a diversified export base. The majority of medium-sized towns on Quebec's North Shore and in the Saguenay are in this situation, which explains in part why they have found it difficult to diversify and why they remain regions of net out-migration despite high wages. In northern fishing communities with short seasons, the highly seasonal character of local jobs (together with the rules governing employment insurance benefits) can constitute an indirect cost, via their effect on recruitment, for firms in non-traditional sectors.

b) *Some communities are more "peripheral" than others.* Communities located on major transports routes and with better access to U.S. markets have an advantage. NAFTA and deregulation have increased the importance of geography. The further a community is from major U.S. markets, and the more obstacles (land or sea) have to be overcome, the greater its disadvantage. The communities of Western Newfoundland's or Quebec's North Shore are in a far less advantageous position than Madawaska and South-eastern New Brunswick. The regions of North-eastern Quebec are less well positioned to service U.S. markets than regions further south. Dead-end (transport) or peninsula locations exacerbate the disadvantage.

c) *Province size and provincial boundaries affect community performance*. The boundary between Quebec and its eastern neighbours makes a difference. Communities on the Quebec side are often at a disadvantage for two reasons: 1) differences in regulations (e.g. decrees in the construction and textile industries; minimum wages) make New Brunswick locations more competitive. This has benefited Madawaska, and helps to explain why it has been more successful in diversifying its economy than the neighbouring Lower St. Lawrence; 2) it appears that communities in small provinces have a "political" advantage. Their voice carries, proportionately, more weight in the provincial capital. Provincial regulations are more likely to reflect local realities. Small provincial bureaucracies are generally more accessible and responsive. This was advanced as one of the factors explaining Prince County's (P.E.I.) success, demonstrating the

importance of a flexible administrative environment, which allows the region to maintain competitive business environment.

17. **Income maintenance does not stop out-migration.** The young leave because of lack of education and career opportunities. Relative income levels have generally improved in peripheral regions. The long-term trend in Canada is towards a lessening of regional income disparities, although the trend appears to have halted recently. Income levels have generally been maintained in peripheral regions, due to the combined effects of progressive taxation and transfer payments. However, out-migration to large urban centres has continued. Ultimately, regional economic development comes back to job creation and location. Ensuring welfare levels is not sufficient, although it will contribute to the maintenance of local demand, and can thus slow down out-migration and population decline.

18. **Economic theory is not always wrong: 1. lower costs translate into more jobs; 2. labour mobility reduces unemployment.** Prince County (P.E.I.) is an example of the first: low relative wages, high employment ratios, and low out-migration. Rural Saskatchewan is a case of the second: high out-migration and low unemployment. Most peripheral regions face a trade-off between high wages (or high costs in general) and jobs. High cost regions will find it more difficult to create jobs. In the absence of jobs, out-migration (or unemployment) will persist. The comparatively high levels of unemployment in Quebec and Atlantic Canada can in part be explained by low labour mobility. However, lower labour mobility also has its roots in identity and language, which cannot be ignored, giving special urgency to the challenge of job creation in the peripheral communities of Quebec and Atlantic Canada.

19. **Peripheral regions will not die.** Population decline does not mean that the affected regions will cease to exist or cease to develop, although some isolated villages will face closure. Rising welfare levels and lower populations are not incompatible. At some future point, population levels will settle at a new (lower) equilibrium, founded on a more knowledge-based employment base. We cannot predict what that equilibrium will be or when it will be reached. Public policy should help peripheral regions to successfully make the transition to the knowledge-based economy.

Lessons Learned/Public Policy Implications

1. *The limited impact of public policy on mega-trends*. Despite a tradition of public intervention, out-migration from peripheral regions remains a fact in Scandinavia and in Canada, fuelled by more fundamental factors. New information technologies will not change this. Both Canada and Scandinavia have been largely successful in maintaining regional welfare levels. However, this does not appear to have significantly altered long-term job location trends. We should not expect public policy to reverse those trends.

2. *The growth of large urban centres does not necessarily trickle down to peripheral regions*. Peripheral regions are so precisely because they are far from large urban markets. Trickle down effects have limits. Investments in large cities (Montreal, Toronto, etc.) should be justified on their own merits, and not as an indirect means of helping regions. The time has come to bury growth pole strategies and, in a Quebec context, to finally lay the 1970 HMR report to rest (R.I.P. HMR).

3. *Population decline will mean a change in mindsets*. For many communities, population decline is inevitable. This should not be equated with economic decline. Smaller populations and higher welfare levels can go hand in hand. From a public policy perspective, it means rethinking local economic development, with increasing emphasis on flexible policy tools. It will also mean rethinking infrastructure maintenance and public service delivery.

4. *Local economic development (LED) organisations (federally or provincially funded) play an invaluable role* in promoting entrepreneurship, helping business start-ups, and fostering innovation. They should be maintained and continually improved. However, the challenges faced by many peripheral communities often require initiatives at other levels. Local development organisations should be explicitly allowed to go beyond business promotion.

5. *Policies based on "one-size-fits all" criteria will work against the most peripherally located communities*. The continued importance of city size and geography means that strategies need to be adapted to regional characteristics. The persistence of distance as an obstacle (which IT will not change) means that differences should be explicitly recognized. More leeway might be allowed to LED organisations in the application of programmes, within the normal constraints of accountability. This might

mean accepting higher levels of financial risk in the most peripheral regions.

6. *There is a need to better reconcile business promotion and "objective" diagnosis.* Some communities face specific challenges, which make them less competitive: the intrusive rentier syndrome; the border effect in Eastern Quebec; etc. Obstacles of this nature cannot be overcome if the community does not first recognize them, and openly discuss them. If the function of LED organisations is only to *promote* the community, then it is unlikely that these difficult issues will be addressed.

7. *The employment insurance (EI) system, which plays an important role in stabilizing peripheral economies, should be such that there always exists an incentive to work.* Currently, in a context of seasonal employment, administrative rules governing the EI system can create a disincentive to work. This has the effect of reducing the workforce available to local entrepreneurs and of slowing down or preventing the growth of SMEs and economic diversification. Further study is needed of this complex and important question.

8. *Education and skilled labour recruitment are at the heart of any strategy that aims to facilitate the transition to the knowledge-based economy.* Out-migration of the young and the educated will continue in most regions. It is unreasonable to expect public policy to reverse the trend. However, it is not unreasonable to imagine a mix of incentives to increase the attractiveness of peripheral communities, such as:
   a) Tuition or debt relief for university graduates who settle in targeted regions.
   b) Scholarships for graduate or post-graduate internships in targeted regions.
   c) Tax relief for students in post-secondary institutions in targeted areas.
   d) Research chairs for institutions in targeted areas.
   e) Increased focus on knowledge-transfer centres and applied learning, specifically via community colleges (CEGEPs in Quebec), including access to the incentives above.

   Such incentives might equally be part of a more diversified tool-kit of LED organisations, whether provincially or federally funded.

9. *Certain transportation and communications policies might be re-examined in light of the realities of the knowledge-based economy*. The growing importance of face-to-face contacts makes travel an essential business

cost. A new look at the regulations governing air travel in Canada might be in order. We are not convinced that current service in peripheral regions is a reflection of market forces. Regulations governing IT might equally be re-examined in a similar light.

10. *The Federal and Provincial governments might examine the possibility of greater territorial flexibility in the application of policies affecting the relative competitiveness of communities*. Provincial governments might allow local governments greater flexibility in certain areas. However, greater flexibility should not become a pretext for a "race to bottom" (i.e. subsidy wars) between communities.

11. *The Federal and Provincial governments might explore the possibility of establishing inter-provincial local development agencies* in border areas, or at least, promoting greater inter-provincial harmonization in local economic development initiatives.

Part 1

Peripheral Regions in the Knowledge Economy: Trends and Challenges

CHAPTER 1

Defining Peripheral Regions, Basic Trends, and Why We Should Be Concerned

The focus of this study is on the spatial dynamics of industries and jobs with the aim of evaluating the economic prospects of *peripheral* regions, in particular eleven regions in Quebec and Atlantic Canada[1]. In future chapters, we shall consider the impact of new information technologies (IT), the knowledge-based economy, and other recent changes, and what this might mean for the economy of those regions. The purpose of this first chapter is to set the stage for the substantive chapters to follow. We begin by explaining the events that lead up to the study and the concerns that sparked it.

1.1 The Spark: A Paper Mill Closes in the Gaspé

At the end of 1999, the Gaspesia paper mill in the town of Chandler closed its doors, putting approximately 600 persons out of work, striking a severe blow to the economy of this small community on the southern shores of the Gaspé Peninsula. During the same year, the copper mine at Murdochville, located further east on the Gaspé Peninsula, announced its imminent closure, to be followed in time by its smelter. A decade earlier, the fishing communities of the Gaspé Peninsula and the Magdalen Islands were, like many other fishing communities, severely shaken by the collapse of the ground

fish (notably, cod) and its ensuing moratorium, a shock from which most communities have yet to recover. Little wonder that people in the Gaspé feel that their region has somehow been singled out. Why should so many misfortunes befall their region? Why has the Gaspé found it so difficult to diversify its economy and to attract new businesses? Why has its unemployment rate remained systematically above the national average?

The situation is not new. Some forty years ago, the Province of Quebec launched what was probably its most ambitious regional development initiative[2], with the aim of bringing the historically lagging regions of Eastern Quebec, including the Gaspé and Lower St. Lawrence, into the mainstream. The Gaspé is not unique. Most parts of Atlantic Canada have continued to lag behind the rest of the nation on various measures of economic performance (income per capita, employment, etc.). Regional development has remained a preoccupation of all levels of government in Canada. Both the Federal government and the Provinces have, with ups and downs, formulated regional development policies over the past forty years. The Department of Regional Economic Expansion (DREE) has come and gone at the federal level, as has the OPDQ in Quebec[3]. Canada and the Provinces have over time created an alphabet soup of programs and agencies to promote regional economic development and to support local business ventures. The aim of this study is not to evaluate those programs; others have undertaken that task[4]. However, one can easily understand the sense of frustration of the residents of the Gaspé and other regions, whose relative fortunes do not seem to have greatly improved despite four decades of regional development policies[5].

The closing of the Gaspesia mill was, in some respects, the proverbial straw that broke the camel's back. It received important media coverage in the Quebec press, as yet another example of the inevitable decline (and perhaps political neglect) of Quebec's outlying regions. It was also the event that sparked this study. Some weeks after the closing of the paper mill, the authors of this study were approached by Economic Development Canada[6]. The Atlantic Canada Opportunities Agency (ACOA) would later join in the discussions. The time was ripe, it was felt, to take a step back and to take stock. A need was expressed for a research programme that would synthesize the current state of knowledge on the dynamics of regional economies. The initial question was this: How should we

interpret the events in the Gaspé? Were these unique events or should we expect further closures (or job declines), not only in the Gaspé but also in the other regions of Quebec and Atlantic Canada? Should we interpret the problems of the Gaspé and of other peripheral regions as public policy failures or, rather, as the result of more fundamental forces? As our discussions progressed, it became clear that we could not rigorously answer these question without looking at the bigger picture and the trends elsewhere. What are the long-term trends, both in Canada and in other nations? Will industries continue to concentrate in and around large cities? Are the fundamental factors that determine the location of industries and jobs changing? How is the rise of the new knowledge-based economy affecting the balance between peripheral and central locations? Will new information technologies (IT) improve the relative attractiveness of peripheral regions? Is it not reasonable to hope that IT, by reducing the impact of distance, will allow "distant" regions to escape from the tyranny of geography? And in the end, how might the answers to such questions cause us to rethink regional development policies?

Thus was born a broad-based research programme, involving experts in Quebec, Atlantic Canada, and Nordic nations (see appendix 3 for short biographies of the research team). INRS-Urbanisation, Culture et Société (Montreal), part of the Université du Québec system, was invited to coordinate the programme in collaboration with the Canadian Institute for Research on Regional Development (Moncton). The project formally began in November 2000, structured around the following elements:

— A review of recent literature on regional economic development, with a focus on the knowledge economy and Nordic nations.
— An in-depth statistical analysis of geographical trends in population and employment for Canada from 1971 to 1996, using a classification system (see section 1.2 below and appendix 1) which identifies "central" and "peripheral" regions, as well as rural zones and cities in different size classes.
— Country studies, looking at similar trends and regional policy, for Finland, Sweden, Norway and Scotland. These nations were chosen because their geography and development levels most resembled that of Eastern Canada (see section 1.3 below).
— Separate studies for eleven regions of Quebec and Atlantic Canada (see map 1.1). These studies entailed statistical analysis and

fieldwork, the latter based in large part on consultations with local experts, entrepreneurs, and practitioners. More than 200 persons participated in focus groups, regional workshops, and industrial visits (see appendix 5 for a complete listing).

The documents coming out of the research programme can be found in the reference list. A two-day workshop was held in Montreal in October 2001, bringing together some twenty researchers and practitioners, where the various findings were presented**,** discussed, and digested. This study seeks to synthesize this mass of information and accumulated experience.

1.2 Defining our Universe: Why Speak of "Peripheral" Regions?

One of the first questions we asked ourselves was: how should we define the regions that are the object of this study? We are dealing with regions that lack a large urban centre and are distant from major markets. Various names might apply: non-metropolitan regions; remote regions; resource regions; peripheral regions; and so on. None is entirely satisfactory. In Quebec, such regions have traditionally been referred to as "resource regions". We rejected that option: first, because it implies that the fortunes of these regions are irremediably tied to natural resources; second, because this study goes beyond the borders of Quebec to include comparisons with Atlantic Canada and Nordic nations. The adjective *peripheral* was finally chosen to convey the notion both of distance and of relative positioning.

The question then becomes, peripheral compared to what? A region is necessarily peripheral by comparison to other locations. In the Canadian context, peripheral regions might be defined in two ways: 1) In comparison to what has been traditionally called "Central Canada" (Ontario and Quebec) and still is by many residents outside those two provinces; 2) in comparison to major urban centres and their surrounding regions. In this study, the second definition is applied. We are targeting *regions that are defined as being located at some distance from large metropolitan areas*. In that respect, the term "non-metropolitan region" would equally apply. The term "non-metropolitan region" and "peripheral region" are thus interchangeable, although we shall generally use the latter. The next

step is finding an operational definition for "peripheral region". What do we mean by a large metropolitan area, and what do we mean by some distance?

The operational definition of "peripheral region" used in this study was first applied by Coffey and Polèse in 1988, and has since shown itself to be very robust[7]. The nation is divided into "central" and "peripheral" locations on the basis of two criteria, city size and distance (see table 1.1). *Central* locations include all major metropolitan areas (with populations of 500,000 or over in 1996) as well as other urban and rural areas that fall into approximately one hour's driving time. All locations that are more than one hour's drive from a major metropolis are thus classified as peripheral. It should be noted that the 500,000 cut-off point is an analytical device, and not a value judgement on the nature of Canadian urban areas. Thus, large CMA's with populations under 500,000 will often fulfill metropolitan functions within their regional context; urban areas such as Saskatoon and Halifax immediately spring to mind. As we shall see, "peripheral" urban areas in the 100,000 to 500,000 class often behave like larger metropolitan areas. However, in purely quantitative terms a clear break exists between the two classes[8].

The one-hour threshold in principle represents the immediate market areas of large "central" metropolitan areas for professional and other business services. It measures the radius within which interaction with the metropolis remains fairly easy. Using this benchmark, approximately 28% of all Canadians lived beyond an hour's drive of a major metropolis (with populations of 500,000 or more) in 1996, and are thus classified as living in peripheral areas (table 1.1). Our analysis of the spatial dynamics of the Canadian economy is based on the classification system in table 1.1. The database and data transformations are explained in appendix 1.

Within the universe of peripheral regions, eleven regions in Quebec and Atlantic Canada were singled out for special attention (see map 1.1). Since our original focus was on the five "resource regions" of Quebec, the initial intention was to choose regions in neighbouring New Brunswick that would provide a basis for comparison. Thus, Madawaska County was chosen, which is a geographic extension of the Lower St. Lawrence region in Quebec, and also overwhelmingly French speaking. By the same token, we chose Gloucester County in New Brunswick, which includes the Acadian

Peninsula, which in terms both of its geography, industrial base, and settlement is close to the Gaspé. Again, both regions are very largely French speaking[9]. The greater Moncton urban area and its two surrounding Counties of Kent and Westmorland were chosen as a point of comparison with the greater Chicoutimi urban area[10] and the surrounding Saguenay Lac St. Jean region. Chicoutimi and Moncton are the only two urban areas in our sample with populations over 100,000. Both house regional universities. On the latter criteria, comparisons with Rimouski, and to a lesser extent with Rouyn-Noranda, are also valid.

As the research programme was extended to the rest of Atlantic Canada, the aim was to choose one clearly "peripheral" region in each of the remaining three provinces[11], with, where possible, characteristics comparable to those of the regions already chosen. Thus, Prince County was chosen in Prince Edward Island (P.E.I.), both because of its relative distance from Charlottetown, the provincial

Table 1.1. Population, as a Percentage of Canadian Total, by City Size and by Central and Peripheral Region, 1971-1996

	1971	1981	1991	1996
Cities over 1 Million	33.3	32.9	35.0	35.8
Cities 500 K-1 M	9.3	10.4	10.6	10.5
All Metropolitan Areas	*42.6*	*43.3*	*45.6*	*46.3*
Central Cities, 100-500 K	9.9	9.8	10.0	10.0
Central Cities, 50-100 K	3.2	3.3	3.4	3.4
Central Cities, 25-50 K	1.8	1.7	1.6	1.6
Central Cities, 10-25 K	1.3	1.2	1.2	1.2
Central Rural Areas	9.4	9.3	9.0	9.1
All Central Areas	*25.5*	*25.3*	*25.3*	*25.3*
Peripheral Cities, 100-500 K	7.7	7.7	7.6	7.5
Peripheral Cities, 50-100 K	2.7	2.9	2.8	2.8
Peripheral Cities, 25-50 K	3.3	3.5	3.3	3.3
Peripheral Cities, 10-25 K	2.5	2.4	2.2	2.1
Peripheral Rural Areas	15.7	14.9	13.2	12.8
All Peripheral Areas	*31.9*	*31.4*	*29.1*	*28.4*

Note: Cities refer to Census Metropolitan Areas or Census Agglomerations as defined by Statistics Canada (see appendix 1 for details).

capital, and its proximity to New Brunswick. The three southern counties (Digby, Yarmouth, and Shelburne) of Nova Scotia were chosen because of similarities with the Acadian and Gaspé Peninsulas in terms of settlement, geography, and industrial base, and because of their distance from Halifax. All three Atlantic regions are still very much oriented to the sea and to the fishing industry. Cape Breton (in Nova Scotia) was not chosen in part due to of its very particular history, which in some ways makes it special[12]. In Newfoundland, we chose the Western Shore, including the Northern Peninsula, partly because of its proximity to Quebec's North Shore, both in terms of geography and settlement, but also because of its distance from St. John's, the provincial capital. In sum, even within the peripheral universe of Atlantic Canada, these are truly "peripheral" regions. However, as we shall see all throughout this study, some regions are more peripheral than others. Table 1.2 summarizes certain characteristics for our eleven study regions.

Table 1.2. Various Characteristics of the Eleven Study Regions, 1996

	Population	% Urban	Principal Urban Agglomeration	Population
Canada	28,528,015	78	Toronto	4,226,220
Abitibi-Témisc.	152,555	55	Rouyn-Noranda	39,005
Lower St. L. East	115,310	54	Rimouski	48,555
Lower St. L. West	86,790	27	Rivière-du-Loup	23,625
Gloucester	87,140	41	Bathurst	35,615
Côte-Nord	89,040	68	Baie-Comeau	32,510
Gaspésie[a]	74,835	22	Gaspé	16,290
Prince (P.E.I.)	44,165	36	Summerside	15,915
Madawaska	36,305	62	Edmundston	22,545
Moncton[a]	176,430	63	Moncton	110,770
S. Nova Scotia	64,090	0	(Yarmouth[b])	(7,570)
Saguenay L. St. J.	283,360	76	Chic.-Jonquière	158,860
W. Newfoundland	91,410	36	Corner Brook	32,880

a. Part of the Gaspésie (urban and rural areas around Campbelton) is not included since from our data it is not possible to assign Campbelton's population to New Brunswick or Quebec. Moncton comprises Kent and Westmorland Counties.

b. Yarmouth is not an urban agglomeration according to our definition (municipality or agglomeration which had over 10,000 inhabitants in 1991). It is included in this table for information only.

1.3 Why It Is Difficult to Compare Canada's Peripheral Regions with Regions in Other Nations

Someone is reputed to have once said that Canada is a land with little history but too much geography. This is nowhere truer than in regional economic development. Canada's population is spread over vast spaces. In many parts of Canada, including Quebec and the Atlantic Provinces, the distances between major urban centres are impressive by most international standards. We often forget that the largest urban centre (CMA) east of Quebec City in Canada is Halifax, with a population of about 330,000 in 1996, which remains quite small by international standards. In other word, all of our study regions are located in zones characterized by low population densities and the absence of a large urban metropolis within easy reach. This is the essence of what it means to be "peripheral". However, this makes it very difficult to compare Canada's regions and their economic development problems with those of other nations. We must thus be careful in drawing conclusions from (inappropriate) comparisons with other nations.

An impressive literature exists on the economic renaissance of depressed or cyclically affected regions such as the Ruhr (Germany), North-western France, and the traditional watch-making areas of Switzerland[13]. Equally, dynamic regions such as North-central Italy (sometimes called the Third Italy) have been cited as examples that non-metropolitan regions can succeed, given the right conditions. There is no doubt that they can succeed given certain conditions, as we shall see in this study. However, most of the European examples are not relevant for Canada's peripheral regions. All the European examples cited would be classified as "central" in the scheme presented on table 1.1. Indeed, if we take nations such as France, Germany, and England (not to mention the Benelux States or Switzerland), very few parts of those nations would be defined as peripheral (perhaps none), using the scheme on table 1.1. What it means to be peripheral is different in different contexts. A "peripheral" region in, say France, cannot be compared to the peripheral regions of Quebec and the Atlantic Provinces. Even within a North American context, Canada's peripheral regions are generally more "peripheral" than those of the United States, a point to which we shall return in chapter 6.

We must thus not forget, all throughout this study, that the regions classified here as "peripheral" are evolving in very particular contexts, and as such often face unique economic development challenges. As we shall see, the central-periphery distinction also helps us understand certain Canadian "success stories", as for example the often cited Beauce region, south of Quebec City, known for its industrial and entrepreneurial dynamism. On table 1.1, the Beauce is comprised within the "central" category since most of its land area falls within an hour's drive of Quebec City (a metropolitan area over 500,000) in addition to being advantageously located for trade with New England and the North-eastern United States. As we shall see, distance and geography are important variables in explaining economic success, and will remain so.

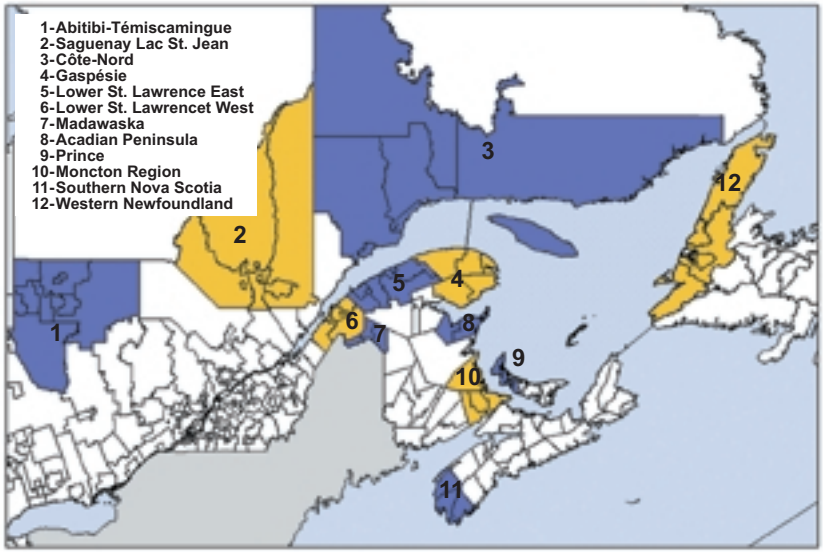
Both in terms of levels of development and of geography, the nations that are probably the most similar to Canada are the three large Scandinavian lands and perhaps Scotland, although no nation is ever totally comparable to another. The Scandinavian nations are also similar to Canada in terms of the comprehensiveness of their social safety nets, with a generous mix of transfer payments and income maintenance schemes. Five experts in Finland, Norway, Scotland, and Sweden were invited to prepare studies of the major trends in their respective nations, adhering as close as possible to the centre-periphery scheme, as defined in table 1.1. As noted earlier, these experts also participated in a workshop with the authors, where the Canadian and Nordic experiences were compared. As we shall see, specifically in chapters 2 and 8, comparisons with the Nordic experience are useful in helping us differentiate between purely local events (often politically induced) and true mega-trends related to more fundamental forces. Correctly distinguishing between the two was perhaps the most difficult analytical challenge facing the authors.

1.4 Basic Employment and Population Trends for Peripheral Regions 1971-1996

In this section, we present some basic trends, using the geographic definitions given above. Figures 1.1 and 1.2 show the evolution, respectively, of population and of employment for large metropolitan areas, for the one-hour radius that surrounds them, and for pe-

ripheral regions. We see that, on the whole, large metropolitan areas have continued to grow more rapidly than other regions. Peripheral regions, although still growing (at least until 1996), count for an ever-decreasing share of Canada's population and of employment, a reflection both of continued net out-migration and the continued concentration of jobs in and around large metropolitan areas. The shift is gradual, but shows no sign of reversing. In 1971, peripheral regions accounted for 31,9% of Canada's population against 28,4% in 1996. For employment, the respective figures are 28% and 26,4%. The fact that the percentages for employment remain below those for population indicate that in relative terms employment opportunities in peripheral regions have on the whole remained below those in central regions (although some improvement is noticeable).

Figures 1.3 and 1.4 show trends, respectively, in total income per capita (Canada = 1) and in earned income compared to total income for the five classes of peripheral regions as defined in table 1.1. The results on figure 1.3 are encouraging, for they show that total income per capita in all peripheral classes is moving closer to the Canadian average, especially for the poorest class, that is, for small (rural) communities with populations below 10,000. However, the trends on figure 1.4 cause us to temper our optimism. The improvements, in relative terms (compared to the Canadian average), are generally less pronounced for earned income than for total income[14]. In other words, the improvements in total income per capita, compared to the national average, are in part explained by relative increases in transfer payments (employment insurance, pensions, and other benefits). Indeed, figure 1.4 underestimates the real impact of transfers on income equalization, since Canada's (and the province's) progressive income tax system includes an implicit transfer from higher income households to lower income households[15]. We can thus say that Canada's transfer system seems to be working, at least over the twenty-five period studied. It has contributed to a reduction in income disparities. But figure 1.4 also tells us that this improvement is not necessarily due to a decentralization of jobs, the chief source of earned income. The general mega-trends in population and employment, as illustrated in figures 1.1 and 1.2, appear to be unaffected.



Map 1.1. Regions Studied

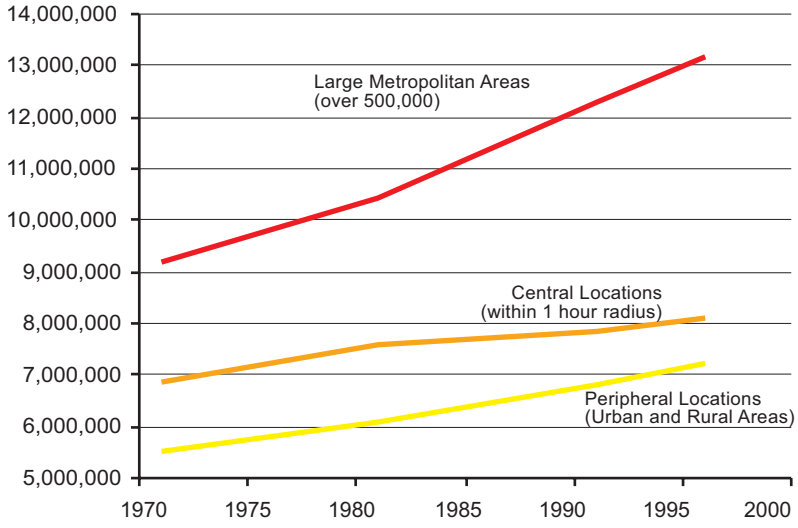


Figure 1.1. Large Metropolitan Areas, Central and Peripheral Locations: Population, 1971-1996

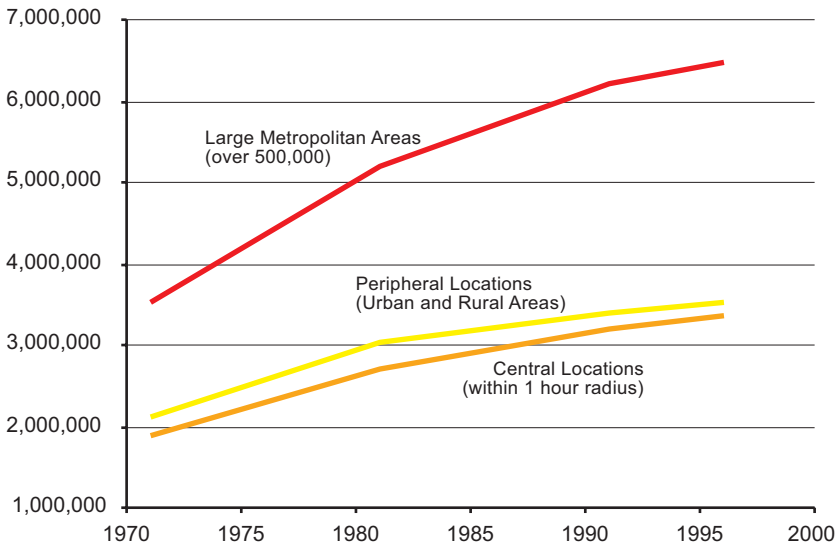


Figure 1.2. Large Metropolitan Areas, Central and Peripheral Locations: Total Employment, 1971-1996

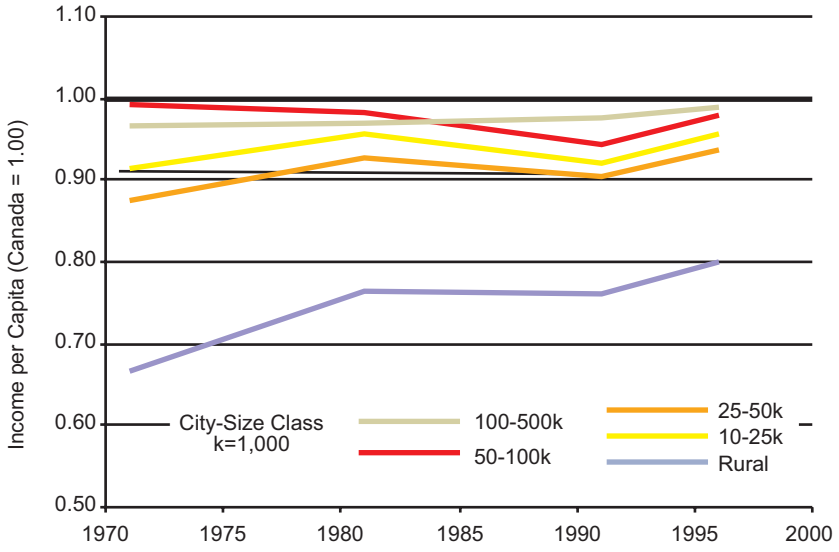
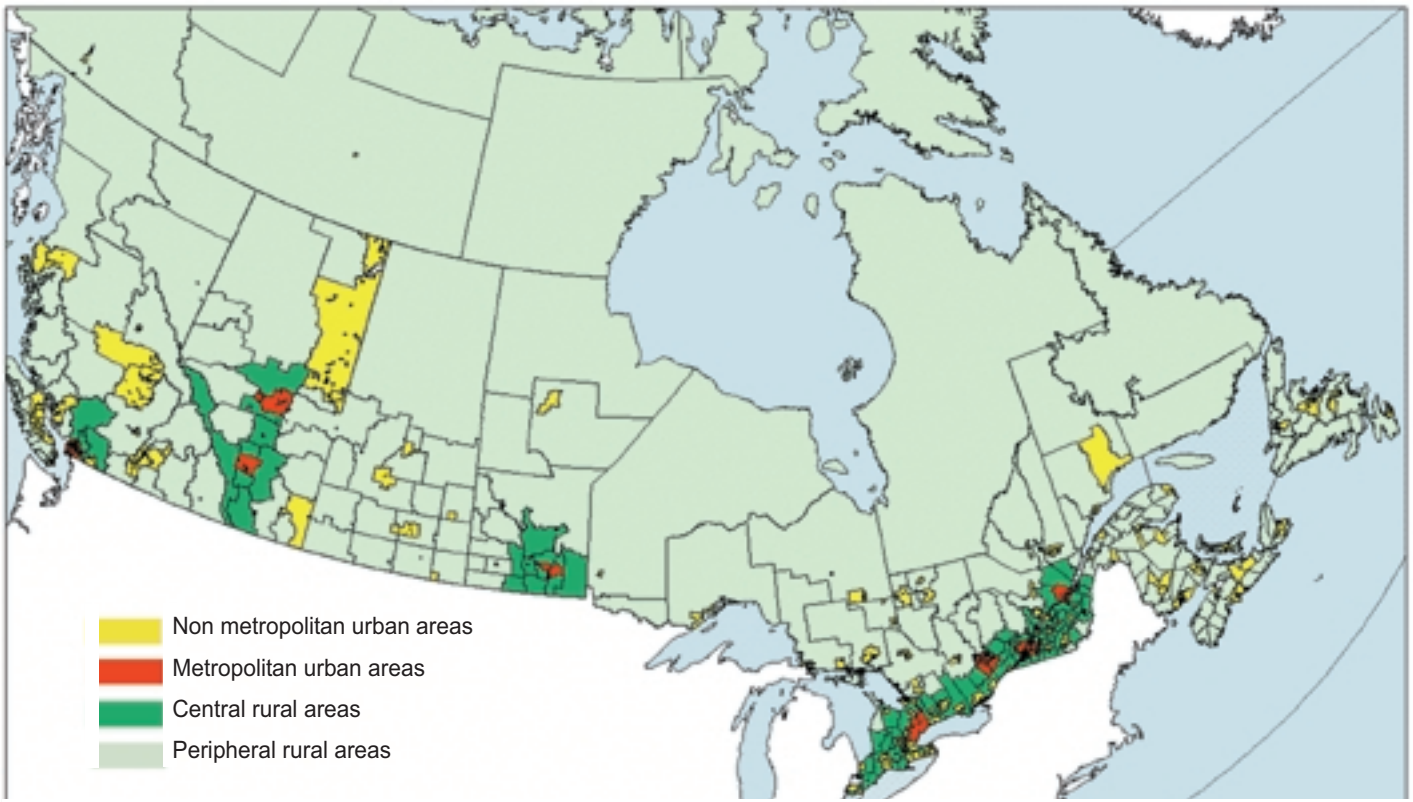


Figure 1.3. Evolution of Income per Capita, 1971-1996: Peripheral Locations by City-Size Class (Canada = 1.00)



Map 1.2. Centre-periphery Divisions and Urban Centres, Canada

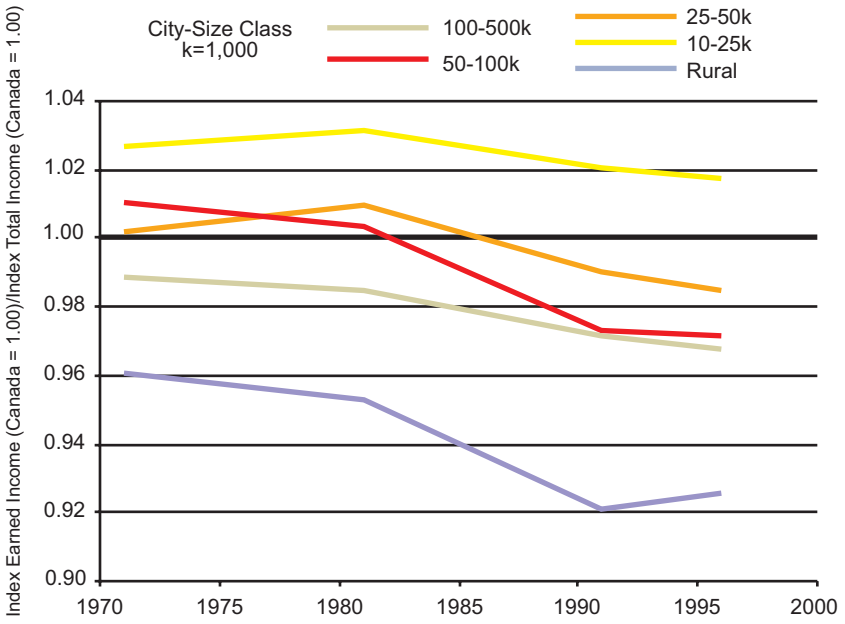


Figure 1.4. Evolution of Earned Income per Worker Compared to Total Income per Capita 1971-1996: Peripheral Locations by City-Size Class

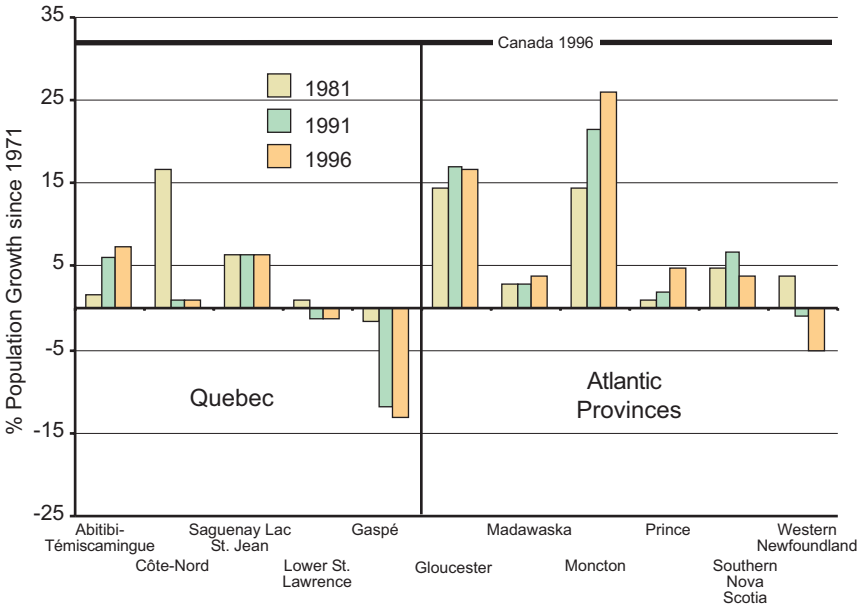


Figure 1.5. Population Growth since 1971 (in %), Selected Regions in Quebec and Atlantic Canada

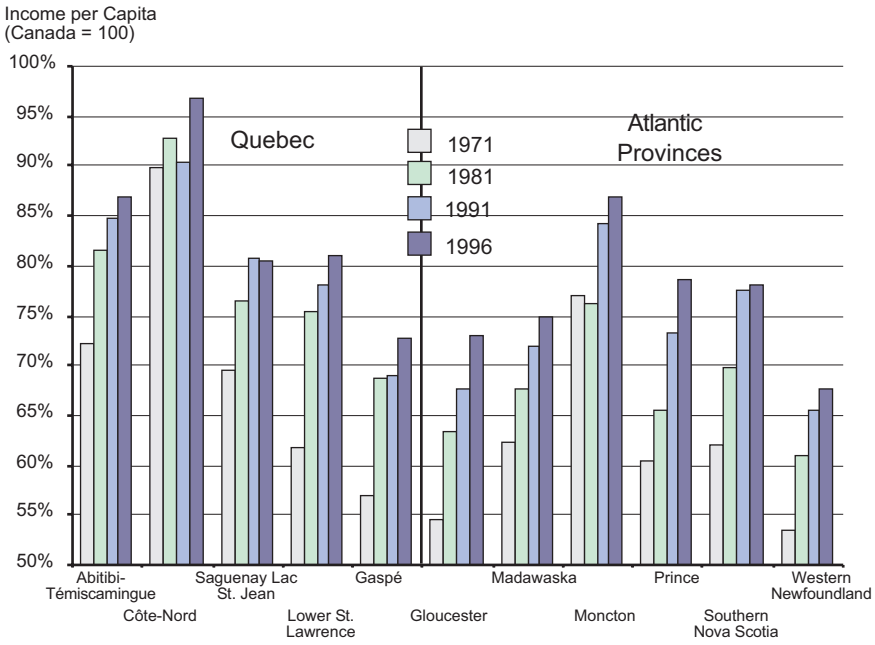


Figure 1.6. Income per Capita (Canada = 100), Selected Regions in Quebec and Atlantic Canada, 1971-1996

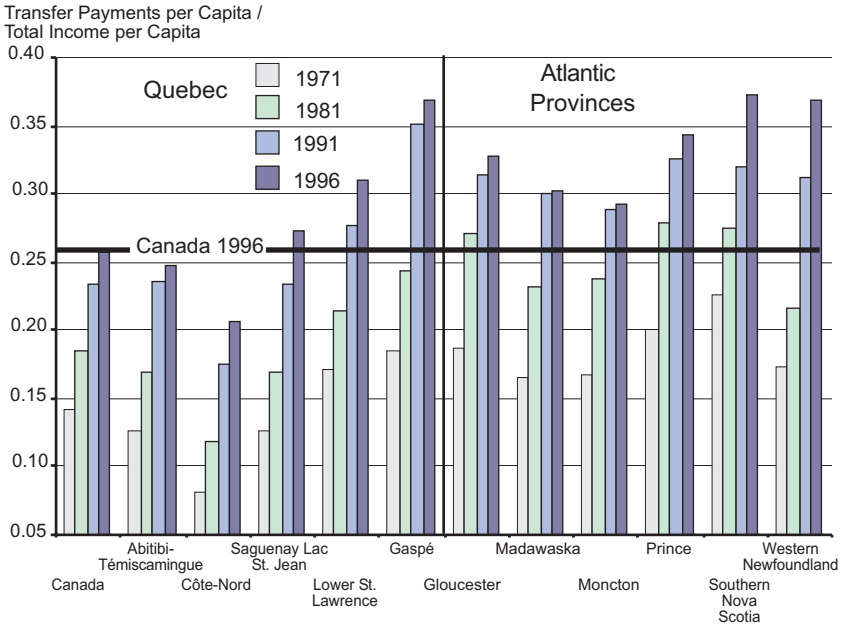


Figure 1.7. Transfer Payments as a Share (%) of Total Income, 1971-1996, Selected Regions in Quebec and Atlantic Canada

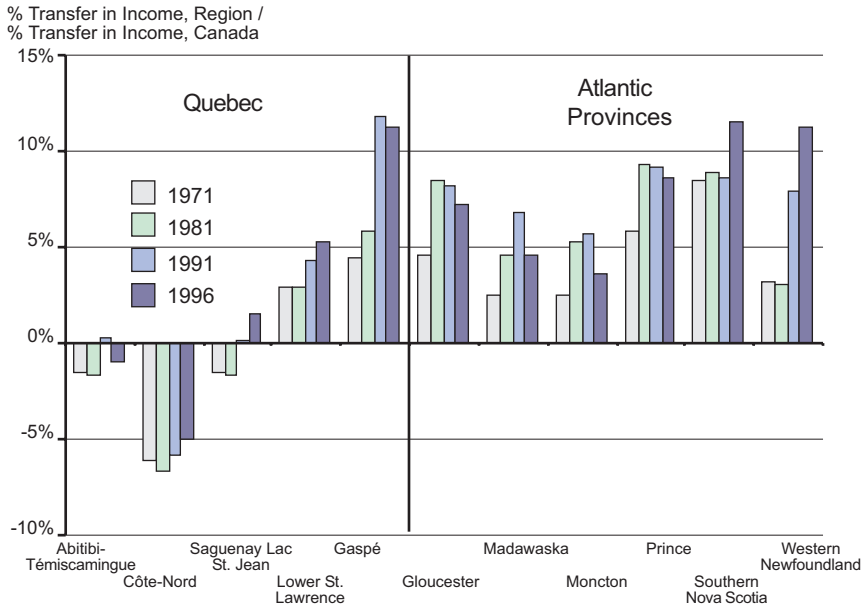


Figure 1.8. Net Dependence on Transfer Payments as a Percentage of Total Income, 1971-1996, Selected Regions in Quebec and Atlantic Canada

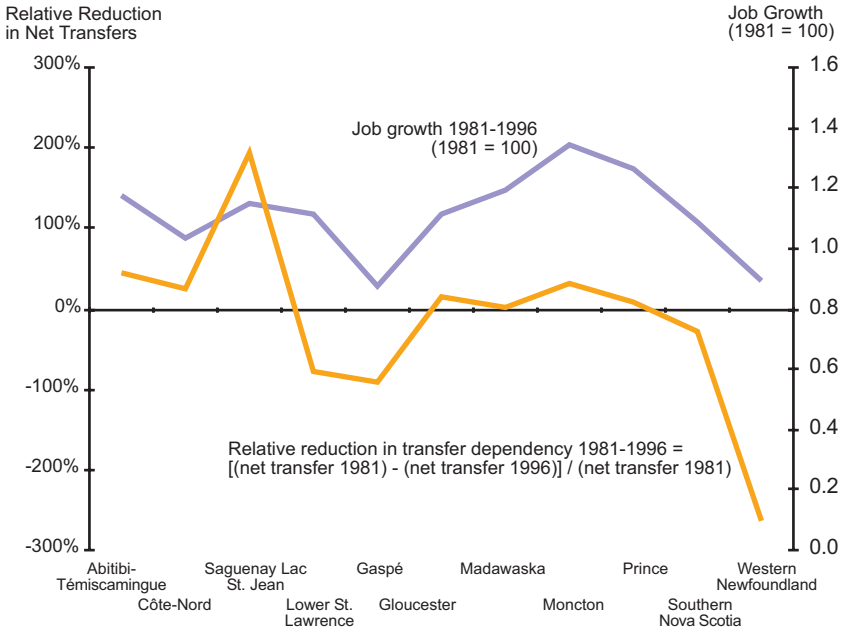


Figure 1.9. Job Growth and Reductions in Transfer Dependency, 1981-1996, Selected Regions in Quebec and Atlantic Canada

The next figures show trends for the eleven regions in Quebec and Atlantic Canada. As expected, all regions show population growth below the national average (figure 1.5). However, important differences exist between regions, an indication that the centre-periphery dichotomy does not explain everything. Trying to explain those differences will be one of our main challenges. If we take the two extremes, we see that the greater Moncton area (and its surrounding counties) has done systematically better than the other regions in our sample, and that the Gaspé has systematically been the worst performer over the twenty-five year period studied. We will often return to the Moncton case, notably in chapters 6 and 8, attempting to explain its apparent success. The results for the Gaspé are a first sign that the Gaspé perhaps indeed faces very particular challenges, a point to which we shall equally return. The difference with Gloucester, just across Chaleur Bay, is noteworthy, a signal that the Quebec-New Brunswick boundary may be a factor, a point to which we shall also return (see especially chapter 9). Figure 1.5 also illustrates the boom and bust roller-coaster history of Quebec's North Shore, with fast growth (1971-1981) followed by an equally abrupt halt to growth.

Figure 1.6 confirms (for our eleven regions) what figure 1.3 already told us for Canadian peripheral regions as a whole: incomes in all eleven regions are moving closer to the national average, although all still remain below (Canada = 100). However, figure 1.6 also tells us that the relationship between income and population growth (and thus also migration) is not necessarily linear. As expected, the two lowest income regions (the Gaspé and Western Newfoundland) also showed the lowest population growth. On the other hand, relatively low incomes have not prevented Gloucester (as already noted) and Madawaska Counties from growing. Nor is Moncton the highest income region in our sample. Other factors are clearly at play, among which the availability of jobs. In this respect, the results for Quebec's North Shore are particularly noteworthy. As we shall see, this region is highly specialized in capital-intensive, resource-based, industries (aluminium smelting; paper mills; iron ore) that pay high wages. We shall equally see that in peripheral regions specialization in high-wage industries can become an impediment to job creation. Quebec's North Shore has both high incomes (figure 1.6) and stagnating population growth (since 1981).

Figure 1.7 is, again, consistent with the results for Canadian peripheral regions as a whole (figure1.4): the proportion of transfers in total income has gone up everywhere. As would be expected, the proportion of transfers is highest in the lowest income regions: the Gaspé and Western Newfoundland, joined now by Southern Nova Scotia, the most rural region in our sample. The impact of high-wage industries, alluded to in the previous paragraph, is visible in the results for the three Quebec regions of Abitibi-Témiscamingue, North Shore, and Saguenay Lac St. Jean. For these three regions, the proportion of transfers in total income is either below or close to the Canadian average. Thus, peripheral regions are not necessarily net importers of transfer payments (from the rest of Canada). Yet, none of these three Quebec regions are high population growth regions, and all are about to see their populations decline according to current projections (see chapter 5), demonstrating the complex interplay between wages, distance, job creation, and migration.

Figure 1.8 shows the evolution of the *net* impact of transfers on total income. This may be considered an approximate (but not perfect) measure of the degree to which, on balance, the inhabitants of a region transfer (or receive) income to (from) the rest of Canada. Thus, the high-wage Quebec North Shore is a net contributor, while the Gaspé is a net beneficiary, a way of saying that income is being transferred (via Ottawa and Quebec City) from the former to the latter. However, it is the evolution that interests us. Figure 1.8 suggests that, among Quebec regions, net dependency on transfers has increased in the Saguenay Lac St. Jean (going from a net contributor to a net beneficiary) and the Lower St. Lawrence regions, and has remained high in the Gaspé. The most significant improvements (declines in transfer dependency) are found in the Atlantic Provinces, notably Madawaska County and Moncton, but also Gloucester to a lesser extent. In all three cases, these are reversals of past trends. The sharp increases (between 1991 and 1996) in transfer dependency in Southern Nova Scotia and especially Western Newfoundland are, in all likelihood, a reflection of the collapse of the ground fish. It will be interesting to see whether the trends and changes that underlie figure 1.8 continue after 1996, which we will in part try to determine using more recent data[16], notably in chapters 5 and 6.

1.5 Conclusions

Let us conclude this first chapter by returning to the primary focus of this study: the locational dynamics of industries and jobs. The basic trends are clear. In Canada, jobs have continued to move towards central areas, in and around large urban areas, from 1971 to 1996. On the whole, population and employment growth has been slower in peripheral regions. However, we have also seen that important differences exist between peripheral regions, and that the interplay between income, transfer payments, location, population and jobs may be more complex than is often thought. Once we consider the impact of location, specifically distance, high incomes and jobs do not necessarily go hand in hand. High-income (high-wage) regions may nonetheless lose population (or grow more slowly) if the necessary jobs are not forthcoming. In the end, it would appear, it is the location and creation of jobs that are driving the system. This is perhaps best illustrated by figure 1.9 where we compare relative reductions in transfer dependency and job growth over 1981-1996. However, caution should be used in interpreting figure 1.9 since unemployment benefits account for a significant share of transfers and will thus necessarily vary as a function of employment. That being said, figure 1.9 nonetheless demonstrates that the best way for a region to reduce its dependency on transfer payments is to create jobs. As we shall see, the obstacles to creating jobs in peripheral regions are varied and many.

In the next chapters of this study, we shall concentrate on the basic factors (and trends) that determine the location of jobs, and how they are likely to evolve in the future. Although we shall in general be looking at the trends for Canada, many of the conclusions we draw in the next chapters (especially chapters 2, 3, and 4) would equally apply to other industrialised nations. In the second part of the study, starting with chapter 6, we shall increasingly concentrate on more specific factors that allow us to explain the differences between the eleven regions in Quebec and Atlantic Canada. All throughput this study, the focus of our analysis is on what economists call “basic” employment, that is, employment which generates new income, as opposed to induced employment, which exists to serve a local population. Basic employment is, by definition, linked to industries that bring money into the region by selling goods and services to the rest of world. To create and hold such em-

ployment, a region must possess a *competitive* cost advantage, *compared* to other regions, a concern that will remain with us throughout the entire study.

NOTES

[1] Our definition of peripheral regions in Quebec excludes Northern Quebec, not because it is not a peripheral region, but because it possesses very specific characteristics—principally the fact that a majority of its population is first nations. This region is the object of another study being undertaken by a team at INRS-UCS which is gathering socio-economic and socio-cultural information on the local communities. Note that all through the English language version of this study, we have chosen to use the proper English names to designate the various regions, and vice-versa for French names. Thus, *la Gaspésie* (French) is the equivalent of the Gaspé region, where the latter also includes the Magdalen Islands (*Îles-de-la-Madeleine*), unless noted otherwise. However, some linguistic (and geographic) confusion may still subsist. A glossary of geographic and other terms, as well as their French-English equivalents, is provided at the beginning of this book.

[2] The *Bureau d'aménagement de l'Est du Québec* (BAEQ) submitted its regional development plan to the Quebec government in 1965. The plan included a wide range of measure to be implemented over various years. Among the more controversial measures were recommendations for the modernization (and consolidation) of agriculture and fishing, and the eventual abandonment of certain villages.

[3] OPDQ stands for *Office de planification et de développement du Québec*, the regional economic planning department of the Quebec government from 1969 until the 1990's.

[4] For an evaluation of Federal policies, we can think of no better source than Savoie (1992, 2001).

[5] In the Gaspé, this sense of frustration has given rise to a vocal lobby, *les Patriotes gaspésiens*. However, this sense of alienation is by no means limited to the Gaspé region. The title of a recent book, *Le Pays trahi* (literally, *A Land Betrayed*), coming out of the Saguenay Lac St. Jean region, betrays very similar sentiments. The authors argue that Quebec's "resource regions", notably their home region, have been systematically discriminated against by public policy (Bouchard et al. 2001). House (1999) makes a similar point for the "peripheral" regions of Newfoundland and Labrador, notably deploring the inadequacy of policies formulated in faraway capitals (St. John's; Ottawa).

[6] Canada Economic Development for Quebec Regions (CED) and the Atlantic Canada Opportunities Agency (ACOA) are, with Western Economic Diversification (WED) and Federal Economic Development Initiative for Northern Ontario (FEDNOR) the federal regional agencies which work to promote economic devel-

opment in their respective territories. More specifically, CED has the mandate to promote the economic development of Quebec regions, with particular attention to those with slow growth and insufficient employment, in order to ensure—in the long term—an improvement in the employment situation and prosperity. For its part, ACOA aims to encourage employment creation and an increase in earned income in the Atlantic region. Job creation being directly linked to the growth of companies, especially SMEs, ACOA seeks to offer entrepreneurs incentives, advice and access to capital, information and technology in order to start or grow their enterprises, which are the source of jobs.

[7] Coffey and Polèse (1988a, b). Other studies based on the same framework are Coffey and Shearmur (1996) and Polèse and Champagne (1999).

[8] On the basis of the 1996 census, Winnipeg was the smallest CMA in the second (metropolitan) size class (667,209), followed by Quebec City (671,889). In the third size class, the largest urban areas (lying outside the one hour threshold and thus classified as "peripheral") are Halifax (333,518) and Victoria (304,287); thus, with populations about half that (or less) of the preceding class.

[9] Like the Acadian Peninsula, French-speaking Acadians initially settled much of the Gaspé Peninsula (some of them settled in the Magdalen Islands).

[10] All throughout this study, we shall for reasons of simplicity use the term *Chicoutimi* to refer to the Chicoutimi-Jonquière CMA, with all due respect for the valiant citizens of Jonquière. The official name of the urban area was recently changed to Saguenay following the merger of various municipalities. To use the term Saguenay would have created confusion between the region and the city (CMA).

[11] We put the word "peripheral" between quotation marks because, following our classification system (table 1.1), all of Atlantic Canada is defined as peripheral.

[12] Notably because of the historical importance (and recent collapse) of the coal mining industry and of a history of strong public participation both in mining and the related steel industry. A special Federal agency exists, specifically mandated to deal with Cape Breton.

[13] See Lacas, Polèse, and Shearmur (2001). See also Maillat and Kebir (2001) and the special issue of the *Canadian Journal of Regional Science (CJRS* 2001).

[14] By comparing two indexes (where Canada = 1.00) we implicitly standardize for changes at the national level. As figure 1.7 illustrates, the share of transfer income in total income has been rising everywhere between 1971 and 1996.

[15] The term "progressive", when referring to a tax, signifies that the proportion (%) paid in taxes rises with income. Thus, if we had used disposable income (after taxes) rather than total income, the difference between regions would be even less. However, we do not have this datum for our spatial classification.

[16] All the figures in this chapter are drawn from census data, 1996 being the last date. Comparable results from the 2001 census were not available at the time of writing. Data analyzed for years beyond 1996 are based on non-census sources. Caution is in order when comparing trends drawn from different sources.

CHAPTER 2

A Brief Journey into the Past: On the Origins of Urbanisation and the Geographic Concentration of Economic Activity

The shift in population from what we have called "peripheral" areas to more centrally located areas, specifically large urban areas, did not begin yesterday. Its roots lie in the industrial revolution, which is generally thought to have begun in England in the 17th century, then spreading to Western Europe, North America, and other regions. The driving force behind the industrial revolution was the scientific (knowledge) revolution, which set off a cycle of inventions, which in turn generated technological change, higher productivity, higher incomes, and ever increasing levels of welfare. Among the visible signs were sharp decreases in infant mortality and equally sharp increases in longevity in all industrialised nations.

From a geographic perspective, this social and economic transformation was accompanied by a growing concentration of populations in urban areas. In 1900, less than 10% of the world's population lived in cities (over 20,000 population) compared with over 50% today. The level of urbanisation today is around 80% in most industrialised nations. Canada is no different (figure 2.1)[1]. The great wave of urbanisation and urban growth was especially strong during the late 19th century and the 20th century. The only aspect where Canada differs from Western Europe (but not from the United States) is that new regions were opened up for settlement and resource exploitation, the most notable case being the Prairies, whose period of massive settlement goes back barely a century. In Quebec, new areas were also opened up for settlement during the same period, notably the Abitibi and Saguenay Lac St. Jean regions,

and more recently the North Shore. Notwithstanding these exceptions of rural expansion (which are now at an end and, indeed, reversing), the Canadian experience follows the generally observed trend of an ever-greater concentration of population and economic activity in and around urban centres.

Why have economic growth and technological change lead to the concentration of populations and economic activity? The complete answer to this question can be found in textbooks on urban and regional economics[2]. The principal reasons are not that complex. We shall focus on three: 1. the impact of rising productivity on the composition of demand and employment; 2. the impact of scale economies on industrial location; 3. the impact of improvements in transportation and communications on market size and range.

2.1 The Impact of Rising Productivity on the Composition of Demand and Employment

Technological change translates into higher productivity (per worker) and, in turn, higher wages and incomes. Where, say, 10 workers were needed before to harvest a given amount of trees, we now only need 2, thanks to new technologies, including new machines and better training and management. Each worker now produces more than before, and will thus earn higher wages. This also means that the number of jobs will fall *unless* there is a countervailing increase in demand. This will not necessarily follow in all sectors of the economy[3]. The historical trend in all nations has been a long-term *relative* decline in the demand for primary products (agriculture, fishery, forestry, and mining). There are two reasons for this. *First*: Households spend proportionally less and less on food and beverages (in relative terms) as their incomes rise. In Canada, the average household today spends less than 10% of its income on food and beverage, compared with about 30% a century earlier. The figures are similar for other industrialised nations. *Second*: As technologies improve, less and less primary inputs are needed to produce the same amount of final product. In addition, environmental awareness, especially the growing emphasis on recycling, reinforces the movement towards an ever more parsimonious use of primary inputs. The recycling of paper, cartons, plastic, and metals necessarily affects the demand for initial primary inputs.

The net impact is, inevitably, to reduce the *relative* number of jobs in the primary sector, compared to jobs in other sectors. The word *relative* is in italics to underscore that this does not necessarily mean a decline in the absolute number of jobs in primary activities; this will depend on overall population and employment growth in the nation[4]. However, the relative share (in %) of employment in the primary sector, compared to all employment, will necessarily fall. The figures for Canada are consistent with historical trends (figure 2.2). Jobs in primary activities are by necessity linked to fixed locations: ports and harbours; forests; agricultural land; mines; etc. Such activities, where they remain profitable, will continue to ensure an economic base for many non-metropolitan locations, even though they may be in relative decline. The question then arises: Why, over time, have *other* sectors of the economy (i.e. manufacturing and services) generally found it advantageous to locate in and around large urban centres?

2.2 The Impact of Scale and Agglomeration Economies on Industrial Location

Manufacturing, as well as many services, is sensitive to what economists call economies of scale. In more technical terms, production costs per unit will fall as the volume (scale) of production increases, at least up to certain point. More simply, the more a firm produces (or sells), the more cheaply it can produce, again up to a certain limit which is generally determined by current technology. Why should this be so? Because most production involves fixed costs: plants; machinery; equipment; land and buildings, and (difficult to lay-off) manpower. These costs must be born whether the firm produces or not. Higher production and sales allow the firm to spread these fixed costs over more units (goods or services), which means lower unit costs. Scale economies are thus especially significant for activities where fixed costs are highest, most notably, manufacturing with heavy (sunk) investments in plants, equipment and manpower training.

Why should scale economies affect location? Simply, plants will seek out locations where they can maximize initial sales volume, or in other words, where they have direct access to the largest possible

markets. The faster a firm can get its sales up, the lower will be its initial production costs, and the greater its potential market share. In sum, firms sensitive to scale economies will seek urban locations at the centre of large markets. Firms located at the centre of large markets will generally have a cost advantage over firms located in peripheral locations far from major markets, *unless* other countervailing factors come into play. This puts peripheral regions at an initial cost disadvantage for most manufacturing and for market-sensitive services. This equally holds for many public services with high fixed investments in specialized equipment and infrastructure: hospitals, laboratories, research centres, and post-secondary educational institutions.

This is not simply textbook economics. In our meetings with local manufacturers in peripheral regions in Quebec and Atlantic Canada, we were repeatedly confronted with the reality of insufficient volume (scale). The small size of local markets was often cited as a major impediment to the firm attaining sufficient volume to be internationally competitive. "We simply do not have the volume to be able to compete" (with firms in Montreal or Toronto) is a phrase we heard more than once. This also explains why success stories of local entrepreneurship are often found in niche markets, less dependent on volume. But niche markets, by definition, are not generally important sources of employment.

Economies of scale equally have an impact at another more complex level. Scale can also refer to the volume of a whole industry or grouping of industries. Such *external* scale economies are often referred to as agglomeration economies. The adjective *external* is added to signify that the "economies" (or productivity gains) thus obtained do not result from the size or the technology of the firm itself, but rather from the coming together of firms and people. Why should the geographic grouping of firms increase productivity? The reasons are many and varied, and have given rise to an abundant literature on the subject of agglomeration economies[5]. Agglomeration economies are not easy to measure. We shall limit our explanation to a few simple examples. To begin with, as for basic scale economies, the grouping of firms makes it possible to spread the costs of fixed investments and infrastructures (roads, harbours, waste treatment plans, power plants, etc.) over more users, and thus lower unit costs. In addition, many infrastructures are themselves

sensitive to scale economies (i.e. airports), reinforcing the initial scale effect[6].

Agglomeration also allows firms to share a common labour pool and to spread the costs of training and educational facilities over many users, reducing recruitment and training costs. The chances of finding a skilled and diversified labour force are much greater in a large city than in a small town. Firms depending on skilled labour will gravitate to large urban centres. The movement will often become self-reinforcing as skilled labour concentrates in large centres[7]. Access to a flexible and diversified labour force can also translate into important cost savings ("economies"). Some firms require quick access to specialized classes of labour (professionals, consultants, technicians, artists, etc.) for short time periods, especially firms in specialized sectors where production is constantly changing. The film industry is an example, as are publishing and advertising. Such sectors will generally gravitate to the largest urban centres.

However, the intangible aspects of agglomeration economies may, in the end, be the most important. Cities allow people to mingle, meet, and exchange ideas, formally and informally. For all sorts of reasons, creative and inventive minds have tended to congregate in cities throughout history, whether we point to Renaissance Venice, to early 20th century Vienna, or to New York today[8]. There is no one simple explanation; we can only observe that it is so. In terms of the economics of location, this means that firms and institutions most dependent on a creative, educated, and information-rich environment will tend to gravitate to the largest cities. That is where they will be the most competitive. Again, the process will often become self-reinforcing, as the young and the educated migrate to the largest cities. This does not mean that education and information-intensive activities cannot (or will not) develop in smaller cities or in peripheral regions, but rather, that they are at a *relative* disadvantage *compared* to larger urban areas. Given this comparative disadvantage, it is not surprising that the technologically most advanced sectors in various epochs have generally appeared in and around large urban centres. The locational trends of high tech activities in Canada since 1971 will be examined in the next chapter.

2.3 The Impact of Improvements in Transportation and Communications on Market Size and Range

Improvements in transportation and communications can be compared to reductions in tariffs and other trade barriers between nations. By reducing transport costs (of goods, people or information), they reduce the costs of trade and exchange and thus increase competition. Increased competition translates into more trade, greater specialization, larger markets, and the concentration of production in the most profitable locations. The great waves of urbanisation and urban concentration of the past were accompanied by a long series of inventions which continuously served to lower transportation and communication costs: the steam engine (railways, steam boats), the telegraph, the internal combustion engine (motorized vehicles, airplanes), paved road surfaces, highways, refrigeration, radar, the telephone, radio, television, and so on, up to more recent times.

Why, in the past, should the combined impact of these inventions have been to further the concentration of economic activity in large urban centres? The reasons are not difficult to understand. As noted, reductions in transport costs increase competition. Thus, between two points, it is the more productive of the two that will increase its market share, perhaps even eliminating the other. Improvements in transportation reduce costs in *both* directions. For a peripheral region, let's say Eastern Quebec, improved transport links with Montreal will facilitate its access to the Montreal market, but will also facilitate the access of Montreal-based firms to the Eastern Quebec market. The net impact on employment growth (or loss) will depend on which of the two has more producers with an initial cost advantage for traded goods and services. As noted in section 2.2, producers in large cities often start off with an initial cost advantage due to scale and agglomeration economies. If this is the case for the majority of tradable goods and services, then the net impact of improved transportation will be to accelerate the shift in economic activity towards large urban centres.

The above can be illustrated by means of a hypothetical (but historically accurate) example. Let us go back a few decades before highways, refrigeration and modern marketing techniques. Let us imagine a dairy framing area in, say, the Lac St. Jean or Lower St. Lawrence regions of Quebec (both peripheral). Each possesses

small industrial dairies, producing butter, cheese, yoghurt, and other milk products for local consumption. Let us now jump forward a few decades. Paved roads and refrigerated truck transport arrive on the scene. What will happen? Local dairies now have access to the Montreal market; but, by the same token, large industrial dairies in and around Montreal now have access to the local regional markets. The outcome is not difficult to guess. Given the initial economies of scale of industrial dairies around Montreal, these will undercut local dairies in the Lac St. Jean and Lower St. Lawrence regions, and in many cases drive them at out business. Transport costs, like tariff walls, afford protection. When that protection disappears, higher cost producers will lose. The history of the peripheral regions of Quebec and Atlantic Canada is replete with closures of industrial bakeries, abattoirs, and dairies, which in earlier epochs served local markets. Western Newfoundland has lost its last local cement producer. Less fertile agricultural land, settled in earlier epochs, has returned to fallow in parts of the Abitibi and Lower St. Lawrence regions.

2.4 The Development of Urban Hierarchies and Small and Medium-sized Cities

The above does not mean that all population and employment will with time concentrate in one or two mega-metropolitan areas. That has not been the historical experience. Population will be distributed among cities and rural communities of various sizes. Such distributions change only slowly over time, although as figure 2.3 illustrates (for Canada) the smallest cities and rural areas continue to loose population shares. Why should this be so? The first reason is that primary activities, although in relative decline, will not disappear. People will continue to farm, fish, harvest trees, and mine. Transportation and other infrastructures need to be managed and maintained. Rural populations need service centres. Retailing, professional services, and public sector employment (chiefly in health and education) will locate in these service centres. Thus will develop a hierarchy of service centres, depending on local geography and the size and the density of the local population. The most important such centres are called *central places* by economic geographers and

refer to service centres with large catchment areas. The larger the area a central place services, the more sophisticated and diversified will be the range of services available[9].

Cities will also develop far from major markets if the transport cost of primary inputs is sufficiently costly to warrant the location of manufacturing (usually the first or second stages) near the resource. Most manufacturing in the peripheral areas of Quebec and Atlantic Canada fall into this category, as we shall see in chapter 4. Trees are more costly to transport than paper, planks, or other wood products. Processed fish (dried, canned, frozen, etc.) is less costly to transport than fresh fish and seafood. Ingots are generally less costly to transport than the original un-refined mineral. Aluminium smelting is a special case; it is the high transport cost of its primary energy input (electricity) which explains its propensity to locate near cheap and plentiful sources of electric power, notably in the Saguenay Lac St. Jean and Quebec North Shore regions. For all these sectors, the evolution of technology, including transportation technology, will affect the relative comparative advantage of different locations.

Medium and smaller-sized cities will develop because agglomeration (city size) also entails costs and because not all economic activities are equally sensitive to scale and agglomeration economies[10]. Larger cities mean higher wages and higher land prices, as well as congestion costs and other inconveniences associated with large cities. Activities that are dependent on scale and agglomeration economies will be willing to bear those costs; they are in fact the source of those costs. However, other activities will seek out locations where land prices and wages are lower. This has generally been the case for medium value added manufacturing: transportation equipment and vehicles; electronics; plastics; etc. These sectors are sensitive to land prices because they require large industrial lots to operate and do not necessarily require a highly sophisticated or diversified labour force. They will thus often prefer medium and smaller-sized cities. Low value added activities that are sensitive to labour costs, such as textiles and clothing, will often prefer small cities were wages are lowest. In essence, as large urban centres increasingly specialize in advanced services and other information-rich activities, manufacturing is being pushed out to less costly lo-

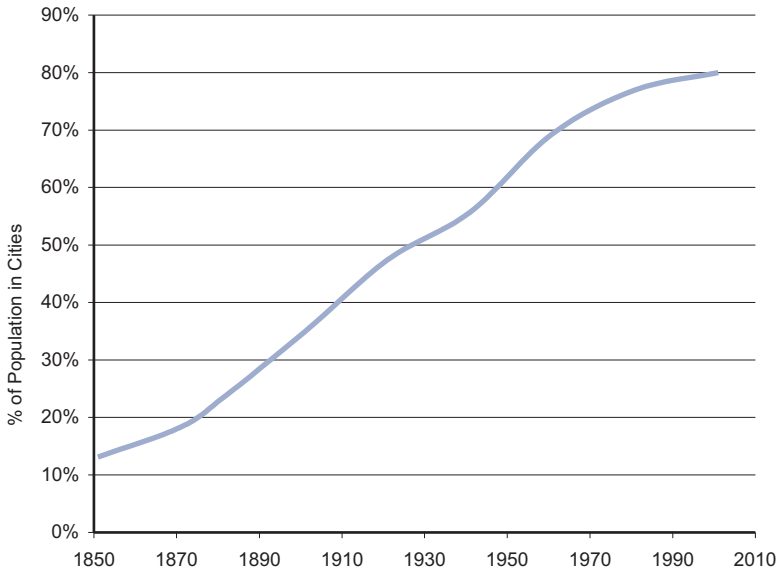


Figure 2.1. Urbanization: Canada 1851-2001

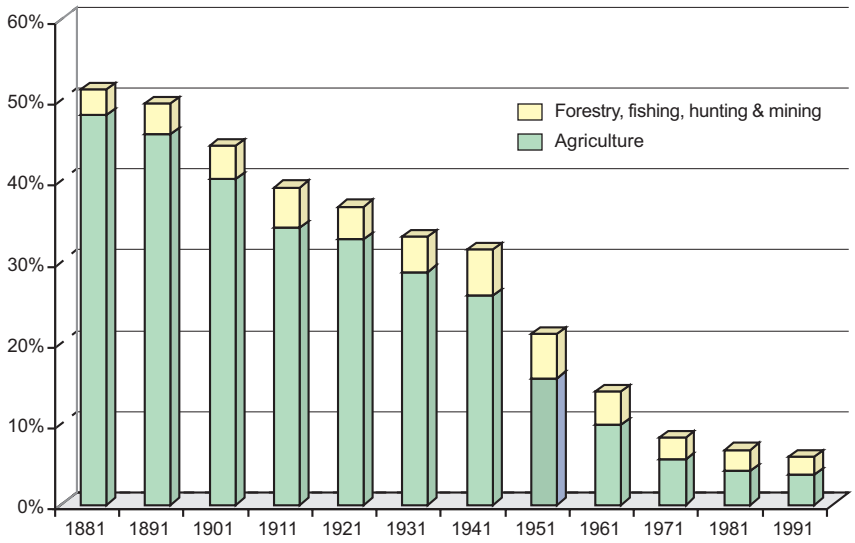


Figure 2.2. Employment in the Primary Sector as a Percentage of Total Employment, Canada, 1881-1991

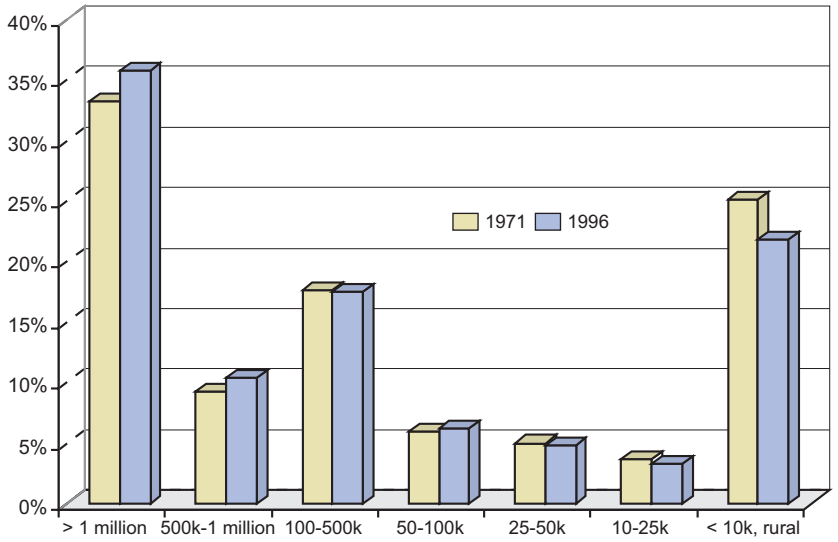


Figure 2.3. Distribution (in %) of Population among City-Size Classes, Canada, 1971 and 1996

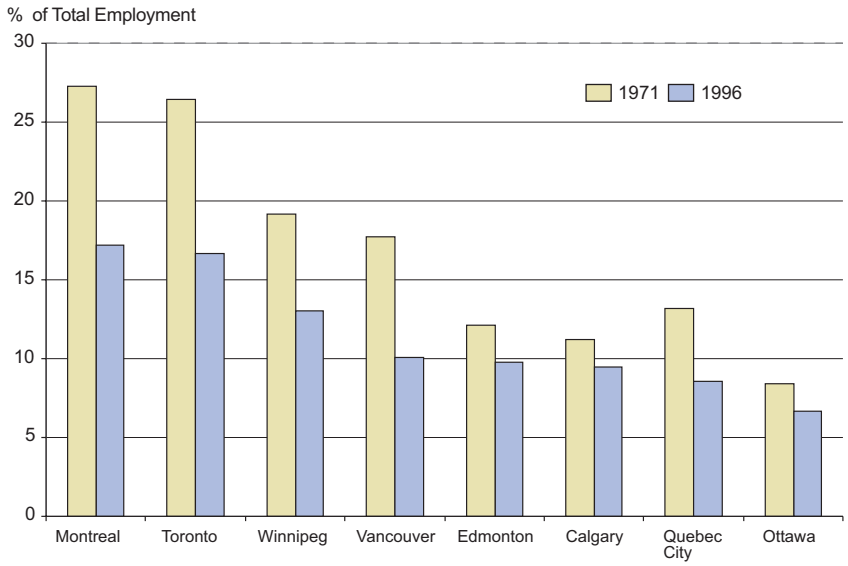
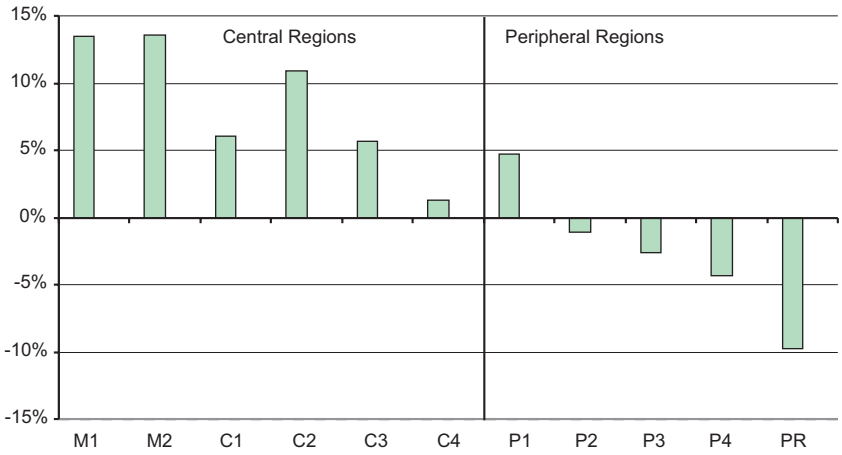


Figure 2.4. Employment in Manufacturing as a Percentage of Total Employment, Canada's 8 Largest Metropolitan Areas, 1971 and 1996



M = Metropolitan Areas, C = Central Locations, P = Peripheral Locations

Figure 2.5. Population Change (%) by City Size and Location, Norway, 1980-1996

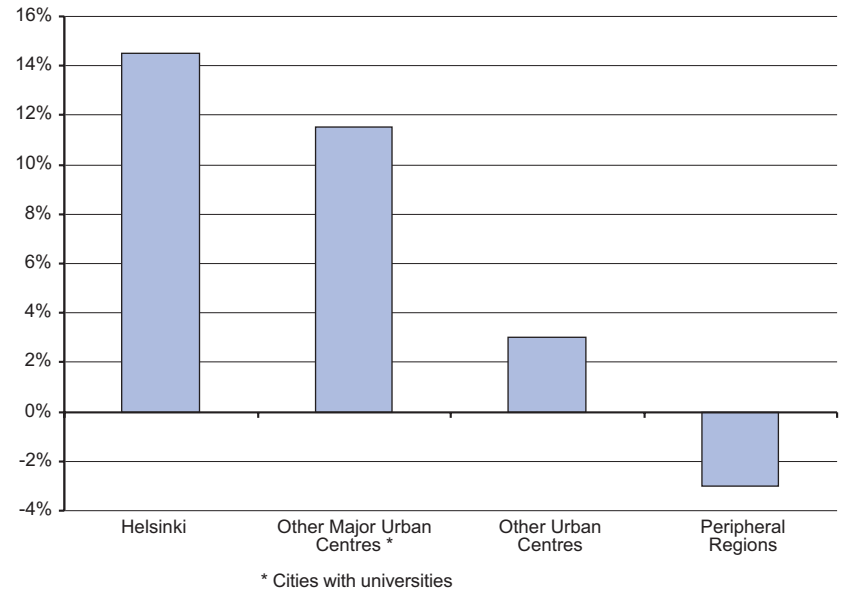


Figure 2.6. Population Change (%) by City Size and Location, Finland, 1988-1998

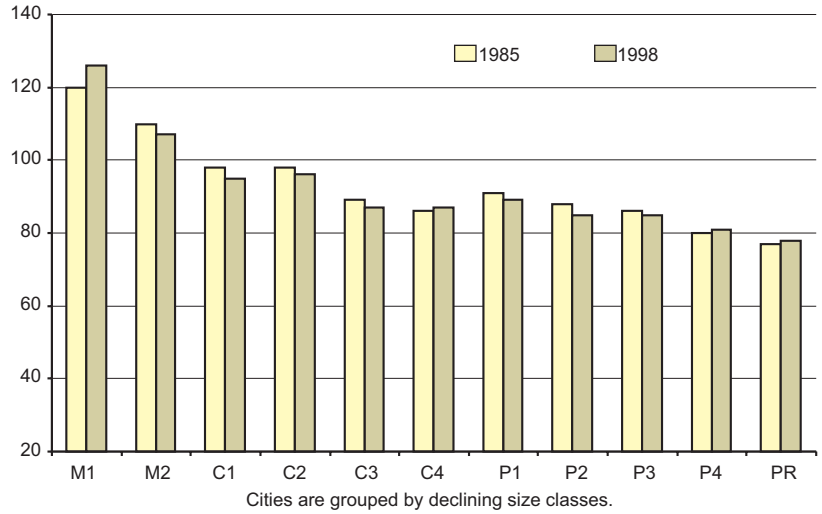


Figure 2.7. Income per Taxpayer by City Size and Location, Norway, 1985-1998 (National Average = 100)

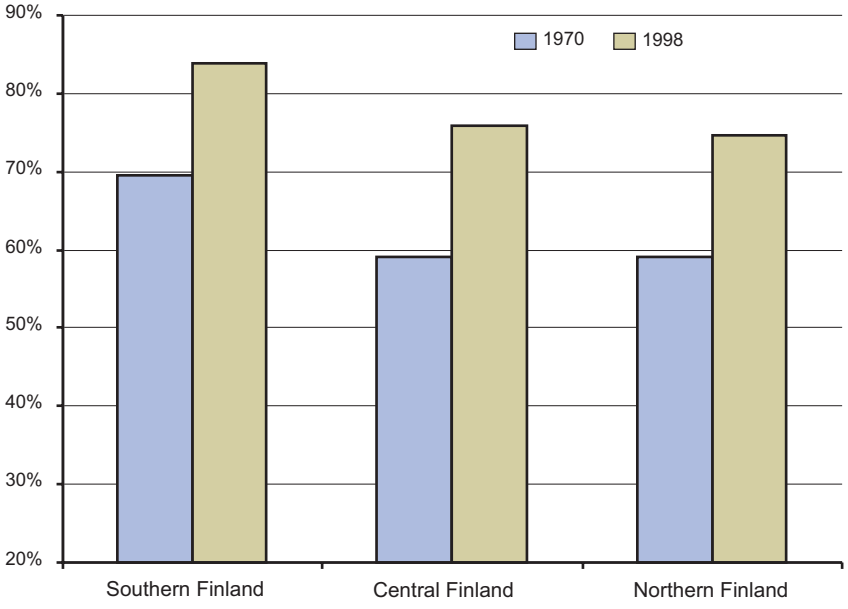


Figure 2.8. Disposable Income per Capita in Southern, Central and Northern Finland Compared to Helsinki (Helsinki = 100), 1970, 1998

cations. This is a universal trend, equally reflected in the evolution of the employment structure of Canada's major metropolitan areas (figure 2.4).

2.5 The Trends in Canada and Scandinavia Are Very Similar

Figures 2.5 through 2.8 show that the basic trends in Finland and Norway are not different from those observed for Canada[11]. In both nations, population growth has been higher in larger urban areas and adjoining central locations than in peripheral regions, a reflection of continued out-migration to central urban areas. As in Canada, incomes are generally lower in peripheral areas, although (again, as in Canada) income disparities between regions have tended to lessen over time. Both Canada and Scandinavian nations have a tradition of transfer payments, progressive taxation, and equalization schemes which have tended to reduce income differences between individuals and between regions, although differences have remained. In both Canada and Scandinavia the long-term trend to income convergence between regions seems to have come to a halt (or even reversed) in recent years[12], a sign that recent economic transformations have not necessarily favoured peripherals regions, a point to which we shall return in future chapters.

The results for Canada and Scandinavia suggest that once a certain level of welfare is attained and assured, the relationship between income differences and internal migration may not be as linear as expected. Income differences between regions, however defined, within Canada and Scandinavia are today fairly modest, at least by international standards, certainly not comparable to income differences between nations. Yet, the general spatial trends in population do not appear to have changed. This suggests that in societies such as Canada and Scandinavia, migration, especially migration of the young, is motivated primarily by long-term career perspectives. In other words, in regions where job opportunities are rare, transfer payments and other income maintenance schemes will not necessarily halt out-migration, although it will undoubtedly have a dampening effect. In the end, employment and population shifts go together.

2.6 Lessons Learned: The Limited Impact of Public Policy on Fundamental Trends

An inevitable conclusion follows from this overview. Public policy, it would appear, has only a limited impact on fundamental long-term trends. No nation has succeeded in avoiding urbanisation once industrialisation has taken off. Even nations with very different economic systems and histories from Canada have not deviated from the general pattern of spatially concentrated development, as the recent histories of Mainland China and the ex-Soviet Union demonstrate. The forces that drive the spatial concentration of economic activity are very strong, and largely occur independently of public policy and national policy environments.

The comparison of the Canadian and Scandinavian experiences suggests that basic spatial trends in population and employment are probably less affected by income redistribution policies than might be thought. Income maintenance programmes have undoubtedly reduced the level of migratory movements, but they have not reversed them. The basic pattern of net population shifts from peripheral to central regions remains a fact. This also suggests that income transfers alone (employment insurance; social security; social welfare payments; etc.), no matter how generous, will not necessarily be sufficient to keep the young from emigrating to areas with greater employment and career opportunities. Most, it would appear, wish to *earn* a living and shape a career[13]. The fundamental question comes back to the location of jobs, thus, to the location and growth of firms.

Long-term changes in the location of jobs are in large part driven by changes in technology. The rise of Montreal in the late 19th century is a good illustration. Until the mid 19th century, Quebec City was larger than Montreal. Today, the population of the Montreal urban region is about six times that of Quebec City. This was not the result of conscious public policy, but rather of the invention of the steamboat, which made it easier to go upstream on the St. Lawrence River. This is not to say that public policy had (or has) no impact, but rather that only rarely is public policy powerful enough to fundamentally modify the *comparative* location advantages of regions. Geography and distance cannot be easily legislated away. Once the economic geography of a nation has been defined

(usually during the early stages of industrialisation) it becomes very difficult to change.

Our focus in this study is on the evolution of the *comparative* advantage of peripheral regions (*relative* to central regions) as a location for firms, specifically firms that bring income into regions and create jobs. We have seen that since the beginning of the industrial revolution the net impact of economic change has been to shift employment away from peripheral regions and towards large urban centres and their surroundings. But what is the likelihood that trend will continue, unabated, into the future? Does the advent of the knowledge-base economy and the arrival of new information technologies (IT) herald a break with past? Those are the questions to which we shall now turn.

NOTES

[1] Source: *The Canadian Encyclopaedia: World Edition/L'Encyclopédie canadienne. Édition bilingue,* Toronto, McClelland & Stewart, 2000, CD-ROM, and World Bank Development Indicators, 2001.

[2] Among the more well-known references are Mills and Hamilton (1994) and O'Sullivan (2000) in English, and Polèse (1994) in French.

[3] The relationship between productivity and employment is further explored in chapter 5.

[4] Total employment in the primary sector continued to grow in Canada until the late 1980's. The trend has since been reversed; see figure 5.2 and figure 6.1.

[5] See chapters 2 and 3 in, respectively, O'Sullivan (2000) and Polèse (1994).

[6] The importance of scale economies for transportation is discussed in greater detail in chapter 6.

[7] For data on the spatial distribution of labour by professional and educational characteristics, see chapter 3, table 3.1.

[8] For two excellent works on the role of cities see Bairoch (1985) and Hall (1998, 2000).

[9] For an explanation of central place theory, see chapters 5 and 9 in, respectively, O'Sullivan (2000) and Polèse (1994).

[10] For a more extensive explanation of this point see Henderson (1997).

[11] Sources: Isaksen (2001), and Kangasharju (2001). Because of differences in the way data is collected and classified in different nations, rigorous comparisons are difficult to accomplish. We give data only for Finland and Norway, because they were organized in the most easily comparable fashion. However, the results

for Sweden and Scotland are entirely compatible with these trends. For other results see Lacas, Polèse, and Shearmur (2001).

[12] There appears to be a general trend in all industrial nations towards widening in income disparities, although there is some debate in the literature on its regional implications (see Lacas, Polèse, and Shearmur 2001).

[13] For a detailed analysis of migration trends in Canada, especially with respect to the young, see Dupuy et al. (2000).

CHAPTER 3

The Impact of the Knowledge-based Economy and New Information and Communications Technologies

Modern economies are constantly being transformed. Different terms have been coined to characterize the "new" emerging economy: the information economy; the service economy; the knowledge-based economy. All these terms refer to the same transformation: The shift from an economy where the majority of workers are employed in the production of fairly standardized goods and services to an economy where the majority of workers are employed in the production of more complex goods and services. The most significant increases have been in information-intensive services (figure 3.1): computer services, management services, engineering consulting, and technical and scientific services, plus a wide range of financial and professional services[1]. The fastest growth has occurred in the most knowledge-intensive services. In recent years, activities linked to the entertainment industry have also grown: film production and distribution; radio and television broadcasting; the production of shows, plays, and musical events.

This restructuring has in part been fuelled by technological progress, specifically, by the introduction of new information technologies (IT). These new technologies facilitate the transmission, processing, and stocking of information. Examples are: fibre optics, wide band transmission, the personal computer, the Internet, e-mail, to name only the more well-known. These technologies are still evolving and new innovations will emerge in the future. Their effects are only beginning to be felt, although already visible. How will this technological evolution (or some would say, revolution)

affect the balance between what we have called the central and the peripheral regions of Canada? Should we expect a break with past trends, which have encouraged the concentration of population and employment in and around large urban centres? In our search for answers, we begin with the knowledge economy.

3.1 The Spatial Impact of the Knowledge-based Economy

The term *Knowledge-based Economy* is generally used as convenient shorthand to describe an economy in which "knowledge", used in its broadest sense, has become the essential input in production. We shall use the term in the same spirit. That is not to say that investment in physical capital is no longer important; simply, the balance is shifting towards human capital. For an ever-growing number of industries, competitiveness depends, first and foremost, on the quality of the workforce; that is, on the information, experience, and know-how that workers embody. This necessarily implies investments in education and training. In Canada, the percentage of the population (over 15 years of age) with a university degree has risen sharply, going from 4,7% to 13,3% between 1971 and 1996.

The implications for the competitiveness of regions are not difficult to deduce. The most competitive regions will be those most able to attract knowledge workers, that is, workers with high levels of education and know-how. *Where educated workers choose to live and to congregate has become the key variable*. Nurturing and holding an educated labour force is the primary challenge for regions wishing to attract knowledge-intensive industries.

The Location of University Graduates and Knowledge Workers

Educated and artistically inclined populations have flocked to cities since the beginning of history. But what about more recent trends? Figure 3.2 gives the percentage of university graduates by city size class for central and for peripheral regions in Canada for 1971 and 1996. The data are presented on table 3.1. The percentage of university graduates (in the population over 15 years of age) has risen

sharply *everywhere*. Thus, in the largest urban centres, the percentage has jumped from 6,5% to 18%. By the same token, the percentage has gone from 5,1% to 14,2% for the largest peripheral urban areas, that is, those with populations between 100,000 and 500,000.

The relative position of the various classes has remained remarkably stable over time. Although education levels have risen everywhere, the *relative* education gap between the largest urban centres and smaller centres has hardly changed over twenty-five years. The percentage of university graduates for peripheral cities in the 25,000 to 50,000 population range was 3,2% in 1971, about half that for the largest cities. Twenty-five years later, the percentage had risen to 8,5%; but this still amounts to less than half the per-

Table 3.1. Percentage of Population (15 years and over) with a University Degree, and of Workforce in Scientific and Professional Occupations by Region and City Size Class, 1971 and 1996

City Size Class (Population) [a]	University Graduates (Population 15 years +) (%)		Workforce in Scientific & Professional Occupations (%)	
	1971	1996	1971	1996
Central Regions				
Urban Areas over 1 Million	6.5	18.0	5.4	9.2
500,000 to 1 Million	6.6	16.0	5.5	9.4
100,000 to 500,000	4.6	12.4	4.1	6.9
50,000 to 100,000	4.1	9.9	4.2	6.6
25,000 to 50,000	3.4	7.8	3.9	5.7
10,000 to 50,000	3.1	8.0	2.9	5.1
Rural Communities	2.1	6.9	2.4	4.8
Peripheral Regions				
100,000 to 500,000	5.1	14.2	4.4	7.9
50,000 to 100,000	4.1	10.9	4.3	7.3
25,000 to 50,000	3.2	8.5	3.3	6.6
10,000 to 50,000	3.3	8.5	3.5	6.8
Rural Communities	2.1	6.3	2.7	5.1

a. Definitions: Cities refer to Census Metropolitan Areas or Census Agglomerations as defined by Statistics Canada. All boundaries are standardized and do not vary over time. Peripheral Regions refer to locations beyond a 100 to 150 km radius of cities with populations over 500,000.

centage points for the largest urban centres (in fact, their relative position worsened slightly.) To use a sports analogy, all runners are running in the same direction, but their relative places have remained largely unchanged. The first runner is still in first position, and the last remains in last place.

This stability is truly remarkable when one considers the important investments made by provincial governments during this period in regional universities, technical schools, and community colleges. Quebec, for example, founded a state university system in 1969 with campuses in various small and medium-sized cities outside of Montreal and Quebec City. In New Brunswick, the newly created University of Moncton established campuses in Edmunston and Shippagan. The stability of the education gap between regions thus has its roots in more fundamental factors, among which the locational behaviour of knowledge-intensive industries (see below) and migration are the most significant. The high proportion of university graduates in large cities is necessarily the result, at least in part, of net in-migration. It would appear this migration pattern has remained very stable over time.

Figure 3.2 also informs us that the key factor is not so much the centre-periphery difference but rather city size. University graduates will generally settle in larger cities, be they in central or in peripheral regions. A "peripheral" location is not necessarily a handicap. *The important variable is the presence of a city, preferably with a good university*. Indeed, if we compare cities of similar sizes, peripheral cities generally score higher than centrally located cities. "Peripheral" cities in the 100,000-500,000 population range include university centres such as Halifax, Saskatoon, St. John's and Victoria. Peripheral cities in this size range are often important regional service centres (central places), while centrally located cities of similar size tend more often to be manufacturing centres (see chapter 4). Cities that are major regional service centres with large catchment areas will generally be more successful in attracting and retaining highly educated populations. The "success stories", both in Canada and in Scandinavia, generally fall into this class (see chapter 8).

The reasons educated populations congregate in larger cities have probably not changed over time. Besides the obvious factors of jobs and career opportunities, the reasons may not be all that myste-

rious. Educated people wish to be with other educated people, and in turn attract others. This is a self-reinforcing process, an ingredient in the agglomeration economies described in chapter 2. There is little reason to believe that their centralizing impact lessen in the emerging knowledge economy. The increased importance of higher education can only heighten the attraction of cities with major universities. Other social transformations may also heighten the attractive power of large urban centres. The increasing participation of women in the labour market means that young (upwardly mobile) couples are attracted to diversified labour markets where both can fulfill their career aspirations[2].

These are not mere abstractions. Figure 3.2 is the reflection of a reality that is painfully felt in many small and middle-sized peripheral communities. The problems associated with out-migration of the young and with the difficulty of recruiting educated workers were perhaps the most often heard grievance in our travels across Quebec and Atlantic Canada. In many cases, recruitment was identified as *the* primary reason blocking the expansion of firms, especially firms requiring skilled labour. This also explains why we so often heard passionate pleas on the importance of creating (expanding, and/or maintaining) local educational and research facilities, not only as a means for generating and transferring knowledge, but also as a means of creating job opportunities for knowledge workers.

Figure 3.3 shows the distribution of workers in scientific and professional occupations[3]. The general pattern is not very different from that observed for university graduates; the same general explanations apply. The proportion of scientific and professional workers has increased everywhere, but the ranking by city size class has, again, remained largely unchanged over twenty-five years. The proportion of scientific and professional workers was and remains higher in large urban centres. Smaller cities generally have a lower proportion of scientific and professional workers. Again, city size matters.

However, the results sometimes diverge from a perfectly hierarchical distribution. Cities in the 500,000 to one million class (i.e. the second largest class) score slightly higher than the largest cities. This is in part because cities in the second (size) class include three large provincial capitals (Edmonton, Winnipeg, Quebec City), with

significant professional populations[4]. At another level, peripheral cities in the 10,000 to 25,000 class appear to have a comparatively high proportion of scientific and professional workers. In this case, the explanation lies in the high degree of industrial specialization of many of these small cities, which often depend on one or two highly capital-intensive industries (notably, mining and smelting) which employ large numbers of engineers and pay high wages. This latter fact can also create problems, as we shall see in chapter 7.

Notwithstanding these exceptions, the above results can be reduced to a simple rule: *the smaller the city, the lower the proportion of highly educated and professionally trained workers*. This rule appears to be largely impervious to change. The implications for the location of knowledge-intensive industries are obvious. Such industries will be drawn to large cities. But the *comparative* labour force advantage of large cities is greater than simple city size suggests. This can be illustrated by means of a simulation based on figure 3.2. Imagine two cities: city A with a population of 1,5 million and peripheral city B with 150,000. The advantage of A over B in terms of number of university graduates is not 10 to 1 as population size would predict, but rather closer to 13 to 1, given that the proportion of graduates is higher in A at than in B. The relative advantage of city A jumps to 211 to 1 when compared with a peripheral city of 15,000[5].

The Location of Knowledge-intensive Services

Figures 3.4 through 3.6 show the relative concentration of employment by region and by city size class for, respectively, high-tech and scientific services, professional services, and financial services[6]. The index of relative concentration measures the degree to which employment in a given industrial sector is concentrated in a city size class or region compared to the average for all Canadian regions[7]. A value above unity (1.0) signifies an above average concentration, while a value below unity indicates below average employment in that sector.

All three figures reveal hierarchical location patterns. *Relative* employment levels in high-tech, professional, and financial services systematically fall as cities decrease in size. The fall is more abrupt for high-tech services than for other services, demonstrating an even

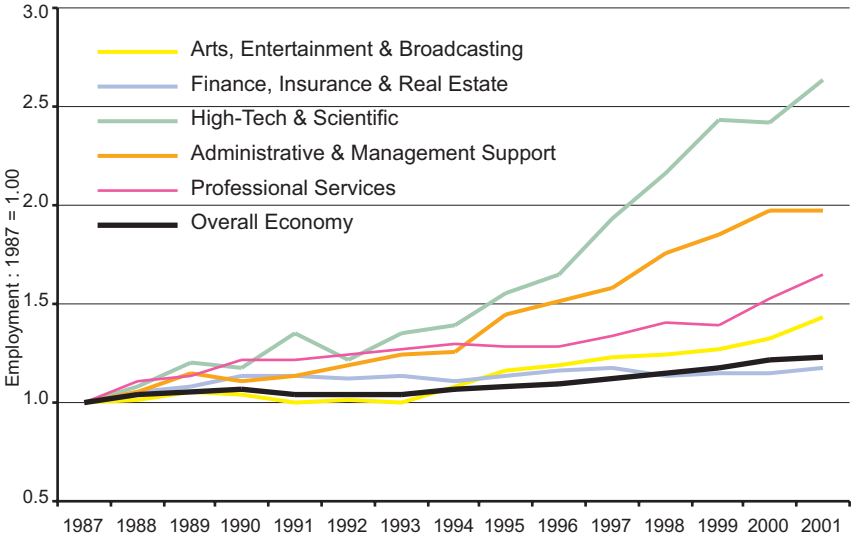


Figure 3.1. Employment Growth in Information-intensive Services, Canada, 1987-2001 (1987 = 1.00)

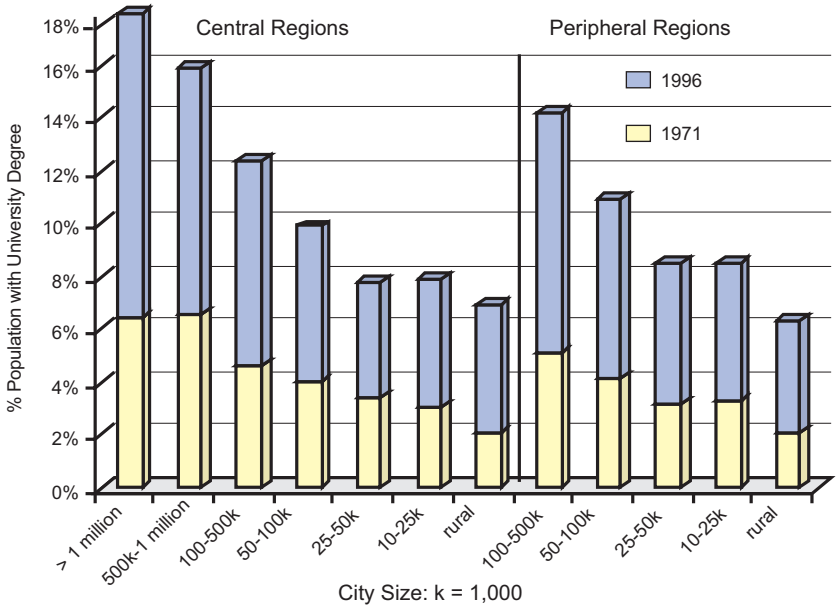


Figure 3.2. Population (15 Years and over) with a University Degree (%) by Region and City Size, 1971 and 1996

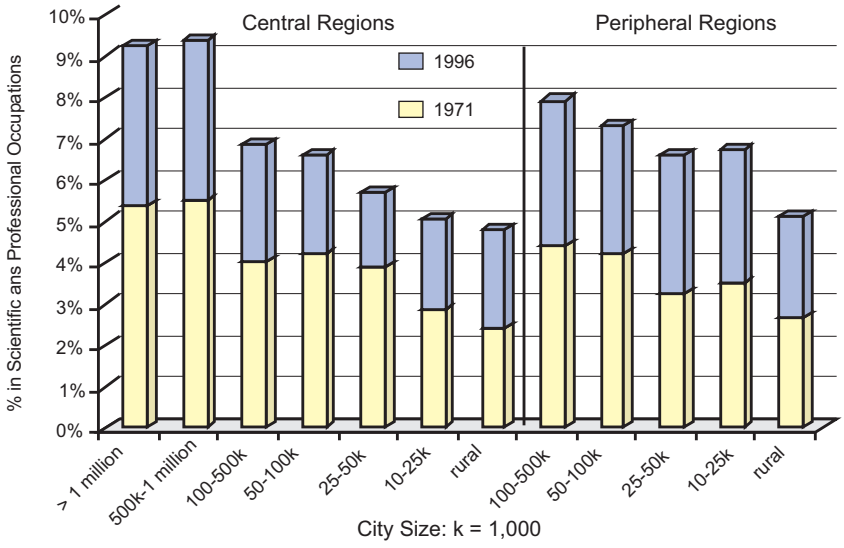


Figure 3.3. Workforce in Scientific and Professional Occupations (%) by Region and City Size, 1971 and 1996

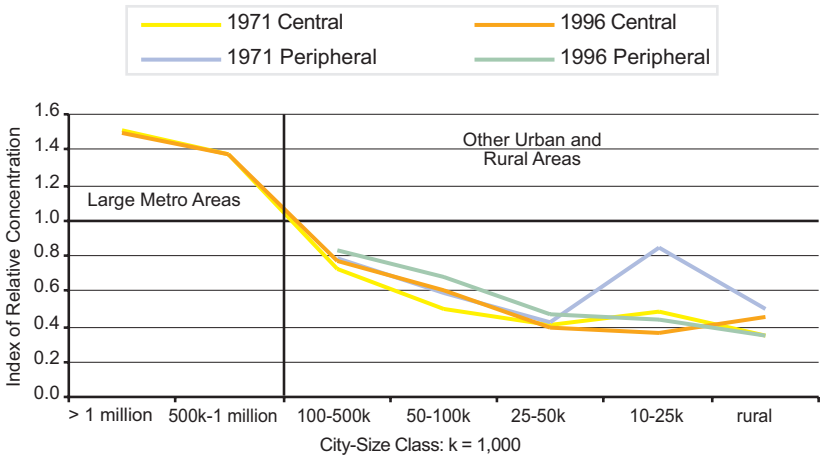


Figure 3.4. High-tech and Scientific Services: Relative Concentration of Employment by Region and City-Size Class, 1971 and 1996

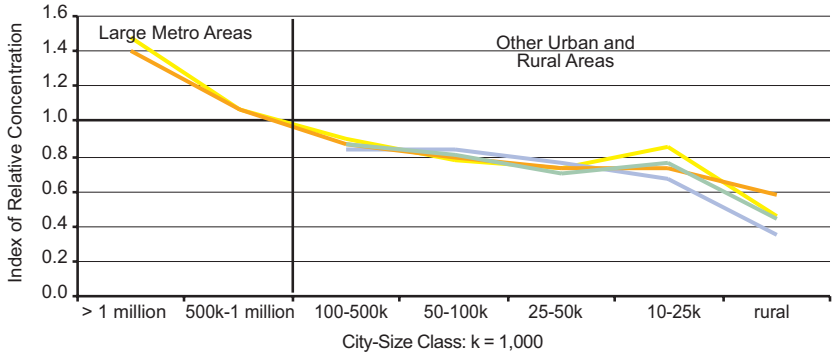


Figure 3.5. Professional Services: Relative Concentration of Employment, 1971 and 1996

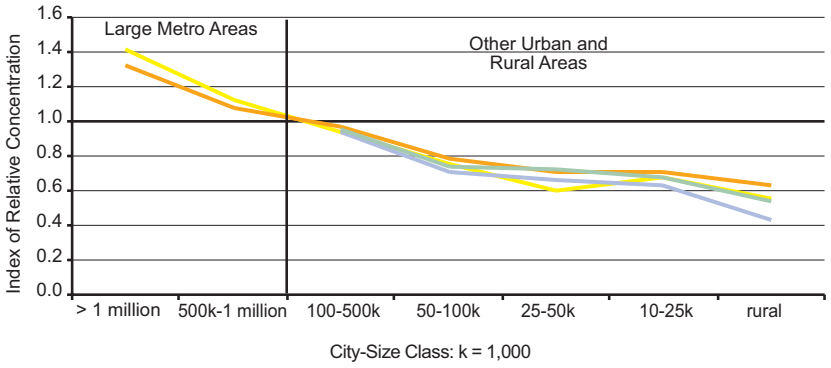


Figure 3.6. Financial Services: Relative Concentration of Employment by Region and City-Size Class, 1971 and 1996

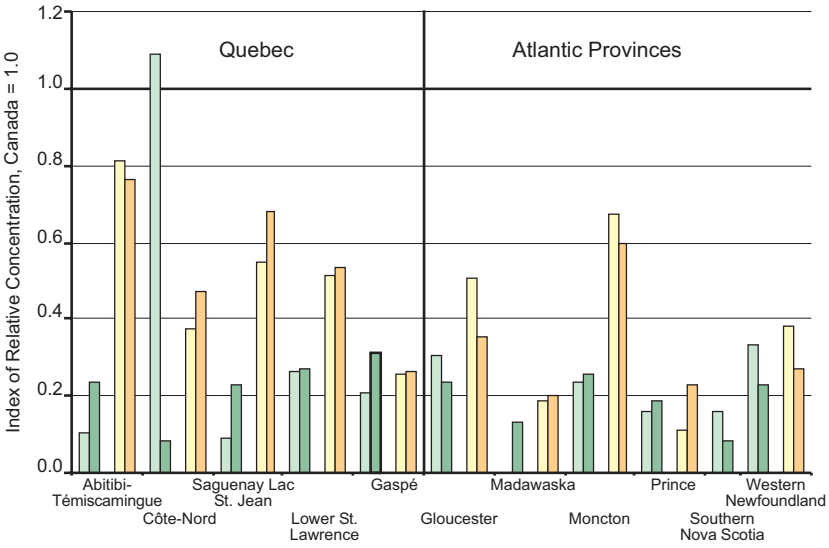


Figure 3.7. High-tech and Scientific Services: Relative Concentration of Employment, Selected Regions in Quebec and Atlantic Canada, 1971 and 1996

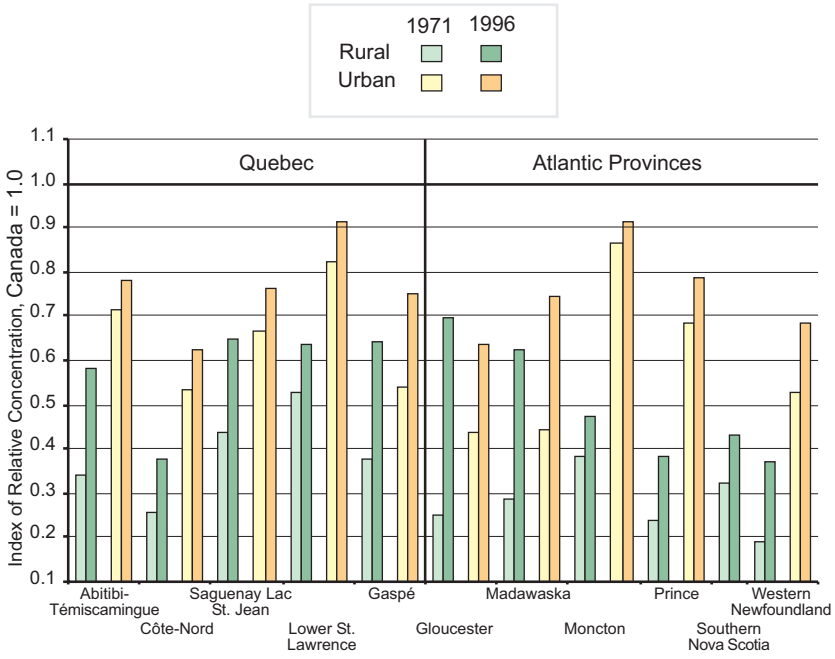


Figure 3.8. Professional and Financial Services: Relative Concentration of Employment, Selected Regions in Quebec and Atlantic Canada, 1971 and 1996

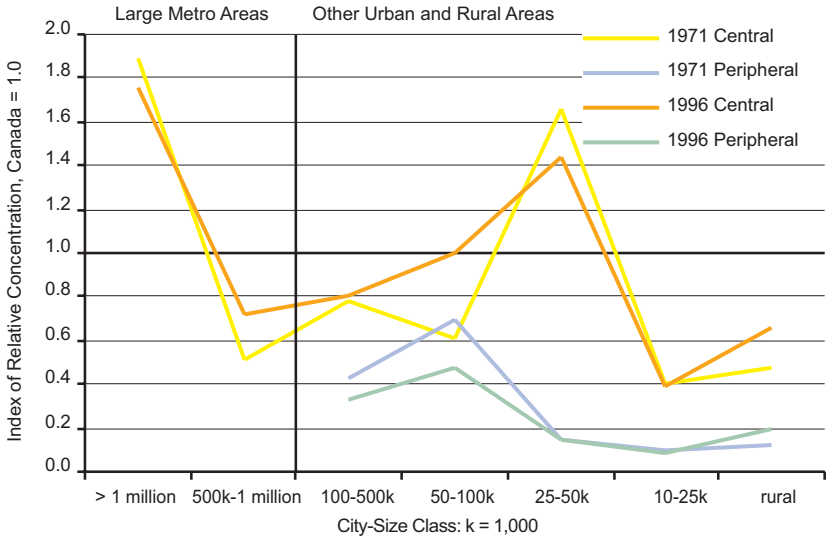


Figure 3.9. High Value-added Manufacturing: Relative Concentration of Employment by Region and City-Size Class, 1971 and 1996

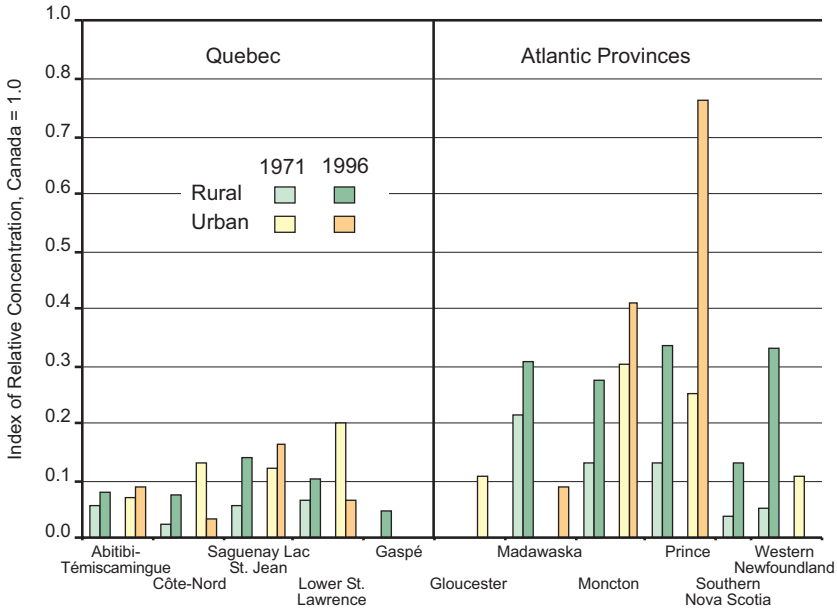


Figure 3.10. High Value-added Manufacturing: Relative Concentration of Employment, Selected Regions in Quebec and Atlantic Canada, 1971 and 1996

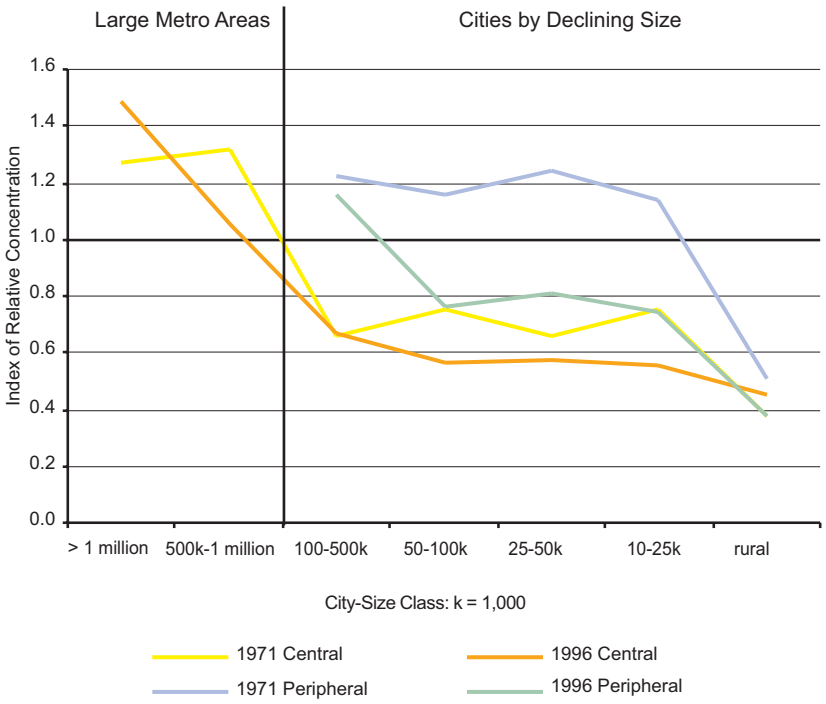


Figure 3.11. IT Content & Service Providers: Relative Concentration of Employment by Region and City-Size Class, 1971 and 1996

greater sensitivity to city size. The difference between peripheral and centrally located cities of similar size is generally not great, reconfirming that it is chiefly city size that matters. Peripheral cities sometimes show slightly higher values than centrally located cities of similar size (their curve lies above that for centrally located cities), a reflection in part of their more frequent role as regional service centres (central places). In no case, do cities with populations below half a million register values above unity (1.0). In sum, these information-rich services are (and remain) concentrated in the largest urban centres. The pull of large cities is especially evident for high-tech producer services, the most knowledge-intensive and rapidly growing class.

The most striking aspect is the stability of the curves over the twenty-five year period. The changes that occur are minor, and do not alter the over-all relative location patterns. The only exception is the precipitous fall in relative employment in high-tech producer services for small peripheral cities in the 10,000 to 25,000 class. This can be largely attributed to the boom and subsequent boost in oil and mineral exploration in Alberta, but also in other northern communities, an economic activity that traditionally employs a large number of engineers and scientists. With this exception, the stability of the observed patterns tells us that the fundamental factors that determine location change only very slowly over time, unless a major technological innovation is introduced, which significantly upsets cost structures, or if demand structures change fundamentally. What these results also tell us is that current technological change (at least, for the period studied) does not appear to have significantly modified existing location patterns. In the case of the service industries shown on figures 3.4-3.6, the factors that push these information-rich activities to concentrate in large cities do not appear to have been significantly weakened by IT. Why this should be so will be further explored in section 3.2 below. Change is nonetheless occurring, however gradually. Both for professional and for financial services, a de-concentration trend towards smaller sized cities is perceptible. Note the decline in the index of relative concentration for the largest urban class. However, no such trend is noticeable for high-tech services

Figures 3.7 and 3.8 show the results for the eleven (peripheral) study regions in Quebec and Atlantic Canada. The results for high-

tech producer services confirm that these services are effectively underrepresented in all eleven regions (values below unity). The precipitous fall in (relative) employment in the rural communities of North Shore Quebec mirrors our earlier remarks on the boom and bust of mining communities. The period studied saw the closing down of two iron-ore mining communities (Gagnon and Schefferville). Figure 3.7 also tells us that, with some minor exceptions, the relative position of most regions has either improved only moderately or deteriorated. The proportional weight of the high tech service sector remains small in all eleven regions, compared to large urban centres.

The best performers (notwithstanding that all values remain below the Canadian average) are all *urban*, with regional universities: Abitibi (Rouyn-Noranda); Saguenay Lac St. Jean (Chicoutimi); Lower St. Lawrence (Rimouski); Moncton. In the case of Moncton and Rimouski, the presence of head offices of regional service providers, respectively Atlantic Loto and Telus (formerly Québec Téléphone), have undoubtedly had a positive impact[8]. The Lower St. Lawrence also saw the arrival in the area of a major federal marine science research centre during this period. The relative strength of urban Abitibi and Saguenay Lac St. Jean can also in part be attributed to the presence of industries (mining, aluminium smelting), which employ a high proportion of engineers and scientists. Alcan has a research centre in Chicoutimi. However, perhaps most striking and perhaps also most disheartening, is that despite the presence of major local research and university infrastructures, the relative weight of the high-tech service sector in all four regional centres continues to lag behind the Canadian average. Clearly, the development of a strong high-tech service sector remains difficult in peripheral regions.

All the news is not bad. In figures 3.5 and 3.6, we noted the emergence of a de-concentration trend for professional and financial services. Figure 3.8 confirms that perception. Values have increased for *all* eleven study regions, urban and rural. The strongest performers are, again, regions which house local service centres (central places), most notably Rimouski and Moncton. The relatively strong showing this time of urban Prince County (P.E.I.) can be attributed to the town of Summerside, which is not only a small service regional centre, but has also been uniquely successful (as we shall see

below) in developing a high-tech manufacturing base[9]. The two results are undoubtedly linked. In sum, small and medium-sized peripheral cities that have developed into regional service centres (including an institutional base) can expect an increase in employment in professional and financial services, at least in relative terms. However, all are still at a disadvantage compared to larger cities (all values are below unity) although the gap is decreasing with time.

The Location of High Value Added Manufacturing

For manufacturing, the knowledge-based economy means "adding more value". For any product, value added reflects the contribution of human ingenuity and effort, whether directly in the form of labour (wages) or indirectly in the form of past innovations embodied in capital. Again, this is not an abstraction invented by economists. The term "value added" came up frequently in our meetings with entrepreneurs and managers. Regional entrepreneurs are acutely aware that "value must be added" if they are to compete outside the traditional resource sectors. The diversification of peripheral economies necessarily implies a shift to high value-added products. Only by adding value to products can local firms hope to offset high transport costs associated with distance from major markets. In essence, in the emerging knowledge-based economy, local manufacturers must add value if they are to survive and to expand. But adding value requires an educated and qualified workforce.

Figure 3.9 shows the relative concentration of employment in high value-added manufacturing by region and city-size class. Clearly, distance matters and continues to matter for manufacturing. For similarly sized cities, the values for peripheral cities fall systematically below those for centrally located cities. Indeed, the gap has widened with time. *High value-added manufacturing in Canada continues to take place within a narrow geographic radius; the stability of patterns over twenty-five years suggests that there is little likelihood that this is about to change*. Almost all activity is concentrated either in the very largest urban centres (with the highest values) or in medium-sized cities (especially in the 25,000 to 50,000 range) within an hour's drive of a large metropolitan area. Distance from a large metropolitan area is (and continues to be) a major handicap.

Figure 3.10 gives the same information for the eleven regions of Quebec and the Atlantic Provinces. The results confirm the difficulty of developing high value-added manufacturing far from major markets. All the values, save one, are well below unity, an indication that the few high value-added manufacturing activities that have succeeded are probably of limited scale. Some regions have even lost ground; high value-added manufacturing is practically non-existent in the Gaspé region and in Gloucester County (Northeast New Brunswick). None of this should come as a surprise. What is surprising is that the best performers are all found in the Atlantic Provinces, and all have improved their relative standing. For reasons we shall attempt to elucidate in other chapters, Quebec's peripheral regions often labour under particular handicaps. The comparative success of Prince County (P.E.I.) and of the greater Moncton area is equally further explored in other chapters[10].

The picture is thus not totally black. High value-added manufacturing can take off in peripheral locations. However, this requires special conditions that are not easily replicable in the majority of peripheral regions. Suffice it to say at this point that distance from a large metropolis remains a major hurdle to the successful development of high value-added manufacturing. Let us continue our look into the future. What are the possibilities that the introduction of IT will in the future reduce the weight of the distance hurdle? That is the question to which we now turn.

3.2 The Impact of New Information Technologies (IT)

New Information Technologies (IT) have significantly reduced the costs of receiving and transmitting information, a trend that will undoubtedly continue into the future. Simply put, IT has radically cut the transport cost of information. The term Global Village is sometimes used to describe this new interconnected world where information travels almost cost-free over thousands of kilometres. For the price of a P.C. and a telephone connection, a person in even the remotest village of Canada *(or almost)* now has access to the same information on-line as a person sitting in Montreal or Toronto. This will undoubtedly be even truer in the future as mobile and wireless Internet devices become more prevalent. Some have gone so far as to announce the death of distance[11].

It is thus entirely legitimate to ask if we are on the verge of a new era where the constraints of distance will no longer pose an obstacle to development, opening up new opportunities for Canada's peripheral communities, finally allowing them to build local economies, freed from the dependence on natural resources. We would sincerely like to be able to give a positive answer. Unfortunately, announcements of the death of distance are somewhat premature. Equally unfortunate for those preoccupied with the plight of peripheral regions, increasing evidence is accumulating suggesting that IT may in fact further fuel the forces of concentration in large urban centres.

The reasons why IT will probably not halt the forces of concentration can be summarized in four points: 1) IT has little or no effect on the transport costs of people and goods; 2) IT reduces information costs in both directions, creating new competition between central and peripheral regions; 3) The activities which produce the hardware, software, and content for IT are sensitive to agglomeration economies; 4) IT does not reduce the demand for face-to-face meetings. We shall deal with each point in turn[12].

1. IT Does not Reduce the Costs of Transporting People and Goods

The impact of IT is largely limited to the transmission of information. True, the entrepreneur in, say, Corner Brook or Baie-Comeau, now has access to the same on-line information and e-mail services as competitors in Toronto or Montreal, and often at comparable costs[13]. That is a plus. However, the entrepreneur must still get products to market, and he or she must still meet with customers, suppliers, consultants, and other business acquaintances. IT does not reduce the need for meetings (see point 4). In this respect, the high price of airfares and the poor quality of airline services was a complaint repeated everywhere. Firms in peripheral regions remain at a cost disadvantage with respect to the costs of bringing in consultants or meeting with customers. IT does not alter this fact. In many cases, peripheral firms have tried to overcome this handicap by setting up offices (or contracting persons) to represent their interests in major markets such as Montreal or New York. But again, this represents a cost.

However, it is the cost of transporting goods which remains the vital issue everywhere, especially for communities with no direct road or rail connection to major markets (see also chapter 6). No matter how many new computer connections are put into place, transporting merchandise between Montreal and, say Sept-Îles or Corner Brook, will remain costly. For many peripheral regions, this cost handicap constitutes a major obstacle to industrial diversification. Manufactured goods must be shipped. The only way to overcome the transport cost disadvantage is to produce at lower unit cost[14] or to add value, where, as we have seen, other problems enter into play. The economy of most peripheral communities depends and will continue to depend on the production and thus on the shipment of goods, primary or processed.

2. The Net Centralizing Effects of IT Resulting from Increased Competition

By reducing the cost of transporting information between two points, IT increases competition. The information highway is just that, a highway on which commodities (information in this case) can move more cheaply in both directions. From the point of view of the national economy, this is a good thing for it increases productivity. But, it also means that some firms will go under while others will expand. The question then becomes: what is the net effect on job creation in peripheral regions? As was seen in chapter 2, past inventions that reduced transport costs (railways, paved roads, the internal combustion engine, etc.) have on the whole had a net centralizing effect. The evidence so far suggests that the impact of IT will not be all that different[15].

In the case of IT, the jobs at stake are, by definition, jobs with high information content. After all, it is the cost of transporting information that is being lowered. The primary victims (or winners) of increased competition will be firms that produce services with a high information or creative content, and which can be "transported" electronically. Let us take the example of computer graphics. Local firms in say, Rimouski or Moncton, specializing in graphics and design can now send their products directly to customers in Montreal and Toronto, thus competing with firms in Montreal and Toronto. However, the opposite is also true. Computer graphics

firms located in Toronto can now directly bid for contracts in Moncton and Rimouski.

The question then becomes: where does the comparative advantage for producing information-rich commodities lie: with central or with peripheral communities? Part of the answer was provided in previous sections: knowledge-intensive activities continue to concentrate in large urban centres. Among the jobs most directly affected by increased competition are jobs in management and marketing functions within multi-region firms. Although it is difficult to find hard data, it appears that IT facilitates the concentration of management and other ancillary functions at head office locations[16]. IT also facilitates the concentration of wholesaling and distribution functions. Direct purchases via e-mail allow local firms to by-pass local wholesalers, putting the latter at risk. Job declines in wholesaling have already been noticed in most peripheral communities. Other examples where we can expect increased interregional competition and thus a net shift towards central locations are: education (distance learning); travel agencies (direct booking); financial intermediation; and speciality retailing (direct ordering).

This is not to say that IT does not open up new opportunities for peripheral communities. It does. The presence of local information providers, software producers, speciality e-commerce retailers, and call centres is ample evidence[17]. IT can be (and is) a source of local employment creation. However, it is the net impact that is of concern. It is by no means certain, at least in most cases, that new jobs created by IT will be sufficient to compensate for jobs lost.

3. The Producers of IT Hardware and the Providers of IT Content Are in Large Cities

We already know (figure 3.9) that the production of high-tech goods, which include the hardware used in IT, continues to take place in and around the largest urban centres. But what of the sectors that provide the information and entertainment content for theses technologies: network and Internet news; musical productions; plays; video clips; etc.? Figure 3.11 shows the relative concentration of employment in this sector by region and city size class. That this sector again demonstrates a hierarchical distribution with the highest values in the largest cities should come as no surprise. We have

seen that professionals and university graduates tend to cluster in the largest cities. This equally holds for artists, reporters, writers, actors, designers, and others who give content to the information and entertainment industries, not to mention ancillary technical professions: cameramen; lighting and sound specialists; telephone line operators; etc.

What is striking is that employment in this sector is increasingly concentrated in the largest cities. Values for the largest city class have risen while they have fallen precipitously in all peripheral classes, expect for the 100,000-500,000 class. Since employment in this industry is also growing rapidly, it follows that employment in the largest cities will continue to grow at a faster pace. However, it is the "need" for professionals, artists, and other information workers to congregate in large cities that takes us to the core of the debate surrounding the impact of IT. Should not IT liberate information workers from the need to congregate, cluster, and meet? Should not the Internet, e-mail chat rooms, teleconferencing, and the like obviate the demand for face-to-face meetings, or at least significantly reduce that demand? Why this has not happened and is unlikely to happen in the future is the subject of the next point.

4. IT Does not Reduce the Need for Face-to-face Communication

Are we entering a new era where distance will no longer matter, as some pundits would have it[18]? Is it not a fact that almost anyone, anywhere, with a P.C. and a decent Internet connection can now participate in the global village? While the second statement is largely true, the first is patently false. Distance is not dead. The reasons for the misconception lie, first, in a misunderstanding of the nature of electronically transmitted information and face-to-face contacts and, second, in a misunderstanding of the interaction between the two.

Electronically transmitted information and face-to-face communication do not answer the same needs. Face-to-face communication is not simply about information, but also about contact, trust, and a whole range of human emotions and intuitions. Face-to-face communication remains (and will remain) vital for the most private, valuable and intuition-rich messages. Inside gossip, lobbying,

power-games, and arm-twisting, to give only a few examples, are difficult to imagine at a distance. It is not difficult to understand why face-to-face communication remains so vital for activities with a high creative and artistic content. Few industries are more spatially concentrated than show business and entertainment. That is not to say that IT will not reduce the need for certain types of meetings. The appropriate question here, again, is its net effect on the demand for face-to-face communication. The evidence suggests that face-to-face communication and electronically transmitted information are not substitutes, but rather complements. As one grows, so does the other. Electronic communication will often stimulate a new need for face-to-face contacts, and vice-versa.

Here again, a step into the past is instructive. The introduction of the telephone, a century ago, had no perceptible negative effect on business travel and the demand for meetings[19]. The evidence indicates that people generally talk to people they also meet with. But perhaps the best evidence of the positive feedback effects between electronic and face-to-face communication is the impressive rise in business travel and business conventions during the 1990's, precisely the period when IT started to make its impact felt. In sum, it is likely that the net impact of the growth in IT will be to increase the demand for business meetings and travel. As noted earlier, local entrepreneurs in all regions stressed the continued importance of meetings with customers, competitors and consultants. Few suggested that IT had changed this. Since travel costs time and money, proximity remains an advantage, which brings us back full circle to why people congregate in cities.

This does not mean that IT has no impact on the location of business meetings. What it means is that the impact will generally be spatially limited, restricted to a radius within which travel and electronic communication can effectively act as complements. The most notable example is telecommuting. Professionals who do not need to be at their place of work everyday will have the liberty of living further away. The most obvious cases are writing, consulting, and various artistic professions. However, in all these cases, the person will still need to come into the city from time to time, to renew trust, exchange ideas, and generally stay in touch. The radius of mobility will in most cases be limited to an hour's drive or so from

the city[20]. The role of that radius and its impact on small communities and rural areas are further explored in chapter 4.

The Positive Effects of IT

Although IT will not stop the long-term shift in employment towards central areas, the impact of IT on peripheral communities is by no means totally negative. As with paved roads and telephones in the past, which gave peripheral communities better and cheaper access to goods and services, IT now provides local firms, institutions, and consumers with better and cheaper access to information. Local firms are now better able to keep abreast of the latest innovations. During our industrial visits we were, on the whole, very impressed by the level of advanced know-how and technical competence of people on the ground, even in the remotest communities. For much specialized know-how, especially in resource-based sectors, local managers are today as well informed as their competitors elsewhere. IT has undoubtedly played a part. IT and the knowledge-based economy have affected all sectors of the economy, not only the knowledge-intensive sectors examined here (see chapters 4 and 5). In this respect, information (specifically, information that can be carried on-line) is no longer an important barrier to innovation and to entrepreneurship[21]. IT has undoubtedly narrowed the information-gap between central and peripheral regions.

In coming years, the most important positive impacts of IT will perhaps be in the public sector, specifically in health and education. The capacity to transmit specialized information electronically (course curricula; x-rays; medical diagnosis; filmed operations in real time; etc.) will make it increasingly possible to deliver health and education services at a distance. This should improve service access for remote and less populated communities. However, this may also produce increased centralization in larger urban centres, analogous to the trends for the private sector, with the associated negative effects on net employment creation. IT will nonetheless, it can be expected, open up new avenues for better servicing peripheral communities, making it more feasible to ensure acceptable levels of welfare. This might, hopefully, somewhat reduce future levels of out-migration and population decline, although we should not expect electronically delivered services to reverse current trends. It

is, for example, not entirely unrealistic to hope that access to distance learning at the post-secondary level will lessen the pressures on the young to emigrate in order to pursue their studies.

Conclusions

Much data has been presented in this chapter. But the conclusions are quite straightforward:

1. The new knowledge economy and the introduction of new information technologies will not, in all likelihood, have a major impact on current spatial trends in employment and population. On the whole, the impact will be to accentuate or to reinforce existing trends. The propensity of knowledge-intensive sectors to locate in large urban centres has not changed. The long-term concentration of employment and population in and around major urban centres will continue.
2. Distance is not dead, nor is it about to succumb. Distance from major urban centres will continue to act as a major obstacle to the economic development of peripheral areas. The basic factors which determine industrial location have changed only very little over the past few decades. Goods (and people) must still be moved. Access to a diversified pool of labour continues to matter. Relative location patterns have remained remarkably stable over time in Canada.
3. The new emphasis on value added and knowledge content will not make life easier for firms in peripheral communities. There is no reason to believe that this shift will improve the comparative advantage of peripheral communities as locations for manufacturing or tradable services. The evidence suggests that, quite to the contrary, comparative advantage will continue to shift in favour of large cities and other central locations, at least for most high value-added manufacturing
4. On the positive side, IT facilitates the access of local firms to information, contributing to higher productivity and innovation. In most peripheral communities, lack of access to information is probably no longer a significant obstacle to local entrepreneurship and innovation. IT allows firms that export (outside the region) to better market their products and to maintain a closer relationship with their clients. IT also opens up opportunities for

better quality public service delivery to peripheral communities via electronically delivered education and health services. However, this may further contribute to the centralization of employment.

NOTES

[1] Source: Statistics Canada (on-line); directly from the Service Industries Division. The sectors on figure 3.1 are based on the new North American Industrial Classification System (NAICS) defined as follows: *Arts, Entertainment, and Broadcasting:* Newspaper, periodical, book, database & software; Motion picture & video industries; Sound recording industries; Broadcasting; Telecommunications services; Information services & Data processing services; Performing arts, spectator sports & related; Heritage institutions; Gambling industries; Amusement parks, arcades & Other. *Finance, Insurance, and Real Estate:* Activities related to credit intermediation; Securities, commodities & financial investment; Insurance & related activities; Finance & insurance; Real estate services; Rental and leasing services. *High-tech and Scientific Services:* Architectural, engineering & related services; Specialized design services; Computer system design & services; Management, scientific & tech services; Scientific research & development services. *Administrative and Management Support Services:* Management of companies and enterprises; Administrative and support services. *Professional Services:* Legal services; Accounting & tax preparation; Advertising & related services; Other professional services.

[2] The difficulty in finding jobs for *both* spouses was often mentioned as a major obstacle to recruiting professionals in small communities.

[3] Definitions of occupational classes are given in appendix 2.

[4] This also applies to the peripheral 100-500 K class, which includes several smaller provincial capitals.

[5] To redo the simulations, the reader need simply multiply the population of city A (1,5 million) by the % of university graduates for its city size class in 1996 (18%) which results in 270,000 graduates, then repeat the same calculation for city B, and compare the two totals. For a peripheral city of 15,000 (thus, in the 10-25 K class) the % of university graduates is 8.5, which thus translates into 1,275 local university graduates. The simulations abstract from the fact that the observed percentages are for populations of 15 years and above, but this does not weaken the strength of the demonstration.

[6] For definitions of economic sectors used in the rest of this study, see appendix 2. Slight discrepancies exist with the more recent NAICS classification used in figure 3.1

7 Also called location quotient, the index is calculated as follows: Index of relative concentration = % of employment in city size class × working in industry y/% of employment in all regions working in industry y.

[8] In addition, it appears that both of the enterprises have produced local spin-offs, most notably in Moncton in the field of computer and video gaming.

[9] The establishment in Summerside of the GST processing centre (about 700 jobs) also undoubtedly contributes to this result.

[10] In the case of Prince County, the "high value-added" employment probably refers to fairly standard assembly type functions, but within sectors defined as high value-added. See also chapter 10.

[11] Cairncross (2001) is perhaps the most well known of the genre.

[12] Much of what follows draws heavily on Lacas, Polèse and Shearmur (2001), which contains a good review of the literature on the issue.

[13] This is not entirely true. IT is also subject to scale economies. Where demand is low in small communities and sparsely settled areas, connection and subscription cost will often be higher; in many cases infrastructures will be lacking.

[14] Producing at lower unit cost may not always be easy. See chapter 7 on the Intrusive Rentier Syndrome. It is also useful to recall the discussion on volume and scale economies in chapter 2.

[15] Others have equally noted the similarities between the current information "revolution" and previous cycles of innovation. Two recent quotes: "Both in its speed and its impact, the information revolution uncannily resembles its two predecessors within the past 200 years, the first industrial revolution of the 18th century and the second industrial revolution of the 19th century" (Drucker 2001, p. 20). "Then [the 1920's] as now, there was talk of a 'new' era, with electricity and the car playing the role of the Internet and the computer. Then as now, gurus were at hand to explain why old economic models needed to be changed. And then as now, stockbrokers were overly optimistic" (Klein 2001, quoted in *The Economist*, October 27th, 2001, p. 80).

[16] The data on the comparative evolution of primary sector employment is consistent with this interpretation (chapter 5). Employment has grown faster in larger cities, probably due in part to the transfer of management, marketing, and research functions to head offices.

[17] Two examples encountered: a firm in Rimouski specializing in the design and delivery (on-line) of distance learning material; a firm near Port aux Basques (Newfoundland) which sells rare videos on-line.

[18] Cairncross (2001).

[19] See Gasper and Glaeser (1998) and Glaeser (1998).

[20] The radius of mobility is also sensitive to city size. Thus, the radius would generally be greater for a large metropolitan area such as Montreal or Toronto than for smaller agglomerations such as Moncton. Note that we are referring to the radius for Internet-connected professionals, who do not have to go into town on a daily basis. Thus, this radius is necessarily wider than daily commuting sheds.

[21] Thus, Côté and Proulx (2002) note (for Quebec regions) that firms encountered felt themselves, on the whole, to be well-informed.

CHAPTER 4

Employment De-concentration and the Diversification of Peripheral Economies

In the previous chapter, we noted the continued tendency of knowledge-intensive industries to locate in or near large metropolitan areas. In this chapter, we shall examine other sectors, notably low and medium value added manufacturing and tourism. The focus is on tradable goods and services, that is, on products (goods or services) which regions can export, and which thus provide an economic base for regional economies. Jobs in non-tradable goods and services, mostly concentrated in the retailing and personal service sectors, are in turn dependent on the region's export base. If the community's export base declines, job losses in other sectors will follow. The closure, for example, of a pulp and paper mill will provoke the closure of retailers and other activities that serve the local population[1].

4.1 Location Trends for Medium Value Added Manufacturing

Figure 4.1 shows the relative concentration of employment for 1971 and 1996 in medium value added manufacturing by region and city size[2]. This industrial class includes transport equipment, electronics, machines, furniture, and plastics. The highest relative concentrations of employment are found in medium-sized "central" cities, that is, urban areas within approximately an hour's drive of a large metropolis with a population over half a million. The de-concentration of manufacturing from large metropolitan centres to medium-sized cities is not new. The movement has been under way for several decades in all industrialised nations, fuelled by the tertiarisation

of large metropolitan areas (driving up land prices and labour costs) and the sensitivity of large-scale manufacturing to land prices and wages[3]. Figure 4.1 tells us that this trend is still underway in Canada and that the resulting patterns have remained very stable over time; at least for the twenty-five year period observed.

The apparent stability of the one hour's driving time threshold is remarkable. Over the entire period studied, the values for peripheral cities have remained systematically below those for central cities of similar size. Clearly, proximity (to a large metropolis) matters and continues to matter for the industries represented on figure 4.1. The values for peripheral cities have increased slightly, indicating some movement towards peripheral locations, but the changes are minor. Values for peripheral cities remain substantially below unity (1.0), indicating that medium value-added manufacturing employment in Canada is significantly under-represented in peripherally located cities, even in larger urban areas with populations over 100,000 (but below half a million). The chief gains have been made by the smallest central cities (populations below 50,000), located, by definition, within one hour's driving time of a major metropolis.

These results tell us that medium value-added manufacturing is indeed de-concentrating to ever-smaller cities, *but* that this de-concentration takes place within a constrained geographic radius. Industries will move to smaller cities where land is cheaper and wages lower, but they will equally seek locations that permit them to stay in close touch with a large metropolis. We saw in chapter 3 that business, professional, and high-tech services are concentrated in the largest cities. We equally saw that the need for business meetings and contacts of all kinds (technical, consulting, marketing, repair, etc.) remains important and will grow as the knowledge content of products increases. Thus, for much of middle-range manufacturing industry, proximity to a large metropolis remains and will remain an essential location criterion. In this game, it is small and medium-sized cities such as Brantford, Cambridge, and St. Catharines (all within easy reach of Toronto) who will be the winners. Comparable examples in Quebec are St. Jean, St. Hyacinthe, Granby, and Cowansville, all within easy reach of Montreal, or Montmagny and Sainte-Marie-de-Beauce, both within an hour's drive of Quebec.

None of this is good news for small and medium-sized cities in more distant locations. In short, industrial de-concentration, although a reality, is not reaching them, or at best, is reaching them very slowly. They are simply too far. Distance remains a powerful obstacle; new information technologies have not altered this fact, as we saw in chapter 3 and as figure 4.1 now again confirms. We need little further proof of the specificity of Canada's "peripheral" regions. The peripheral regions of Canada are very different from what one might call a peripheral region in most of Western Europe (except Scandinavia) and much of the United States. In the majority of Western European nations, including France, Germany, and Italy, the general movement of industrial de-concentration will eventually reach most regions in the natural course of time. The industrial success (or revival) of European regions, such as Northern France or Central Italy, should come as no surprise given their proximity to markets and to large urban centres. However, Canada's peripheral regions face a very different reality.

Figure 4.2 gives the relative concentration of employment in medium value-added manufacturing for the eleven selected peripheral regions in Quebec and Atlantic Canada. All values fall below unity (1.0), which comes as no surprise given the preceding analysis. However, some regions do better than others. Most of the best performers are found in Atlantic Canada, as was the case for high value-added manufacturing[4], specifically, in this case, rural and urban Madawaska (New Brunswick), rural Moncton, and Southern Nova Scotia. In Madawaska County and to a lesser extent in Southern Nova Scotia, the furniture industry in part explains this result[5]. Rural Moncton, which comprises rural Kent and Westmoreland Counties, is more heterogeneous. The rural parts of these two counties can be compared to central rural areas to the degree that they are beneficiaries of the growth of Moncton as a service centre, acting as its zone of industrial de-concentration. In Quebec, the best performer (by far) is the Lower St. Lawrence region, which has the dual advantage of being comparatively well-located[6] and housing a regional service centre (Rimouski) as well as a second medium-sized city (Rivière-du-Loup).

The pattern observed around large metropolitan areas is sometimes reproduced (though at a reduced scale) around larger regional service centres. This, in part, explains the relatively high (and grow-

ing) values for the rural Saguenay Lac St. Jean, compared to its urban counterpart. We again see the importance of strong regional service centres. The general trend is towards increased concentrations of employment in medium value-added manufacturing, mirroring the trend observed for Canada as a whole. Industrial de-concentration to more distant locations is thus occurring, but admittedly at a slow pace. However, values remain below unity (the Canadian average), most notably in Newfoundland, Abitibi, the Gaspé, Quebec's North Shore, and the urban Saguenay and Lower St. Laurence regions. In part 2 of this study we shall further explore the reasons why some of these regions find it so difficult to develop industries outside the traditional resource-based sectors[7]. Keeping this in mind, let us now turn to more traditional industrial sectors.

4.2 Location Trends for Low Value Added Manufacturing

Figure 4.3 shows the relative concentration of employment in low value-added manufacturing by region and city size. The use of the term "low value-added" is in part misleading because resource-based industries, which provide the backbone of many peripheral economies, are often highly capital intensive, paying high wages. Pulp and paper and aluminium smelting are notable examples, especially in cases where plants are new or have been recently refurbished. In addition to these two large resource-based sectors, this industrial grouping also includes food and fish processing, other metallic (and non-metallic) products and smelters, and lumber and primary wood transformation, as well as more footloose low-wage sectors such as clothing, textiles, and plastics[8].

As would be expected, employment in these sectors in Canada is concentrated in smaller urban areas, and increasingly so. Relative concentration in the largest urban class has declined since 1971. Values are above unity (1.0) for all cities with a population below 100,000. Surprisingly however, here again, centrally located cities do better than peripheral cities, although by a less significant margin than for medium value-added manufacturing. Even for many of these "traditional" sectors, proximity to a major urban metropolis remains an advantage, probably for most of the same reasons as

given above for medium value-added manufacturing. And here again, despite some observed changes, the general patterns have remained remarkably stable over twenty-five years. It is difficult to argue on the basis of figure 4.3 that comparative advantage is shifting towards peripheral cities; rather, the shift is towards smaller cities in both types of regions, but the margin separating central and peripheral locations remains.

Figure 4.4 gives the same information for the eleven study regions in Quebec and Atlantic Canada. As would be expected, most values are above unity (1.0), indicating an above average employment concentration in these sectors. The highest values are found in Madawaska (urban and rural), the Saguenay Lac St. Jean region (urban and rural), rural Abitibi, rural Gaspé, and rural Moncton. The mix for each case is different. Pulp and Paper, although found almost everywhere, is for example more significant in explaining the high values for Madawaska and rural Abitibi, while (aluminium) smelting largely explains Saguenay Lac St. Jean's showing, and food and fish processing is more important in rural Moncton. The Gaspé region (which includes the Magdalen Islands) is more of a mixture of all of these. None of this is terribly surprising. Nor should it come as a surprise that the two areas that show the lowest relative concentration of employment in resource-based industries are urban Moncton and urban Lower St. Lawrence. We have already noted the role of Moncton and Rimouski as regional service centres, as well the proximity of the (western) Lower St. Lawrence to Quebec City.

What is surprising is that values have increased everywhere, with two minor exceptions. Employment in the eleven peripheral regions is, on the whole, more concentrated in traditional resource-based sectors and low-wage industries in 1996 than in 1971, relative to other regions in Canada. Stated differently, not only are the regions not diversifying as fast as other regions, but they actually appear to be losing ground. However, this judgement may be overly pessimistic; the low-value added category, let us recall, comprises a fairly heterogeneous mix of industrial sectors. We must distinguish between footloose low-value manufacturing industries and traditional resource-based industries that must locate near the primary resource, which leads us into the next section.

4.3 The Slow Road to Industrial Diversification

Figure 4.5 gives the percentage of manufacturing employment in traditional resource-based industries for the eleven selected regions of Quebec and Atlantic Canada. In Quebec, in every case save one (urban Lower St. Lawrence), the percentages in 1996 are above 50%. Thus, these "traditional" sectors still provide the backbone for peripheral economies. For most Atlantic regions, the percentages are also above 50%, with the exception of Moncton (urban), urban Prince (Summerside), and rural Madawaska. We have already noted the relative diversity of Moncton's economy, Summerside's apparent success in certain high-tech sectors, and the presence of the furniture and textile industries in Madawaska. Here again, we observe a difference between Quebec and Atlantic regions.

The most notable difference is in the comparative evolution in industrial structures. In the Atlantic Provinces, with two exceptions, all regions have decreased their dependence on traditional resource-based industries. The most notable cases are urban Gloucester (Bathurst), urban Western Newfoundland (Corner Brook) and Madawaska. The results for Quebec are less encouraging. With two exceptions, the percentage of manufacturing employment in traditional resource-based industries has increased since 1971. The change is particularly brutal on the North Shore (rural) reflecting the boom and bust of that economy. If we eliminate the Lower St. Lawrence region and urban Abitibi-Témiscamingue, the percentage of manufacturing employment in traditional resource-based industries is above 70% in the peripheral economies of Quebec. Clearly, the road to diversification is a slow one[9]. This also suggests that "diversification" may sometimes take place within traditional sectors, and as such is not reflected in the data. An example is the production of chitosan, produced from discarded shrimp (or other shell-fish) remains, a high value-added product, but hidden within the fish-processing sector. However, such exceptions do not negate the difference between Quebec and the Atlantic Provinces. On the whole, peripheral communities in the later appear to have been more successful in diversifying their economic base.

Figure 4.6 looks at diversification from another perspective. It gives the percentage of manufacturing employment in the two most important industrial sectors. Thus, in the case of Moncton (urban)

we observe that the two most important sectors accounted for about 25% of total manufacturing employment in 1996, indicating a diversified manufacturing base, compared to over 80% in the rural North Shore and Gaspé regions, indicating very specialized economies. On the whole, the results mirror those of the previous figures. In other words, economies that are very resource-dependent are also often economies where manufacturing employment is concentrated in one or two industries. Again, the evolution appears more favourable in the Atlantic Provinces than in Quebec, although Western Newfoundland, Southern Nova Scotia, and rural Gloucester continue to show (as in the previous figure) high levels of specialization, as well as rural Prince County, due in large part to a high percentage of employment in the vegetable and fruit processing sectors, specifically potatoes (frozen French fries, potato chips, etc.).

At this point, it is interesting to note the difference between Moncton (urban) and urban Saguenay Lac St. Jean, largely dominated by the Chicoutimi-Jonquière urban area. The greater Moncton and Chicoutimi-Jonquière urban areas are by far the largest urban centres in our sample. Both have populations over 100,000, qualifying them as census agglomerations according to Statistics Canada. However, Moncton has a much more diversified manufacturing base. Despite its size, the economy of Chicoutimi-Jonquière agglomeration and other nearby cities remains highly concentrated in two sectors: aluminium smelting and pulp and paper, both highly capital-intensive and thus high-wage industries. This industrial heritage constitutes one of the chief obstacles to diversification, as will be further explained later[10]. Thus, city size and location are not the only determinants. Industrial heritage also plays a role, and explains in part the problems of communities dependent on capital-intensive resource-based industries, particularly prevalent on Quebec's North Shore and in the Saguenay Lac St. Jean region. However, urban Saguenay Lac St. Jean does show an improvement (figures 4.5 and 4.6). But, when one reflects that these are changes over a twenty-five year period, one must conclude that the road to diversification will indeed be a slow one.

4.4 Tourist Sheds and Long-distance Tourism

Given the difficulty of stimulating non resource-based manufacturing employment, it is not surprising that many peripheral communities look to tourism as a potential alternative source of employment. Employment in the tourist industry is difficult to measure since tourism is not a recognized industrial class. Figure 4.7 shows the relative concentration of employment by region and city-size class in hotels, restaurants, campsites, and related establishments, which is often used as an indicator of the strength of the tourist sector. However, this is by no means a perfect measure of employment in the tourist industry. Restaurants, motels, bars, camp sites, etc. are equally used by locals, not only by tourists. An over-supply of restaurants, bars, and related establishments can sometimes be a sign of hidden unemployment (or under-employment). Thus, a poor community with almost no export base might show a "specialization" in restaurants, motels, and bars as well as in retailing, gas stations, and personal services, because these are the only sources of private sector employment, fuelled in part by consumer spending derived from transfer payments. With this word of caution let us turn to figures 4.7 and 4.8.

Restaurants, motels, bars, camp sites, etc. are fairly evenly distributed over space (figure 4.7). Most values hover near the Canadian average (1.0). This is what one would expect for consumer services. Smaller cities, specifically in peripheral regions, tend to have higher concentrations of employment, confirming, as suggested above, that this sector captures both local consumer-generated employment and "true" tourist-generated employment. However, it is the small centrally located cities that have made the greatest gains over the twenty-five year period. It is unreasonable to attribute this gain solely to local consumer-generated employment[11]. In other words, tourist-generated employment appears to be increasingly concentrating in small and medium-sized cities within about an hour's drive of large metropolitan areas. These cities and towns are the primary beneficiaries of the rise of the leisure society. In Quebec, examples such as Magog in the Eastern Townships or Ste. Agathe in the Laurentians, both within about an hour's drive from Montreal, spring to mind.

Tourism and leisure activities, since they entail the transport of people, are sensitive to distance. This is especially true for weekend or one-day tourism, including the ownership or rental of secondary residences (cottages). Most large cities are surrounded by tourist sheds, that is, a ring of recreational destinations within easy reach, where residents of the city go for weekend outings or have secondary residences. People in Boston go to Cape Cod, New Yorkers go to the Catskills, just as Torontonians have cottages on Georgian Bay and Montrealers in the Laurentians. It is thus not surprising that centrally located small and medium-sized cities (especially in the 10,000 to 50,000 range) have increased their relative specialization in tourist-related functions. However, these are not necessarily the same small and medium-sized cities that have been the chief beneficiaries of industrial de-concentration (figure 4.1). Tourist-related activities will, by definition, be located in sites that have certain natural attributes (water; mountains; etc.).

Figure 4.7 also tells us that the greatest relative increase has been in rural peripheral areas. This is good news. This can mean one of two things. It may reflect the growth of smaller weekend tourist sheds around medium-sized peripheral cities, for example, the string of coastal villages (and beaches) on the Northumberland Strait near Moncton[12]. It may also mean that some peripheral rural communities, outside urban tourist sheds, have succeeded in building an economic base founded on long-distance (vacation) tourism. This would indeed be good news. For most Canadian peripheral communities (especially in Quebec and the Atlantic Provinces), building such an economic base is not a foregone conclusion, given the intemperate climate and their distance from major urban markets. Unless the area possesses a unique natural advantage (and even then), tourism will generally be highly seasonal, limited to a few months, generally not enough to build a significant (permanent) employment base. In the case of coastal communities, seasonality is accentuated by the fact that the fishing and tourist seasons largely overlap.

Figure 4.8 gives the same information for our eleven regions in Quebec and the Atlantic Provinces. Unlike the results on figure 4.7 for all Canadian peripheral areas, most of our regions show values below unity (1.0), notably in Atlantic Canada. Thus, with some exceptions, in most of these regions, tourism is not a significant eco-

nomic base, even when compared to other regions classified as peripheral. Distance is clearly a factor. The positive values previously noted for small cities and peripheral rural communities in general (figure 4.7) often refer to areas which, although they lie beyond the one-hour threshold, still lie within relatively easy reach of a large urban metropolis (1½ to 2 hours' drive). A tourist resort such as Mont-Tremblant, north of Montreal, is a good example. Such tourist complexes serve both local (day or weekend) markets and long distance markets. Among the eleven regions in Quebec and the Atlantic Provinces, few, if any, appear to have an equivalent location advantage.

Not surprisingly, the two regions that show the highest concentration of employment in tourist-related activities are urban Prince County in Prince Edward Island (Summerside[13]) and urban Gaspé, which encompasses the communities around Forillon National Park. However, the lower (and, in fact, declining) values for the rural Gaspé Peninsula (which includes Percé with its famous rock) demonstrate the difficulty of building a strong year-round tourist base in regions with short summers, situated far from major markets. As noted in chapter 3, the cost of moving people (of travel) remains high. This is especially true for island destinations such as the Magdalen Islands and Western Newfoundland (which houses Gros Morne National Park), where tourism is in part dependent on the cost of air travel.

This is not to say that tourist activities cannot develop in the peripheral regions of Quebec and Atlantic Canada. Tourism can contribute to the economic base and to employment creation. What it does mean is that tourist-related employment will, in most cases, not involve large numbers and will remain highly seasonal. For most regions, distance and climate will remain major obstacles to the creation of a strong (high-wage) year-round tourist-related employment base. However, in some small communities, tourist-related employment, even if limited and seasonal, can provide a useful complement to other sources of employment and income. As in the manufacturing sector, such tourist-related employment will often be aimed at niche markets[14]. But it is unrealistic, in most cases, to expect tourism, by itself, to provide a satisfactory economic base for the peripheral communities of Quebec and Atlantic Canada.

4.5 The Importance of Proximity

The importance of proximity (to a large urban centre) is not limited to manufacturing and tourism. The general trend is for employment to increasingly concentrate in rural areas and small and medium sized cities within easy reach of a large metropolis. The trend illustrated on figure 4.9 is the result of the interplay of numerous factors. Employment within the primary sector, which includes agriculture, grew more rapidly in small towns and in rural areas in close proximity to urban markets than in more distant locations[15]. Here again, technology is in large part to blame. As productivity in farming and related activities increases, the least productive and least fertile lands become uncompetitive, and will in many cases be abandoned. Improvements in transportation, refrigeration and food preservation reinforce this trend, to which can be added the effects of scale economies in wholesaling, marketing, and food distribution. In most of Eastern and Central Canada, the most fertile lands are close to large urban centres, specifically Southern Ontario and Southern Quebec. As for weekend tourism, most large urban centres are surrounded by milk sheds (for dairy products) and sheds for horticulture, fresh produce, and other cash crops. In the case of Quebec, farmers in the Lower St. Lawrence are in direct competition with farmers in the Montreal Plain (centred on St. Hyacinthe), where the soil is more fertile and the growing season longer, and with easier access to urban markets, wholesalers, distributors, and food processors. In chapter 2, we noted the tendency of abattoirs and industrial bakeries to concentrate in and around large urban centres because of scale economies and improved transportation.

Proximity to large urban centres also facilitates the attraction of future residents in search of a more rural living environment. In recent years, there have been signs of a new taste for rural living among certain classes of young professionals[16]. This residential mobility is in part made possible by new information technologies (telecommuting) and by the rise of service professions that do not require a daily presence in the workplace. However, such professionals do, in general, need to visit their workplace from time to time or, in the case of self-employed workers, to meet with clients or fellow professionals. They will thus seek out rural residential communities that still permit them to have easy access to a major urban centre. Such rural residential communities will often be the

same as (or close to) the weekend tourist destinations alluded to in the previous section, since the professionals in question are generally important consumers of leisure activities (hiking, swimming, skiing, bicycling, etc.) The chief beneficiaries of the taste for rural living of certain urban classes will be amenity-rich communities within easy reach of major urban markets. The impressive population growth in recent years of communities to the north of Montreal (in the Laurentians) is in large part explained by this trend. Again, similar smaller professional (non-daily) commuting sheds will develop around peripheral urban centres, such as Chicoutimi, Moncton, and Rimouski.

In sum, small towns and rural areas within close proximity of a major urban centre (about an hour's drive) are evolving in a very different context from other small towns and rural areas in Canada. Indeed, it is no exaggeration to speak of two distinct worlds. There are at least two "rural" worlds. Those that are close and those that are not. If current trends continue, as appears likely, then Canada's "rural" population will be increasingly made up of communities located close to large urban centres (figure 4.10). One could say that rural Canada is becoming more and more "urban"; that is, rural Canada is increasingly composed of communities closely connected to the economies and to the life-styles of large urban centres. However, we must not forget that the majority of Canada's rural and small town population still lives outside this metropolitan-dominated radius.

Conclusions

At the risk of simplification, our conclusions are summarized in four points.

1. The regions that we have defined as "peripheral" are different. Distance matters for economic development, and will continue to matter. This is especially true for activities dependent on the transport of goods and people (manufacturing; tourism; primary production; etc.), which provide, and will continue to provide, the back-bone for most of Canada's peripheral economies. Communities located close to major urban centre cannot be approached in the same manner as communities located at some distance from major urban markets.

2. The economic future of Canada's small towns and rural communities depends very much on where they are located. Most small towns and rural communities located in close proximity to a large urban centre will have little difficulty in maintaining satisfactory levels of employment and population. These "central" communities are the chief beneficiaries not only of industrial deconcentration, but also of the rise of leisure activities (weekend tourism; second homes; etc.) and the on-going concentration of farming and foodstuff distribution and processing (notably for dairy products, vegetables, and horticulture) near large urban centres. Most peripheral communities evolve in a very different context, with a much more uncertain future. It is only a slight exaggeration to speak of two different worlds, one close and the other far. Developing leisure and tourist-related activities is, for example, a quite different matter in a community located within an hour's drive of Montreal than in a community six hours away.
3. It is unrealistic to expect most peripheral regions to rapidly diversify their economies, especially those that lack a major urban service centre. Where diversification occurs, it will in general be gradual, no faster than the national trend. In most cases, peripheral economies have remained highly dependent on traditional (resource-based) sectors. In terms of comparative economic specialization, the dichotomy between central and peripheral regions of Canada has remained remarkably stable. Indeed, in some cases, notably in Quebec, relative dependency on traditional resource-based industries has increased. In the majority of peripheral economies (studied) in Quebec and Atlantic Canada, traditional resource-based sectors continue to account for more than 60% of manufacturing employment. Most medium value-added manufacturing employment has remained within close range of large metropolitan centres such as Montreal and Toronto, although a slow outward movement to more distant locations is perceptible. The peripheral regions that have been most successful in diversifying their manufacturing base are generally those that harbour an important urban service centre, notably South-eastern New Brunswick (with Moncton), but also to a lesser extent the Lower St. Lawrence (Rimouski) and Saguenay (Chicoutimi) regions. However, the comparative suc-

cess of less urban regions such as Madawaska and Prince Counties suggests that other factors are equally at play.

4. The positive "trickle-down" effects of dynamic urban regions go only so far. The dynamism of large metropolitan economies such as Montreal or Toronto will not necessarily generate growth and employment three or four hundred kilometres away. In earlier decades, "Growth Poles" were very much in vogue among regional economic development planners, founded on the premise that investments targeted at a few large centres ("Growth Poles") would trigger growth in surrounding regions. The premise is not necessarily false. But the data presented in this chapter suggest that the "trickle-down" effects generated by large urban centres, specifically with respect to industrial deconcentration, fall rapidly beyond about 100 or 150 km. This is of major importance for a nation like Canada with a dispersed population, where large portions of inhabited territory fall outside this range. If the aim is to stimulate the economies of Canada's peripheral communities, growth pole-based strategies will thus have only limited success, unless one chooses to multiply the number of growth poles, which contradicts the very foundation of the growth pole idea. Strategies that work in France or the United Kingdom will not necessarily work in Canada.

   We have chosen to conclude on this point because, some thirty years ago, a federally commissioned study, popularly known as the HMR report after the initials of its three authors[17], raised quite a an uproar in Quebec and has since continued to be an object of debate and criticism, especially outside of Montreal. In essence, the report suggested that an economic development strategy for Quebec should aim at strengthening Montreal, its only true metropolis in a North American context, and that the strengthening of Montreal (Quebec's growth pole) would, in turn, generate growth in the rest of the province. While the first part of this diagnosis continues to hold true, we now know that the second part does not. Industrial growth in Montreal will not necessarily generate employment in Matane or La Sarre. Many residents of Quebec's peripheral regions continue to see the roots of their misfortune in the recommendations of the HMR report[18], with its emphasis on Montreal. Be that as it may, the time has come to finally put the HMR report to rest (R.I.P.

HMR, one is tempted to say). If the aim is to help the Gaspé economy, then that is where the investment should be made. This is simply a restatement of our first point.

NOTES

[1] Our analysis is limited to the private sector for reasons that should be obvious.

[2] Figure 4.1 is drawn on the same model as similar figures in chapter 3. See the presentation of figure 3.4 for an explanation of the methodology.

[3] See Henderson (1997) for a more complete explanation grounded in economic theory. See also chapter 2, specifically figure 2.4.

[4] See figure 3.10, chapter 3.

[5] The Quebec-based furniture manufacturer, Shermag, has two plants in Madawaska.

[6] Note that La Pocatière, where Bombardier has a major assembly plant (railway cars and motors), is located at the western extremity of the Lower St. Lawrence region, some 130 km from Quebec City, on the Trans-Canada highway. As such, it would normally have been classified as a "central" location if census division boundaries had allowed us to do so.

[7] Specifically, in addition to distance and geography, some of these regions are not necessarily low (wage) locations, and are as such unattractive for industries which de-concentrate for reasons of high labour costs (in large urban centres). See chapter 7.

[8] Appendix 2 gives a more detailed listing of industrial sectors.

[9] See also Côté and Proulx (2002), specifically for Quebec regions.

[10] See, specifically, chapter 7, on the Intrusive Rentier Syndrome.

[11] Two additional considerations reinforce this interpretation: 1) incomes are often higher in smaller peripheral cities; see chapter 7; 2) we would expect consumers in small centrally located cites to spend some share of the leisure and entertainment expenditures in the nearby metropolis.

[12] Note on figure 4.8 that the values for rural Moncton, which includes the tourist areas around Shediac, have increased between 1971 and 1996.

[13] Summerside's strong showing is a reflection of Prince Edward Island's success in marketing a comparatively diversified tourist "product", based on a combination of beaches, golf courses, theme parks, lobster fests, and the mythology surrounding "Anne of Green Gables". Nature also plays its part. Because of the warmer waters, especially on the southern shore facing the Strait of Northumberland, swimming is possible during the summer. This also holds for the New Brunswick and Nova Scotia shores on the opposite side. However, even in P.E.I. and New Brunswick, the tourist season remains short.

[14] Examples of niche markets in Northern environments are hunting and fishing (outfitters), ski-doo tours, and cross-country skiing. Because of distance and travel costs, the clientele will generally be limited to the fairly well-off aficionados.

[15] See figure 5.1 in chapter 5.

[16] Aubin (2001).

[17] Higgins, Martin, and Raynauld (1970).

[18] A recent book by scholars in the Saguenay region provides a good example of what some might term a conspiracy theory of regional economic development. In simple terms, the authors maintain that the marginalization of Quebec's peripheral regions is the result of a conscious strategy to favour Montreal and central Quebec at the expense of the rest of the Province. The HMR report is a major culprit in this scenario; see Bouchard et al. (2001). In Atlantic Canada, Savoie (2001), although not necessarily subscribing to a conspiracy theory of regional economic development, is nonetheless highly critical of federal policies, which he sees as a major force of inertia.

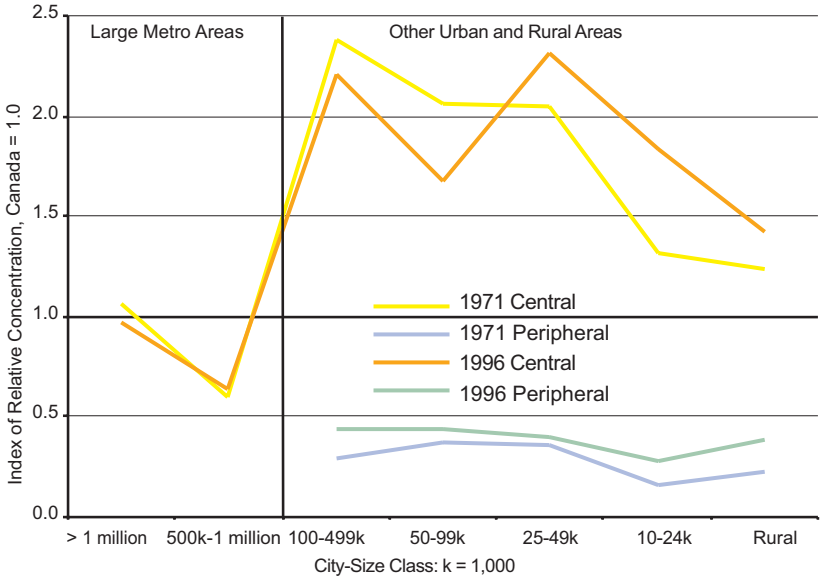


Figure 4.1. Medium Value-added Manufacturing: Relative Concentration of Employment by Region and City Size, 1971 and 1996

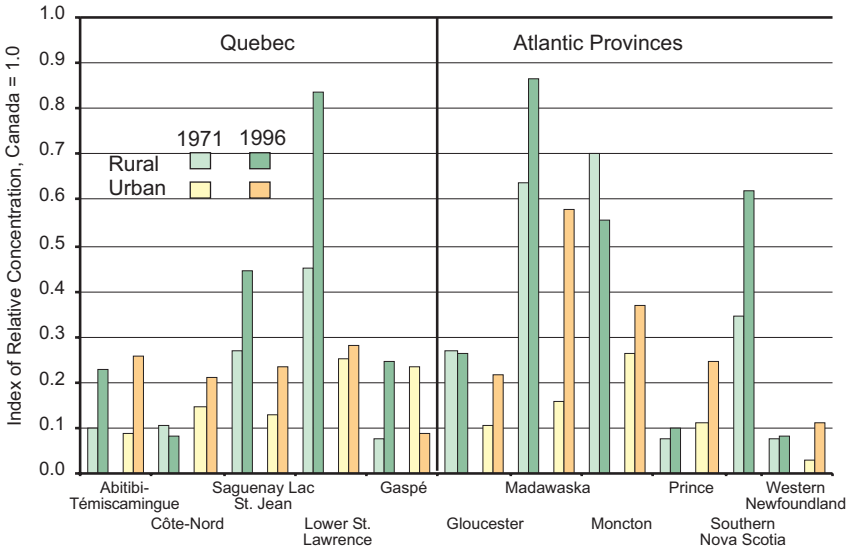


Figure 4.2. Medium Value-added Manufacturing: Relative Concentration of Employment: Selected Regions in Quebec and Atlantic Canada, 1971 and 1996

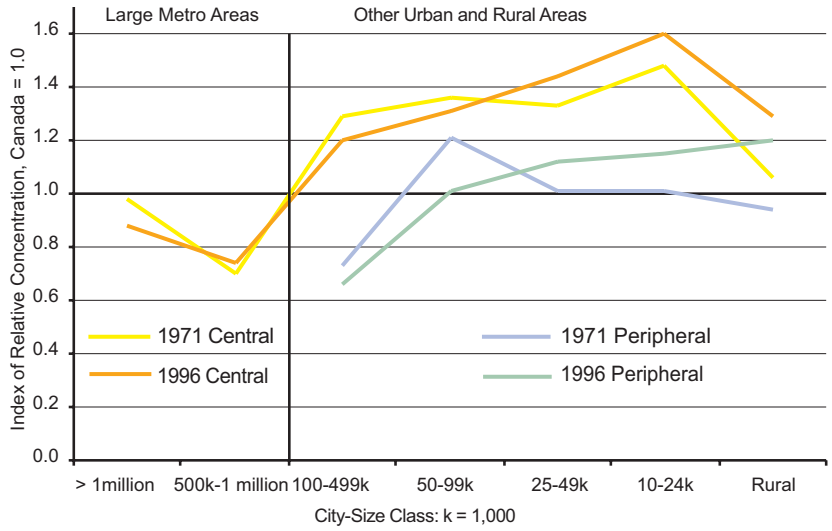


Figure 4.3. Low Value-added Manufacturing: Relative Concentration of Employment by Region and City Size, 1971 and 1996

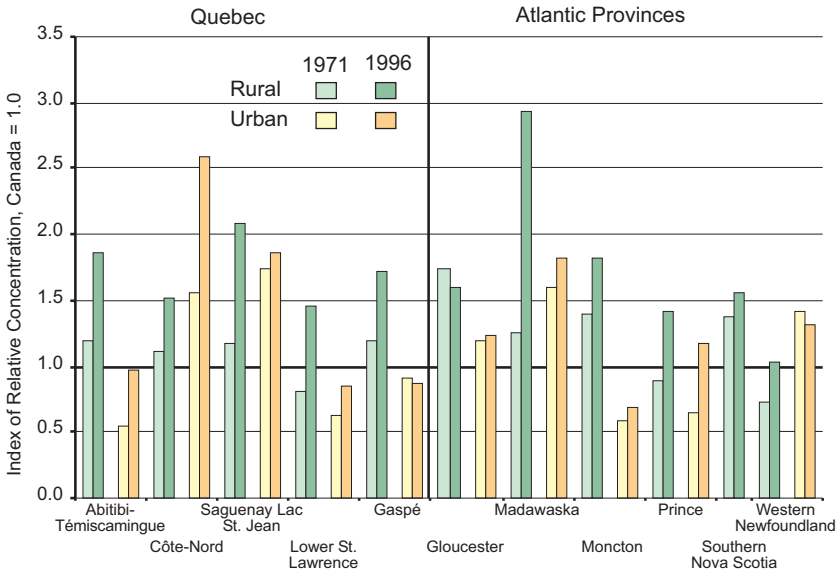


Figure 4.4. Low Value-added Manufacturing: Relative Concentration of Employment: Selected Regions in Quebec and Atlantic Canada, 1971 and 1996

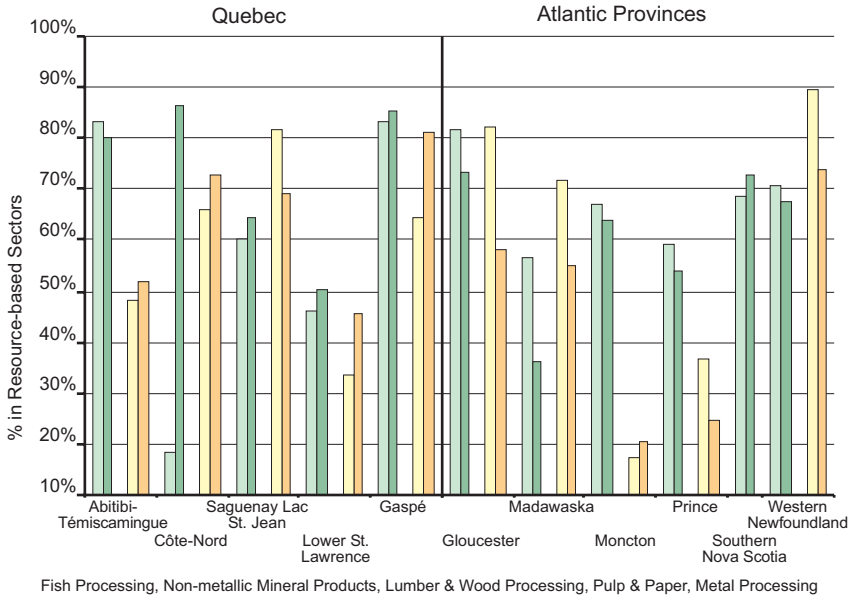


Figure 4.5. Proportion of Manufacturing Employment in Traditional Resource-based Sectors: Selected Regions in Quebec and Atlantic Canada, 1971 and 1996

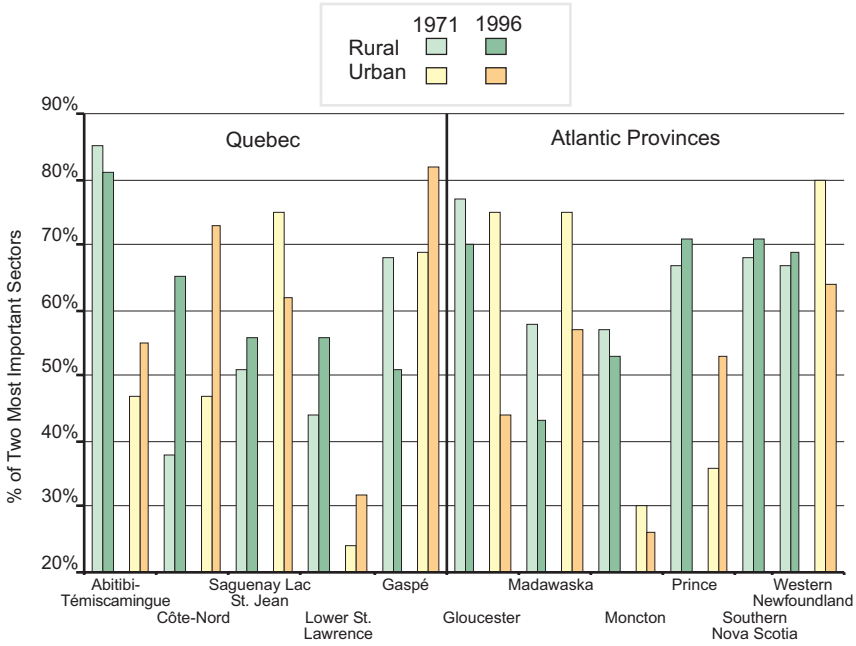


Figure 4.6. Weight of the First Two Industries in Total Manufacturing Employment: Selected Regions in Quebec and Atlantic Canada, 1971 and 1996

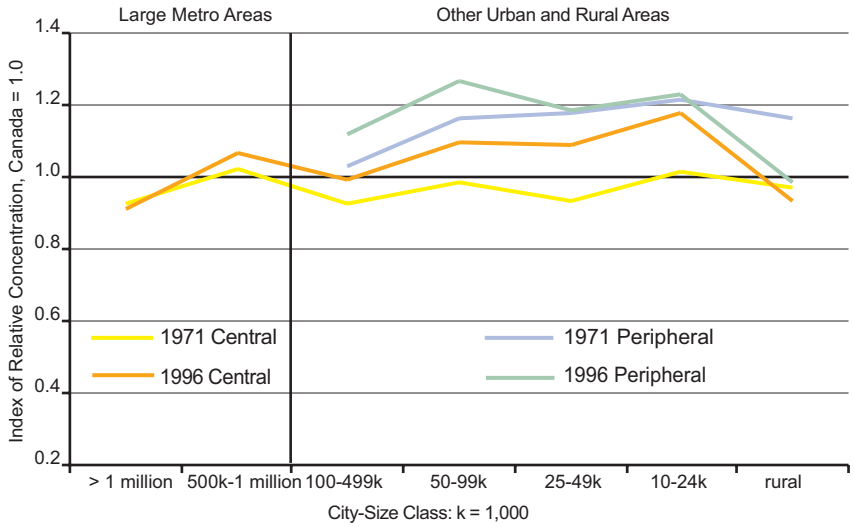


Figure 4.7. Hotels, Restaurants, and Camping: Relative Concentration of Employment by Region and City Size, 1971 and 1996

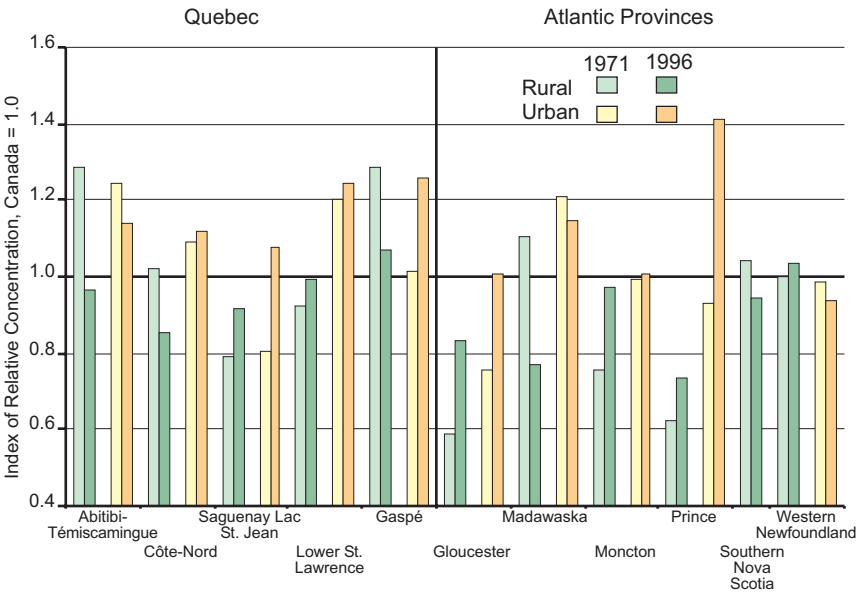


Figure 4.8. Hotels, Restaurants, and Camping: Relative Concentration of Employment: Selected Regions in Quebec and Atlantic Canada, 1971 and 1991

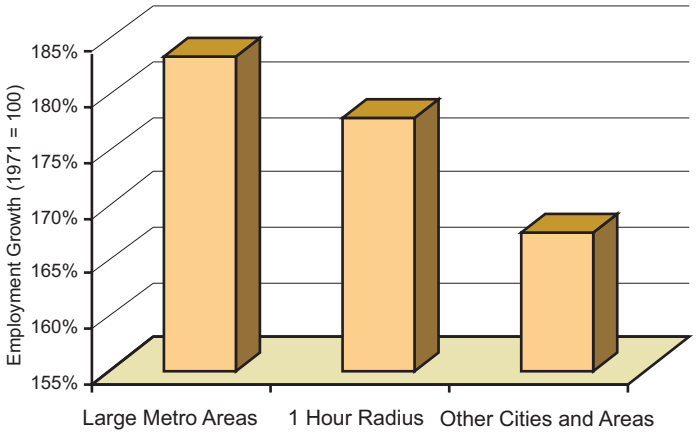


Figure 4.9. Growth in Total Employment, 1971-1996: Large Metropolitan Areas, 1 Hour Radius, Rest of Canada

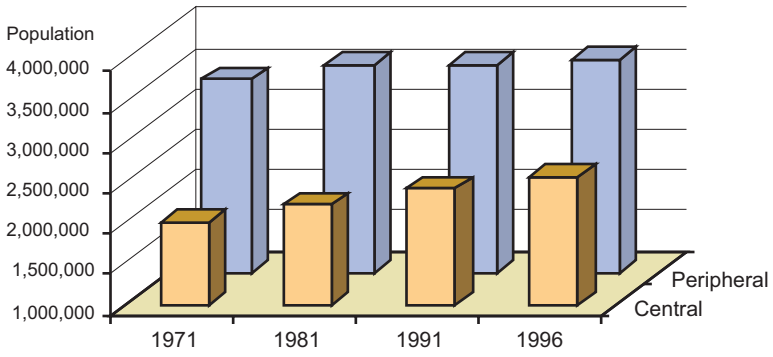


Figure 4.10. Population in Rural Communities: Peripheral and Central Regions, 1971-1996

CHAPTER 5

The Coming Crisis: The Impact of New Resource Constraints and the Demographic Transition

The trends analyzed in the previous chapters do not mark a break with the past. They reflect the continuation of processes that have been at play for many decades, most notably, the continuing centralizing effects of scale economies and improvements in transportation and communications. We have seen that proximity (to markets) and agglomeration economies continue to be important factors in explaining the comparative economic development of Canadian regions. We have observed that regions that do not harbour a major metropolis and are far from major markets continue, on the whole, to be dependent on the traditional resource-based industries. We can, in sum, expect employment growth in peripheral regions to remain below that of the rest of Canada.

This is not the end of the story. Two major transformations are underway that mark a break with the past, which will have a profound effect on the development of peripheral regions. The future will not simply be a continuation of past trends. *First*, after decades (even centuries) of settlement and development, the limits of natural resource exploitation have, in most sectors, finally been reached, and have already been passed in some cases. *Second*, the effects of the demographic transition are starting to be felt, that is, the impact on population growth of the decline in birth rates that began in the early 1960's. Neither of these transformations really comes as a surprise. They could be foreseen many years ago. However, as with other transformations with unpleasant implications, we often prefer to ignore them until they are upon us. As we shall see, these new

circumstances, when added to past trends, do not make the situation of peripheral regions any easier.

5.1 The Employment Effects of Constraints on Natural Resource Exploitation

Most of Canada's peripheral regions were first settled by Europeans to exploit natural resources: forests (wood); rivers (hydro power); oceans (fish); the soil (farming); the subsoil (minerals); etc. Indeed, this was largely true of all of Canada until the rise of the industrial revolution. The economies of most peripheral regions in Quebec and Atlantic Canada continue to be highly dependent on resource-based industries, whether in primary exploitation (fishing, logging, farming, etc.), in manufacturing (processing) or in service sector activities (distribution, transportation, etc.). Until recently, fairly stable employment levels were maintained, even in the face of increasing productivity, by exploiting ever more resources: by catching more fish, by harvesting more trees, etc. Increases in productivity per worker have been exerting downward pressures on employment since the beginning of industrialisation. Fewer workers are required today to harvest the same quantity of trees, to catch the same quantity of fish, or to mine the same quantity of iron ore. This is a continuing trend. The resource-based manufacturing sector follows the same model. Firms are often highly capital intensive, specifically in pulp and paper production and in metal (or aluminium) refining and processing, requiring ever fewer employees as a result of new investments in new machinery, plants, and equipment. Alcan's Laterrière plant in Alma, opened in 1989, produces the same quantity of refined aluminium with less than half the number of employees, compared to other less recent plants[1].

What is new is that the quantity of local resources that can be extracted or harvested, and subsequently processed, can in most cases no longer be expanded. In some cases, the resource base has even declined or disappeared, the most dramatic examples being the collapse of the ground fish (mainly cod) in the early 1990's and the reduction in available trees (for cutting), most notably in the valley communities of the Lower St. Lawrence and in the Gaspé. Whether resource limits or reductions are the result of natural constraints or of mismanagement is not central at this point (usually, it is a combi-

nation of both). What is crucial for the future is that the consequences for employment creation in resource-based industries are entirely predictable: 1) continuing increases in productivity mean ever fewer jobs per quantity extracted and processed; 2) if quantity is held constant, employment will necessarily fall. Obviously, the precise results of this equation will vary from resource to resource and between regions. In some cases, resource-based employment may continue to increase. However, the general trend towards the decline of resource-based employment appears irreversible.

Figure 5.1 shows the evolution of primary sector employment[2] by region and city size from 1971 to 1996. Figure 5.2 gives the global trend for total and primary sector employment for Canada since 1987. As we can see, primary sector employment growth has halted and even declined since the late 1980's and early 1990's. This marks a break with the past. Employment grew (or at least did not decline) in all city size categories before 1991, with the exception of rural peripheral communities where the decline began earlier, a reflection in part of the continuing decline of farming populations (especially in the Prairies) and of the collapse of the oil boom in Alberta and the mining boom on Quebec's North Shore. Employment in the primary sector continued to fall during the recent period of expansion (1993-2000) despite impressive employment growth in the Canadian economy as a whole.

The decline in primary sector employment since the late 1980's is largely the result of the combined effect of productivity increases and resource quantity constraints alluded to above. Other factors equally enter into play. International competition has had an impact, especially in the mining sector, as less costly deposits are discovered in other nations[3]. New technologies, specifically the introduction of substitutes, have equally had an impact[4]. In farming, declines in employment are also a reflection of the gradual abandonment of less fertile and less well-located lands, as local market-oriented agriculture (as well as food processing and distribution) increasingly concentrates near large urban centres (see also chapter 4). As figure 5.1 illustrates, peripheral communities face a double challenge: 1) the decline in primary sector employment; 2) the concentration of primary sector employment in central locations.

In the next sections, we shall look at sector specific issues, considering the impact not only of resource constraints, but also of

technological change and consumer preferences on the probable evolution of resource-based employment in peripheral regions. In many cases, this will also allow us to better comprehend why peripheral regions have often found it difficult to develop industries beyond the first processing stages of primary resource transformation.

Ocean Resource-based Industries

The fishing industry illustrates the employment impact of resource constraints. The effects of the precipitous fall in cod stocks (and other ground fish) were devastating in numerous fishing communities, notably those situated along the more northerly waters of the Gulf of St. Lawrence[5]. Figure 5.3 illustrates the results for Eastern Quebec regions[6]. The results for Western Newfoundland would be little different. In many communities, the number of fishermen and associated workers fell by more than half in the space of ten years. However, as with all crises, the fall of the ground fish also had beneficial effects on the industry: a) it fostered greater rationalisation; b) many communities re-oriented their fishing industry towards other species, notably snow crab and shrimp, but often with lower employment levels; c) in many cases, greater diversity has meant higher value-added and new processing possibilities; d) quality has improved with the introduction of HCCP norms and the Quality Management Programme (QMG), monitored by the Canadian Food Inspection Agency[7]; e) market structures have changed, with less dependence on Boston.

Thus, the fishing industry has adapted, but not necessarily with equivalent employment levels. The most southerly communities, notably those in P.E.I., New Brunswick and Southern Nova Scotia, have always been less dependent on ground fish, and have thus generally been able to maintain more stable fishing communities. Lobster has remained an important mainstay, especially for the more southerly located communities, but also for the Gaspé peninsula and the Magdalen Islands. Lobster fishing, while highly lucrative, is not necessarily an important direct source of employment[8], although its indirect impact in some communities should not be minimized.

However, the possibilities for employment expansion are limited everywhere, despite significant regional differences. The total

volume of all species caught in Eastern Canada, including crustaceans and shellfish, has fallen between 1988 and 1999, and their market value has remained approximately the same in constant dollar terms. Predicting the evolution of fish stocks is an imperfect science. Also, 1988-1999 is not necessarily a representative period, since 1988 marked a high in volume, notably for crustaceans and shellfish. That being said, we can nonetheless predict with a fairly high level of confidence that the number of direct jobs generated by fishing will continue to decline, once we factor in the impact of higher productivity (better boats; superior harvesting techniques; better management; etc.).

Aquaculture can, in part, compensate for job losses. Total tonnage (all species) from aquaculture in Eastern Canada tripled between 1990 and 1999, and total value doubled[9]. Total value still is a fraction (around 15%) of income from ocean fishing, but the proportion will undoubtedly continue to increase. There are equally natural limits to aquaculture. Also, aquaculture is, in most cases, a capital-intensive activity with high development costs and long lead times. The number of direct jobs created will probably remain fairly small. So far, aquaculture has been most successful for Atlantic salmon and for mussels, the former primarily in New Brunswick[10] and the latter in Prince Edward Island. The fact that the Gaspé Peninsula has so far been singularly unsuccessful in developing an aquaculture base suggests that this industry faces obstacles similar to those of other non-traditional sectors (i.e. high transports costs; geography and climate; small local manpower and research base; etc.). However, it is not unreasonable to expect the current research efforts at the *Centre spécialisé des pêches* (Grande-Rivière, the Gaspé) will eventually bear fruit.

What about indirect employment in the fishing industry: processing (smoked, canned, etc.); distribution; marketing; etc.? As the primary source diversifies, new jobs will undoubtedly be created. However, secondary and service employment is largely a direct function of the availability of the primary resource. Here again, given the natural limits of the potential fish stock and the effects of higher productivity, it is reasonable to assume that secondary and service employment will, hopefully, remain stable, with however important variations between particular communities depending on the characteristics of their resource base. Figure 5.4 for Quebec re-

gions shows a significant decline for the Gaspé Peninsula, a slow decline for the Magdalen Islands, and stability for North Shore communities[11]. The potential for compensating future job losses are not unlimited. Consumer preferences favour fresh (or frozen) seafood and fish, limiting the possibilities for job creation beyond the basic processing sector, although here again significant differences exist by region and species. The taste for fresh fish, plus the concentration of wholesaling in large urban centres, puts a premium on location. Southern Nova Scotia, for example, has a clear advantage over Western Newfoundland or Quebec's North Shore.

None of this is to say that the fishing industry and related sectors will cease to be a source of employment for coastal communities. Not at all. Barring a major disaster, the fishing industry does not appear to be under threat of extinction in Eastern Canada. Consumers will continue to demand fresh fish and seafood; there are no real substitutes. Also, technological progress will continue to bring forth new uses for sea-based resources, such as the use of kelp and the transformation of crustacean residues[12]. The ocean will continue to be a source of employment, but in all likelihood, at lower levels of employment than today for many coastal communities.

Forestry-based Activities

Forestry and related sectors are a source of employment in most of the communities studied. As noted earlier, limits to the stock of available trees (for cutting) have been reached in most regions, with the severest shortfalls in the Lower St. Lawrence region and the Gaspé Peninsula, where numerous saw mills have been forced to close down. The situation is less dramatic north of the St. Lawrence River and in New Brunswick and Newfoundland. However, even in the latter cases, the approximate limits of exploitation have been reached, according to our sources. There is little room for *new* pulp and paper mills. Here again, given continued productivity increases, employment will continue to decline. Baie-Comeau's paper mill today employs about 800 workers, compared to 1,500 some years ago. In Bathurst, where the paper mill has received important capital investments, employment has gone from 1,200 to about 300. In both cases, the volume of production has increased. The trend is, increasingly, to substitute capital for labour[13].

On the positive side, increasingly rational and conservation-oriented harvesting practices mean that the long-term prospects for the renewal and maintenance of the resource stock are probably good, although the communities hardest hit by current shortfalls will continue to suffer. Like the fishing industry, the forestry sector will not disappear in Eastern Canada. In addition, the growing emphasis on resource management, replanting, and conservation will mean job opportunities in ancillary professions: forest wardens, forestry engineers, sylviculture, etc. However, here again, it is unlikely that new jobs will be able to totally compensate for jobs lost in the primary forestry sector due to continuing productivity increases. With modern tree-cutting machinery, one worker can today do the job of five or ten lumberjacks ten or twenty years ago.

The major constraint to employment creation in forest-based sectors (primary and secondary) in peripheral regions comes from changes in the production methods of wood-based products (windows and doors, furniture, beams, etc.) and from consumer preferences and environmental concerns. Let us look at each in turn.

Growing environment awareness and a growing taste for nature recreation are placing increasing constraints on the areas that are available for lumbering, thus further reducing supply as ever new territories are set aside for parks (provincial or national) and for nature reserves. Perhaps even more importantly, the increasing move to recycling poses a clear threat to paper (and cardboard) production in peripheral locations. Newsprint exported to the United States must contain 30% recycled content. The Stone paper mill in Bathurst already operates with approximately 40% recycled content. Once recycled material accounts for more than 50% of content, there no longer is any compelling reason for a paper mill to locate near sawmills or forests. At that point, urban areas will become the primary source of inputs. This evolution in part explains the trend to more speciality high-quality paper production for new paper plants in forest locations. Such plants are, by definition, highly capital intensive.

The second challenge comes from the changing nature of many wood-based products, and largely explains why most peripheral regions have found it difficult to diversify into other medium and high-value manufacturing wood-based sectors (outside pulp and paper). Increasingly, wood-based products are composites, made up

of a diversity of wood varieties, including non-wood inputs such as plastics and other synthetic materials. Thus, the outside of a beam or door may be one kind of wood while the inside will be made of another (cheaper) wood variety or a synthetic product. Given this growing diversity of inputs, plants will choose locations where they have access to a large diversity of suppliers from various sources, while at the same time maximizing market access. Since these are generally medium value-added land-extensive industries (where land and labour costs matter) they will most often be found in small and medium-sized cities, not far from major markets (see also chapter 4). It should thus come as no surprise that the core of Quebec's furniture industry (as well as doors, windows, and related products) is found in a string of small and medium-sized cities between the Beauce region, south of Quebec City, and Montreal.

In sum, while the forestry industry (at all levels) will certainly not die, its potential for *additional* employment creation in most peripheral communities of Quebec and Atlantic Canada is limited. Indeed, if certain trends accentuate (paper recycling, environmental constraints on supply, composite wood products), there is a high risk that employment in peripheral communities will decline significantly in the future in forest-based industries.

Mining and Smelting

The mining industry is, by definition, the most predictable, but also the most volatile. Minerals are not renewable resources. The life of a mine is limited, as is that of a smelter if it draws its primary input from adjacent mines. The announced closure of the copper mine in Murdochville (Gaspé Peninsula), plus the temporary closure of its smelter, constitutes a dramatic current example. Foreign competition and technological change also come into play. Quebec's North Shore has gone through a roller-coaster existence, experiencing great prosperity when iron and steel were king, followed by a precipitous decline as substitutes and cheaper foreign deposits decimated its mining and smelting base.

The outlook for most mining communities is sombre in the eleven regions studied in Quebec and Atlantic Canada. The list of threatened communities is alarming, to say the least. Some nine gold mines are expected to close in and around Val-d'Or in the

coming years, with an expected job loss between 1,000 and 1,500. The iron ore deposit at Fermont is at risk (its maximum life is twenty years in any case), threatening employment both at the mine and at the ore mill at Port-Cartier, its chief economic base. The future of iron ore mining around Wabush/Labrador City is equally uncertain, partly due to foreign competition, in turn threatening employment in transport, handling, and related activities in Sept-Îles (around 900 jobs at risk). In Bathurst, the zinc mine has only a few more years to live (the deposit is expected to run out in 2007), with the almost certain loss of about 950 jobs at the mine and a potential 530 loss at the smelter at Belledune. The copper smelter at Rouyn-Noranda will one day close, although it is difficult to say when; the copper ran out long ago[14]. The only bright spot in this sombre picture is that new mining technologies may allow the exploitation of deposits which were hitherto unprofitable, thus in part dampening job losses, specifically in the case of gold mining around Val-d'Or. The other hope is that world prices (especially for gold and iron ore) will rise sufficiently to make certain deposits profitable once again.

The situation for aluminium smelting is entirely different because the primary resource determining its location in the Saguenay Lac St. Jean and North Shore regions is not the mineral as such (bauxite), but rather electricity, the primary input into the electrolysis process that transforms alumina into aluminium[15]. This is good news, because hydroelectric power is a renewable resource and because it is unlikely that Quebec will lose its comparative cost advantage in electricity in the foreseeable future. Costs are rising, but they are also rising elsewhere. Thus, it does not appear that this industry is threatened. The future of the industry would appear to be especially secure in the Saguenay Lac St. Jean region where Alcan is proprietor of its own dams and hydro network, benefiting from a rentier position. However, it appears that there is little room for major further expansion of the industry in the Saguenay Lac St. Jean or North Shore regions. Unexploited hydro power opportunities exist in Quebec, but generally at significantly higher costs than in the past because new rivers (to be dammed) are less accessible and because of political and environmental factors, notably, stricter environmental standards and, in many cases, the need to negotiate with First Nations and with Newfoundland and Labrador. Even accepting new plant openings or expansions which have recently been an-

nounced[16], we may expect over-all employment in primary aluminium smelting to decline steadily in the Saguenay Lac St. Jean and North Shore regions in the future as productivity continues to rise, but nonetheless to remain a significant source of employment.

Given the strength of this sector, especially in the Saguenay Lac St. Jean region, where it overshadows all other economic activity, it is not surprising that the region harbours ambitions of developing activities further downstream in the production process. However, we have seen that the region has been only moderately successful in diversifying into other manufacturing activities, including aluminium products. We are unable, without more detailed knowledge, to make an informed judgement as to the eventual feasibility of producing more advanced aluminium products in the region. It appears that the production stages between raw aluminium (in ingot or other form) and final products continue, on the whole, to favour locations close to major markets. Also, as noted elsewhere[17], primary aluminium smelting is a high wage industry, which in turn does not facilitate the development of other industries, including the down-stream production of aluminium products. Whatever the reasons, the development of a significant down-stream aluminium sector is not a foregone conclusion.

Other Primary Sector-based Activities

In addition to the sectors examined above, employment opportunities in the primary sector or in processing cover a wide range of activities, i.e. farming, hunting and trapping, lake fishing, ranching, berry cultivation, harvesting of maple syrup, and so on. Off-shore and on-shore natural gas and petrol also continue to hold out hope for various shore communities, notably Northern Nova Scotia and the Port au Port Peninsula (Newfoundland). All of these and others will continue to provide employment, especially in smaller communities. Numerous examples of entrepreneurship exist in a variety of niches: berry jams in Western Newfoundland, blueberry liqueurs in the Lac St. Jean region, bottled water in Amos, speciality cheeses and woollens in several communities, to take only a few examples. In most cases, these will provide a valuable addition to the local economic base. It is important to repeat that employment in the primary sector (and related processing activities) is not about to

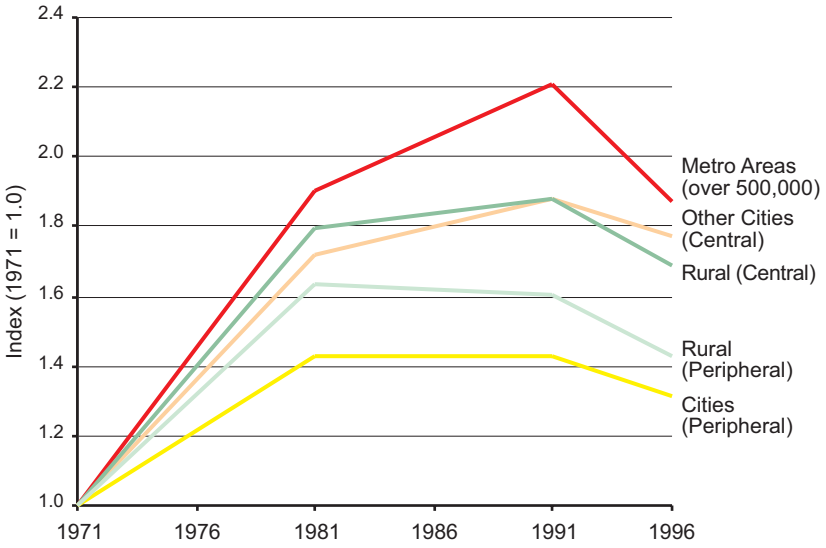


Figure 5.1. Employment Growth in the Primary Sector by Region and City-size Class, 1971-1996

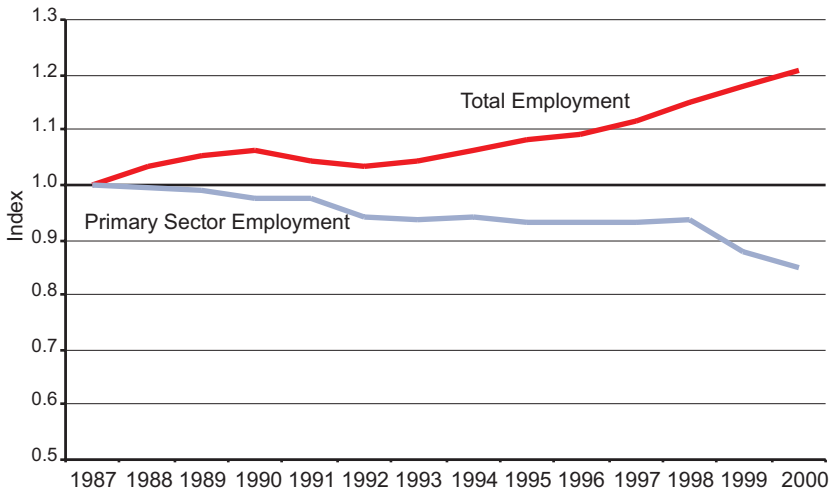


Figure 5.2. Employment: Canada, 1987-2000: All Industries and Primary Sector (1987 = 1.0)

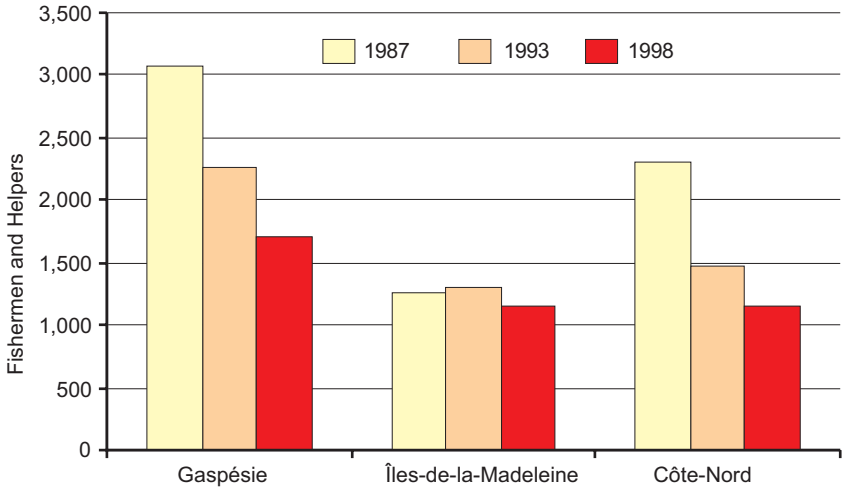


Figure 5.3. Primary Employment in the Fishing Industry: Fishermen and Helpers: Eastern Quebec, 1987, 1993, 1998

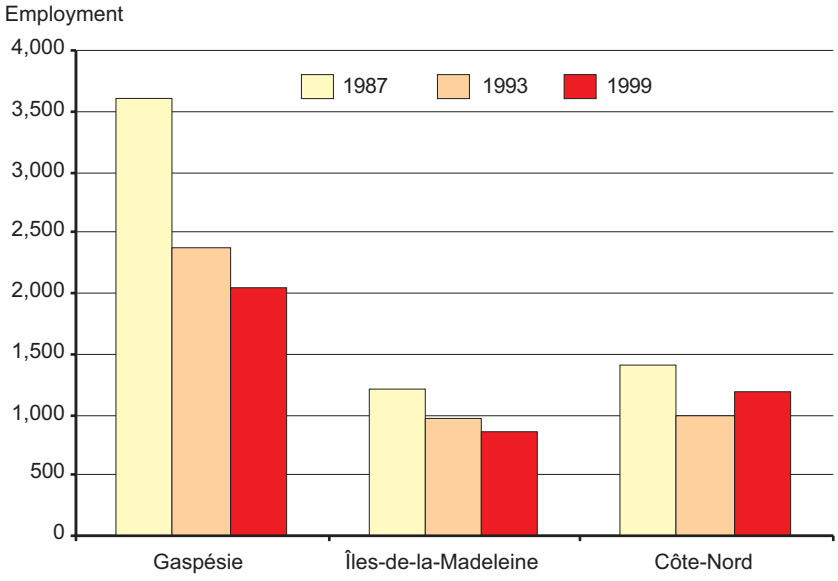


Figure 5.4. Secondary and Service Employment in the Fishing Industry: Eastern Quebec, 1987, 1993, 1999

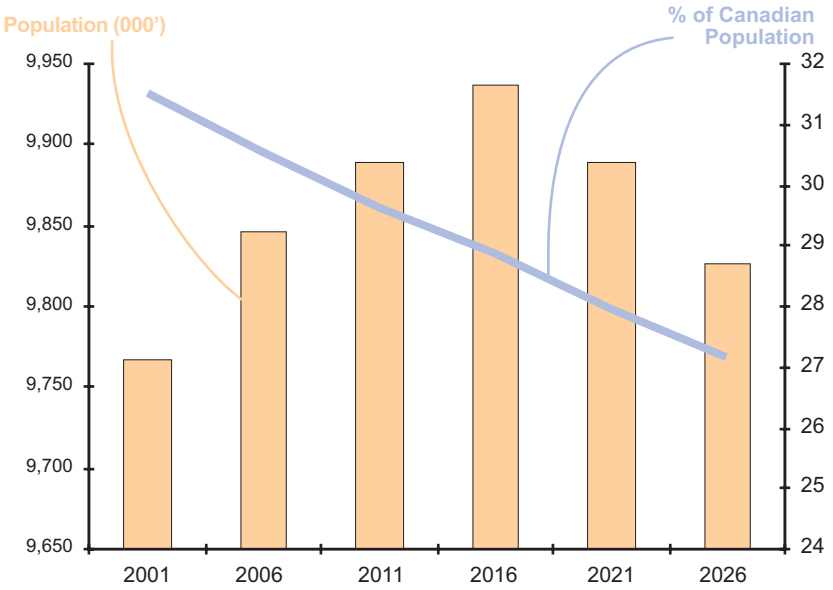


Figure 5.5. Population of Quebec and Atlantic Canada, 2001-2026. Projections: Total and as a Share of Canada

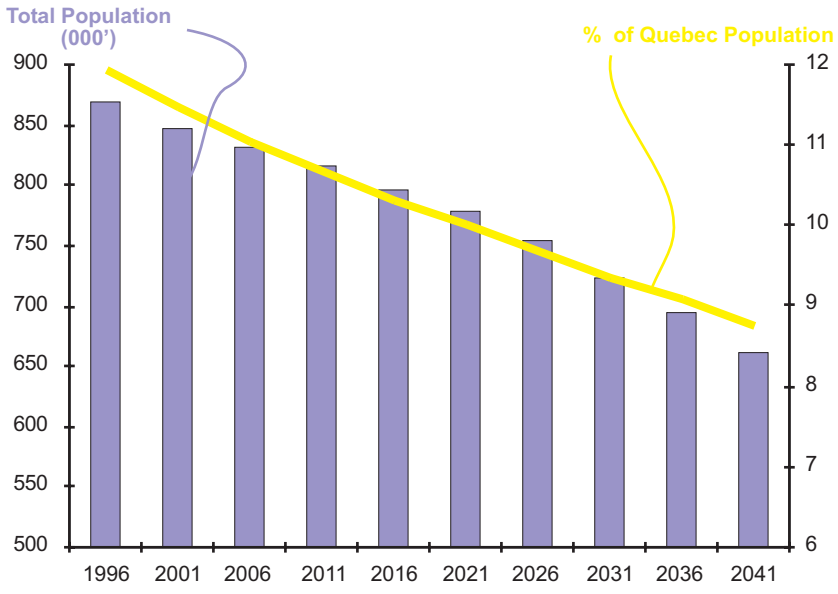


Figure 5.6. Quebec's Five Peripheral Regions. Projections: Total Population and Percentage of Quebec, 1996-2041

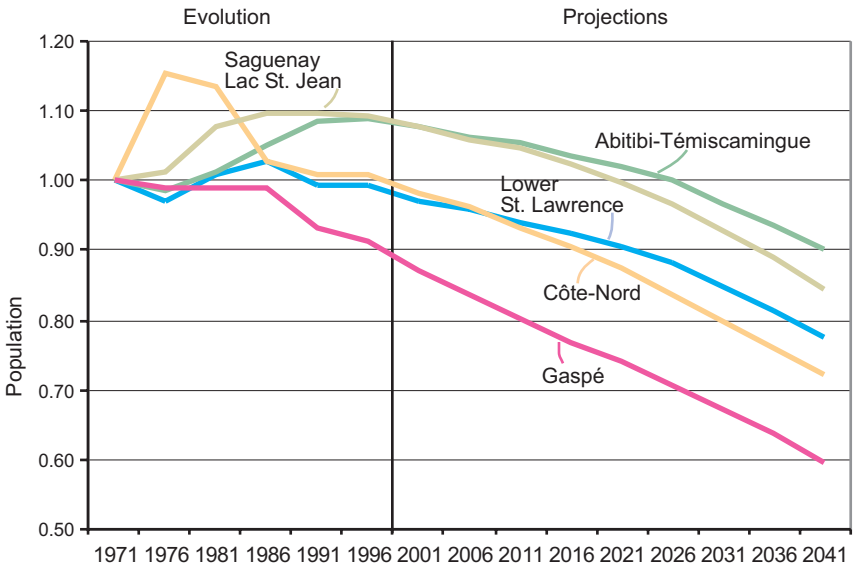


Figure 5.7. Population Projections: Five Peripheral Regions of Quebec, 1971-2041 (1971 = 1.00)

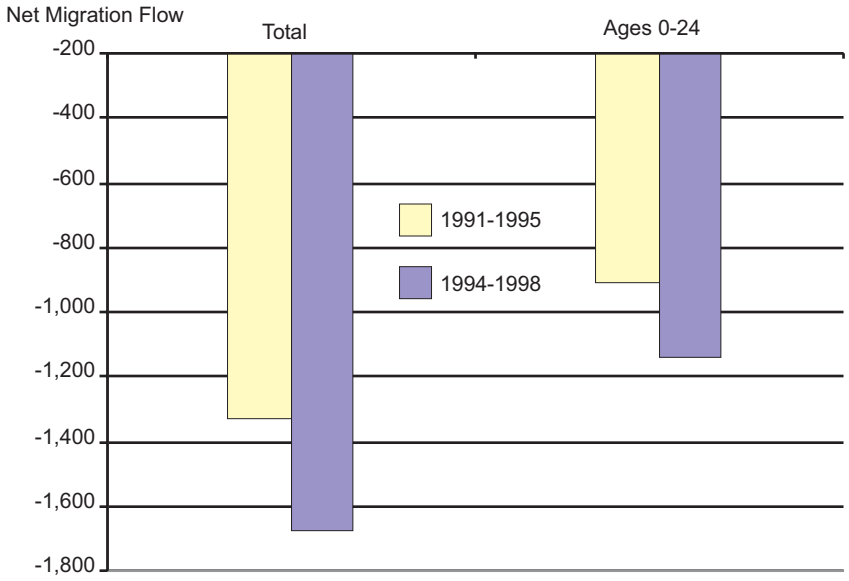


Figure 5.8. Net Migration. Southern Nova Scotia: Total and 0-24 Age Group, 1991-1995 and 1994-1998

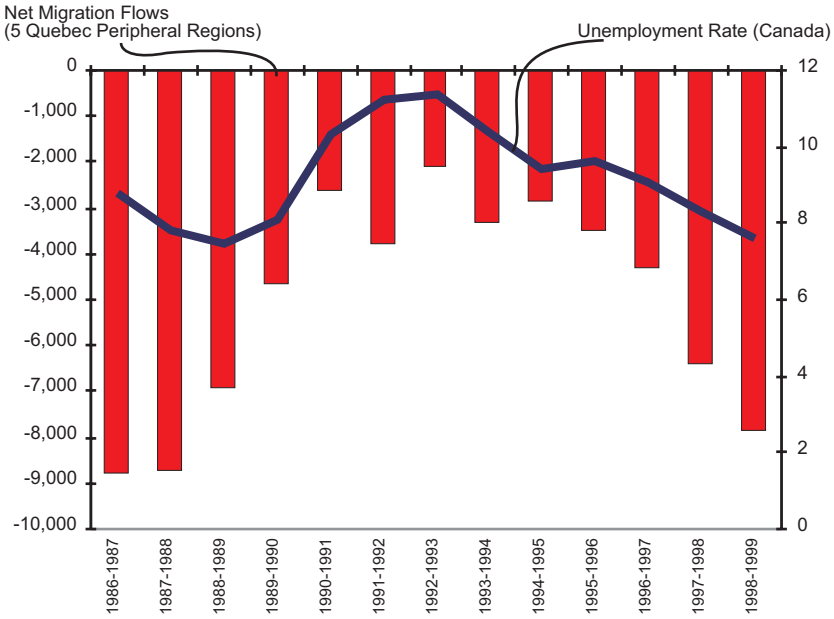


Figure 5.9. Net Migration Flows (5 Quebec Peripheral Regions) and Canadian Unemployment Rate, 1987-1999

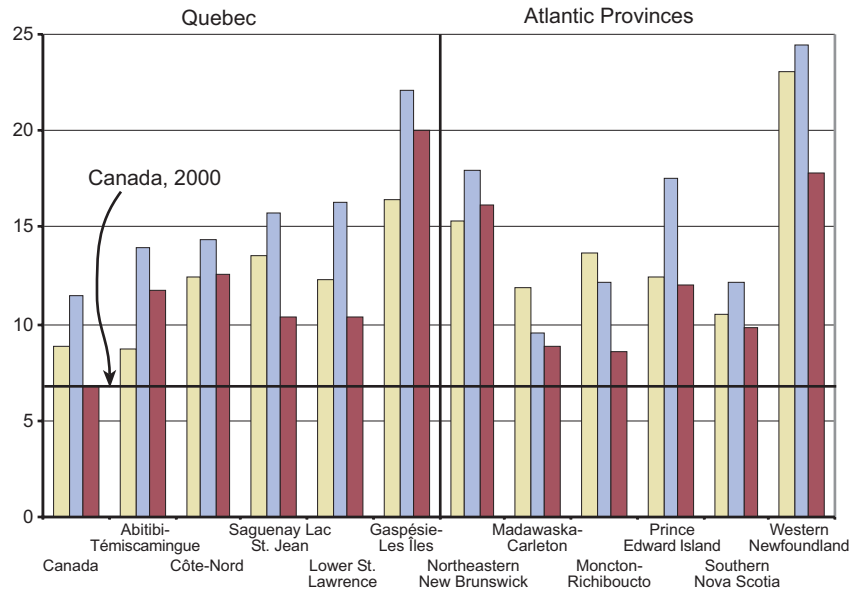


Figure 5.10. Unemployment Rates. Quebec and Atlantic Economic Regions: 1987, 1993, 2000

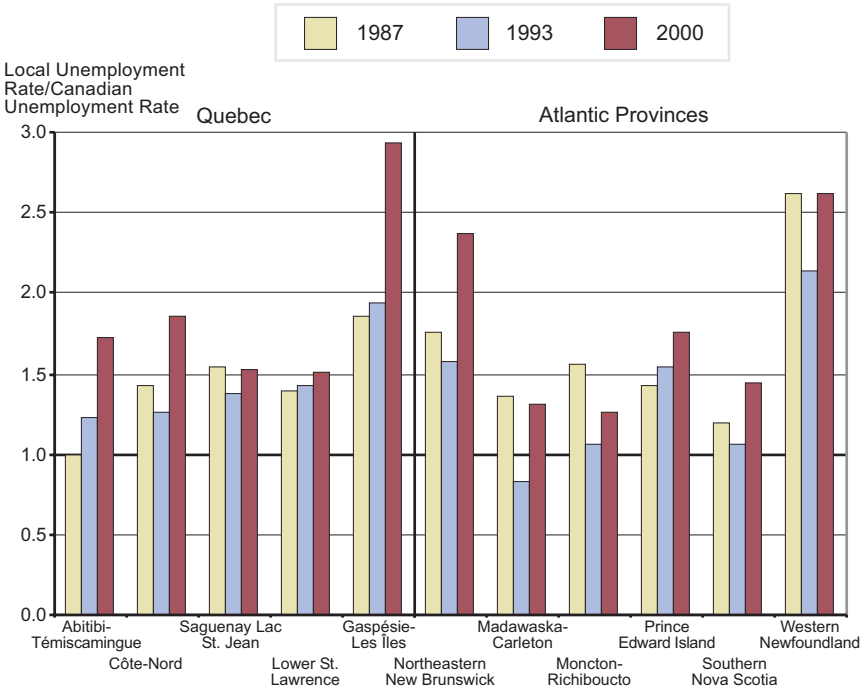


Figure 5.11. Relative Unemployment Rates (Canada = 1.00): Quebec and Atlantic Economic Regions, 1987-2000

disappear. Given human ingenuity and the capacity to adapt to changing demand, a primary employment base will continue to exist in most peripheral communities (except the most extreme cases). However, that employment base will, in general, evolve at lower levels than today.

5.2 The Population Impact of the Demographic Transition

The second major change is more momentous: The end, in most cases, of population growth. It is important to note that peripheral regions are not alone in feeling the impact of the demographic transition. All Canadian regions will see their populations age, and almost all Canadian regions will eventually enter a period of population decline. In this respect, Canada is no different from other developed nations. What makes Canada's peripheral regions different is that they will feel the effects earlier than other regions. The main culprit is out-migration.

Population Decline

The demographic evolution of most peripheral regions is not difficult to understand. Until fairly recently, natural population growth due to a continuing surplus of births over deaths (the tail end of the baby boom) allowed populations to grow or at least to remain stable in most peripheral regions, *despite* continued net out-migration. In essence, natural population growth compensated for the effects of net out-migration. Out-migration is not a new phenomenon. Most peripheral regions, especially rural communities, have been living with out-migration for decades. But this did not necessarily translate into significant population losses. That is about to change, and has already begun to change in many cases. Natural population growth will no longer compensate for net out-migration. In the future, net out-migration will necessarily mean population losses.

The consequences of this transformation are evident on figures 5.5, 5.6, and 5.7. As figure 5.5 illustrates, its effects go beyond our eleven peripheral (study) regions. Globally, Quebec and the Atlantic Provinces will see their combined population start to decline around the year 2016; their share of Canada's population is already

in decline[18]. Figure 5.6 shows similar results for Quebec's peripheral regions[19]. Their combined population has already begun to fall, going from 870,000 in 1996 to a predicted 660,000 in 2041, meaning that their share of the province's population will fall from 12% to about 8,8%. Figure 5.7, in turn, gives the detailed projections by Quebec region. We see that the Gaspé, arguably Quebec's most "peripheral" region (with perhaps the North Shore), is the first to have seen its population decline, and is the region whose population is predicted to decline the most sharply.

In sum, the most peripheral regions are the first to be affected; but in time, like a line of falling dominos, all regions will eventually feel the combined effects of falling birth rates, aging, and continued out-migration. Figure 5.7 illustrates, once again, the boom and bust history of the North Shore, with a sharp rise in population during the 1970's and an equally sharp decline subsequently. Clearly, populations follow job opportunities. Figure 5.7 confirms that population decline indeed marks a break with the past. For most regions, most notably the Saguenay Lac St. Jean and Abitibi-Témiscamingue, populations were still growing or stable until very recently. Although we do not have equally detailed projections by region for Atlantic Canada, the general pattern is undoubtedly similar, with the most "peripheral" study regions (Western Newfoundland and Northeastern New Brunswick) being the first to see their populations decline, with the others eventually following in order of their relative economic performance. The population of Southern Nova Scotia has been declining since 1991. It is the evolution of future levels of out-migration that will largely determine whether a community's population declines or not. It is thus worth considering the relation between migration and jobs[20].

Will Out-migration Continue?

People migrate for numerous reasons; but job and career opportunities continue to be the main factors, especially for younger populations of working age. As noted elsewhere[21], populations with higher levels of education have a greater propensity to congregate in large cities. Younger populations also have a higher propensity to migrate[22]. Figures 5.8 and 5.9 show recent net migration patterns for, respectively, Southern Nova Scotia and Quebec's five peripheral regions[23]. We would expect the pattern to be similar for most other

study regions, with perhaps the exception of the greater Moncton area. Figures 5.8 and 5.9 tell us two things. First, net migration has remained negative in recent years, and has in fact become more negative in the most recent period (following 1993-1994) during the period of sustained economic growth in Canada. Second, out-migration remains highly concentrated in the youngest age cohort. In other words, during the recent period of prosperity (1993-2000), partly fuelled by the revolution in information technologies, out-migration of the young from peripheral areas actually increased, at least for areas illustrated on figures 5.8 and 5.9.

These results suggest that the geographic concentration of job opportunities in the largest cities (or at least in central locations) has accelerated in the most recent period. Why else would populations leave peripheral regions in greater numbers? This is consistent with our analysis (in chapter 3) of the spatial impact of new information technologies and the knowledge-based economy. We posited that their net effect would probably be to accentuate concentration. It follows, if our analysis is correct, that the "pull" factors which attract the young to large cities will be as strong in the future as in the past, and perhaps even stronger. Peripheral regions will, on the whole, continue to be regions of out-migration. A reversal in migration patterns appears highly unlikely. Combined with the effects of the demographic transition, this will necessarily translate into population decline.

The importance of "pull" (rather than "push") factors can be deduced from figures 5.9, 5.10, and 5.11. Figure 5.9 shows both annual out-migration rates (for Quebec regions) and annual unemployment rates (for Canada). The two data largely follow the same pattern, especially since 1992-1993 when the most recent economic upturn began, leading to declining unemployment rates[24]. The lower the unemployment rate (in all of Canada) the higher the level of out-migration from peripheral regions. In other words, the level of out-migration is determined not so much (or only) by local condition but also (or more so) by employment opportunities elsewhere. What drives out-migration, it would appear, is the *relative* position of regions. This becomes even clearer from figure 5.10. In all eleven regions, unemployment rates fell between 1993 and 2000, as they did for all of Canada during these seven years of prosperity[25]. They fell in the five peripheral regions of Quebec where, we have seen, net out-migration nonetheless systematically increased over the same

period. Even when conditions improve at home, out migration still occurs (and perhaps even increases) if conditions have improved even more elsewhere.

The importance of *relative* performance is best illustrated by figure 5.11, which gives the recent evolution of relative unemployment rates (Canada = 1.00). Despite the fact that all regions saw their unemployment rates fall between 1993 and 2000, *all* also saw their relative rates shot above 1.00. Even previous star performers such as the greater Moncton region (which includes surrounding counties) and Madawaska (and adjoining counties) saw their rates sink below the national average. In both cases, as well as for Southern Nova Scotia, their unemployment rates were either below or close to the national average seven years earlier. The most recent cycle of prosperity did not, it appears, improve the *relative* position of peripheral regions, even those that had been most successful, previously, in restructuring their economies. However, prudence is called for. Unemployment rates are imperfect indicators of relative economic opportunity[26]. Nonetheless, even admitting the imperfections of the data, our results suggest that net out-migration will continue as long as relative shifts in economic activity (and thus jobs) continue to favour large cities and other central regions. As we have seen, both in this and preceding chapters, the evidence points to continuing *relative* employment shifts towards large cities and other central regions.

A Few Words on the Regional Adjustment Model

Economists often turn to what is called the regional adjustment model to explain the behaviour of workers and firms in reaction to shifts in demand[27]. When demand falls, that is when jobs threaten to disappear, workers and firms can react ("adjust") in a number of ways. Firms can attempt to increase their productivity or cut unit costs in other ways in order to hold their market share. If there are no other employment opportunities in the region, workers are basically faced with three choices: 1) they can accept to work at lower wages, allowing the firm to produce at lower cost; 2) they can leave the region in search of other employment (out-migration); 3) they can stay put, become unemployed, and perhaps withdraw from the labour force altogether. The latter option is only really feasible if alternative sources of revenue exist, generally in the form of transfer

payments: employment insurance (EI) benefits, social welfare payments, pensions, etc.

Economists have argued that transfer payments, especially if they are generous, will affect the behaviour of workers. In Canada, the classic work is Thomas Courchene's 1970 article[28], in which the author convincingly argues that transfers, notably equalization payments and EI benefits, have hampered the capacity of regions to adequately "adjust" to demand. Specifically, transfers will reduce out-migration and also make workers less amenable to the idea of working at lower wages, in turn making it more difficult to attract firms and create jobs. There is clearly some truth in this argument. However, as we have seen, out-migration remains a fact, despite Canada's fairly generous system of transfers. Out-migration from peripheral areas also remains a fact in Scandinavian nations, despite a long tradition of income maintenance programs[29]. Transfers undoubtedly reduce out-migration levels and, as such, can slow down the rate at which populations decline, but they will not prevent decline.

In the absence of career opportunities, simple income transfers will generally not be a sufficient incentive to stay for most persons below the age of thirty (more or less)[30]. If only for understandable reasons of pride and self-esteem, most people want to feel that they are earning their income; most young people want to look forward to an interesting career. In this respect, Canadians are no different from Scandinavians or others. Which brings us back, yet again, to the location of jobs. Other factors such as language and insularity can also affect the propensity to migrate, and will be further discussed in chapter 9.

Conclusions

Predicting future trends is always hazardous. That being said, our conclusions may be summarized as follows:

1. Most peripheral regions will soon enter a phase of sustained population decline. Some have already entered this phase. The probability that the trend to population decline can be stopped or reversed is very low. Its irreversibility follows from: a) the continuing concentration of non-primary medium and high value-added employment in and around large cities (chapters 3 and 4);

b) the new limits on employment growth in primary sector and related processing activities; c) the impact of the demographic transition, meaning that henceforth net out-migration equals population decline.

2. The essential variable is migration. People will follow jobs. Out-migration is sensitive to *relative* shifts in job opportunities. Even if local conditions improve, this may not be sufficient to halt out-migration if conditions elsewhere improve more rapidly. Job opportunities will continue, on the whole, to shift in the direction of central regions.
3. The most "peripheral" locations will be the first affected and see the sharpest population declines. The Gaspé, Southern Nova Scotia, and Western Newfoundland have been losing population over the last decade. However, all regions will in time see a halt in population growth, and subsequent population decline. The process will be replicated within each region. Regional service centres, such as Moncton or Rimouski, will probably continue to have stable or even growing populations for a few more years (or decades) while that of more rural and more distant communities will already have begun their decline.
4. This should not, however, be interpreted as meaning the end of Canada's peripheral communities. Population decline does not necessarily mean disappearance. Economic activities continue to emerge and to evolve even in some of the remotest communities, but generally at employment levels below those of the past. All we know at the moment is that jobs and populations will, in all probability, decline in most communities. We cannot predict the levels at which jobs and populations will one day find a new equilibrium.

NOTES

[1] Source: *Le Devoir*, February 24th 2002, p. A5: "Alcan agrandira son usine d'Alma".

[2] Primary sector employment includes agriculture (farming), fishing, forestry, mining, and oil and gas exploration.

[3] This is one of the main reasons behind the collapse of iron ore mining on Quebec's North Shore, specifically the (whole or partial) closure of mining communities such as Schefferville and Gagnon.

[4] Here again, iron ore and thus also steel production have been among the first victims, faced with the competition of plastics, aluminium, and other new metals and alloys.

[5] For Quebec and Atlantic Canada, the total volume of cod caught fell from 398,000 metric tons in 1990 to 36,806 in 1998. Source: Beaudin (2001), table 9.

[6] Figures 5.3 and 5.4 are drawn from the same source: Pêches et Océans Canada, *Profils sectoriels. Région laurentienne*. Québec, Ministère des Pêches et Océans, Direction des politiques et de l'économie, novembre 2000.

[7] HACCP refers to Hazard Analysis and Critical Control Point. For more information on HACCP or the QMP, the reader is advised to consult the relevant websites:

http://www.inspection.gc.ca/english/ppc/psps/haccp/haccpe.shtml
http://www.inspection.gc.ca/english/anima/fispoi/qmp/qmppgqe.shtml.

[8] The number of lobster permits is strictly limited. They are highly sought after, sometimes giving rise to tensions, as was recently the case in Burnt Church, New Brunswick, which opposed Native and Non-native fishermen.

[9] Beaudin (2001), table 10.

[10] Chiefly in the Bay of Fundy, which lies outside our detailed study area.

[11] This, however, hides more dramatic swings for particular communities. On the Lower North Shore (east of Havre St. Pierre) the fish processing sector all but collapsed after 1990, following the fall of the ground fish.

[12] We have already referred to the production of chitosan, derived from shrimp residue, on the Gaspé Peninsula. A plant in Matane in turn extracts protein from shrimp residue.

[13] The recent announcement of the future re-opening (for 2003 or 2004) of the Gaspesia paper mill in Chandler (Gaspé Peninsula) follows a similar pattern. The re-opening is of course good news for the people of the region. The mill will switch from the production of newsprint to the production of high quality glossy paper, involving a capital investment of about $465 million. However, this also means that the new mill will be employing 264 workers, rather than 550 before. *La Presse*, December 18th, 2001, pp. 1-2.

[14] The decision to maintain the local smelter, despite the absence of local deposits (some of the copper is brought in from as far away as Chile), is in part explained by the importance of sunk costs and the high costs of building a new smelter. New environmental regulations have increased the start-up costs of copper smelting.

[15] These two regions are favoured because they also contain deep-sea harbours. The unrefined bauxite or alumina must be shipped in from Guyana, Jamaica, and other locations. All aluminium-smelting plants in Quebec are located close to harbours.

[16] In February 2002, the Quebec government announced the future expansion of the existing Alouette plant in Sept-Îles, plus additional expansion at the (ultra-modern) Alcan plant in Alma. However, this announcement caused some debate in the media, in part because of the implicit costs to the taxpayer (about $65,000 per job, per year, according to an editorial in *Le Devoir*, February 25th, 2002) and con-

cerns as to where the extra hydro-power would come from, and what this might mean for energy costs in general.

[17] See chapter 7.

[18] Source: Statistics Canada (on-line), CANSIM, table 052-0001, *Projected Population, and Families for Canada, the Provinces and Territories* – 3602 (Projection 2: medium-growth and medium inter-provincial migration). The results on figure 5.5 thus represent the medium scenario. The actual trends will (of course) not entirely adhere to this scenario; but this does not alter the basic validity of the overall pattern. Whether the population actually starts to decline in the year 2011 or the year 2012 is not what matters. What matters is that it *will* decline.

[19] Source: Institut de la Statistique du Québec (on-line), *Perspectives démographiques des régions administratives et des municipalités régionales de comté 1996-2041*. Mise à jour du scénario A de référence 2001: http://www.stat.gouv.qc.ca. The remarks in note 18 also apply to these projections.

[20] The question of labour mobility, specifically the impact of regional and cultural differences, is equally dealt with chapter 9.

[21] See chapter 3.

[22] For an economic explanation of why the young, everywhere, have a higher propensity to migrate, see Polèse 1994, 163-174. See also Dupuy et al. (2000) for an in-depth study of the migratory behaviour of the young in Canada.

[23] Sources for figures 5.9 and 5.10: Statistics Canada, *Revue chronologique de la population active* (CD1T30AN) for unemployment data; Institut de la Statistique du Québec (on-line), *Démographie*, 2001, for migration data.

[24] Part of the increase in out-migration might possibly be attributable to changes in the unemployment insurance programme. However, this would be a one shot impact, indicated by sudden break in out-migration numbers. It cannot explain the general pattern.

[25] For Atlantic Canada, the borders of "economic regions" as defined by Statistics Canada do not always reflect exactly those of our study regions. In those cases where there are differences we have altered the name of the region. See also the glossary of geographic terms. However, on the whole, with the exception of P.E.I. (which covers the whole province), the differences are not sufficient to invalidate comparisons between the two sets of data.

[26] There are at least two reasons for this: 1) the interference of seasonal employment; 2) high unemployment rates may actually reflect high labour demand in some cases, where high demand draws in migrants in search of work, thus raising the unemployment rate. It appears that that is partly what is happening in Madawaska County and Moncton. To that extent, figures 5.10 and 5.11 underestimate the actual pull of these two regions.

[27] For a more detailed description, see Anderson (1988) or Polèse (1994, pp. 161 ss.).

[28] Courchene (1970).

[29] See chapter 2.

[30] Also, regional differences in out-migration should not be attributed to federal transfer programs, including employment insurance, since such programs apply, by definition, across Canada.

Part 2

The Challenges Facing Peripheral Regions in Quebec and Atlantic Canada

In the previous chapters we have examined the spatial restructuring of the Canadian economy, and how that restructuring affects the relative evolution of what we have called "peripheral" and "central" regions. Although we have at times presented data for specific regions, our emphasis was on the underlying trends, and what they mean for the future of peripherally located regions in Canada. We have seen that the overall trends predict a continued concentration of employment and population in central regions, in and around major metropolitan areas. As population growth slows down in Canada as whole, this will mean population losses for most peripheral regions in the near future. But we have equally seen that major differences exist among regions.

The emphasis of the next five chapters is on a better understanding of the specific factors that explain differences in performance among the eleven peripheral (study) regions of Quebec and Atlantic Canada (the eleven study regions are presented in chapter 1; see map 1.1).

Each of the next four chapters will, in turn, examine certain aspects:

— *Chapter 6* looks at the impact of geography, specifically how geography affects transport costs and access to evolving markets.

— *Chapter 7* examines the issue of local entrepreneurship and how local conditions can affect entrepreneurial potential.

— *Chapter 8* looks more directly at the conditions that explain the apparent success of certain "peripherally" located communities, also drawing lessons from the Scandinavian experience.

— *Chapter 9* examines provincial differences, specifically the influence of provincial boundaries and why regions in some provinces apparently do better than others.

To conclude, *Chapter 10* attempts to draw conclusions for the future of peripheral regions in Quebec and Atlantic Canada, and ends by suggesting certain policy options.

CHAPTER 6

Some Regions Are More Peripheral than Others: The Growing Importance of Geography

In the previous chapters, we saw that regions defined as "peripheral" are, on average, growing more slowly than "central" regions; many peripheral regions will soon begin a phase of population decline. Employment continues, on the whole, to shift towards central regions, that is, regions with (or close to) a large metropolitan area. However, important differences exist between peripheral regions. The mere condition of being far from a large metropolitan area, although important, cannot explain everything. In this chapter, we shall begin our attempt to better understand differences in economic performance among peripheral regions, focusing on the eleven (study) regions located in Quebec and Atlantic Canada. Why are some regions doing better (or worse) than others?

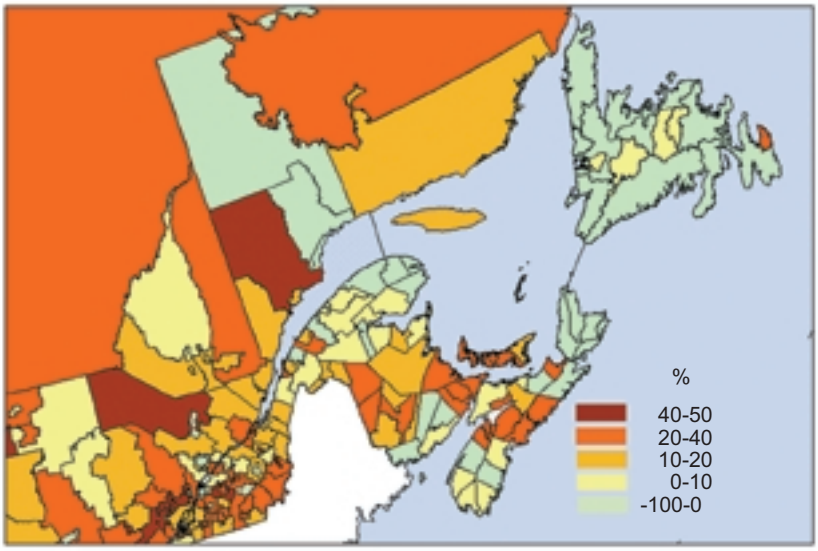
The emphasis in this chapter is on differences in geography and location, in particular on how they affect transport costs. As we saw in previous chapters, transport costs continue (and will continue) to have a major impact on industrial location decisions. New information technologies (IT) will not change this. Goods and merchandise must still be shipped, be it by road, rail, water or air. Businessmen, consultants, and salesmen must still travel. Geography will continue to matter in the new networked world[1]. We should, however, beware of geographic determinism. That being said, geography does help explain many of the observed differences in employment location and growth, as we shall now see.

6.1 A Brief Overview of Recent Spatial Shifts in Employment

Let us re-examine spatial trends in employment growth, especially for recent years. Map 6.1 shows results by census division for 1981-1996. The patterns are not always easy to interpret because of the small (initial) numbers in some census divisions, especially in more northerly locations, giving the impression of sharp increases or declines in employment. Some clear patterns nonetheless emerge. Most of Eastern Quebec south of the St. Lawrence River (beginning about 100 km east of Quebec City) shows below average and even declining employment growth, as do most of Newfoundland and parts of Nova Scotia[2] and New Brunswick. Declines are also visible in the Sept-Îles area, a reflection of the collapse of iron ore mining (and smelting). With that addition, the two other notable pockets of employment decline (among our eleven regions) are the Gaspé Peninsula and Western Newfoundland.

The growth patterns are equally revealing. A string of census divisions with average or above average employment growth is clearly visibly along a corridor going from Halifax to Edmunston, which roughly follows the Trans-Canada highway and the CN rail lines, a point to which we shall return shortly. The above average performance of P.E.I. suggests that it is also a beneficiary of this growth corridor. In Eastern Quebec, the two islands of growth correspond to two medium-sized urban centres, Rivière-du-Loup and Rimouski, and their surroundings. North of the St. Lawrence River, specifically in the Abitibi and Quebec North Shore regions, growth patterns are more erratic and localized (with high and lows), a reflection of the dependence of communities in these two regions on localized resource industries, specifically mining, or on one or two major employers. Excepting purely resource-based growth, two factors already appear to stand out: 1) it helps to be located on or near a major transport axis; 2) it helps to have or be near an urban centre, even a medium-sized one.

Figure 6.1 shows employment growth for the eleven study regions compared to the Canadian average for three time periods. Results below zero (0) mean that growth in the region was below the Canadian average (in proportion to the length of the bar). Regions are ranked, from left to right, on the basis of 1991-1996 results, from the fastest to the slowest growing region. Not surprisingly,



Map 6.1. Percentage Growth of Total Employment, Eastern Canada, 1981-1996

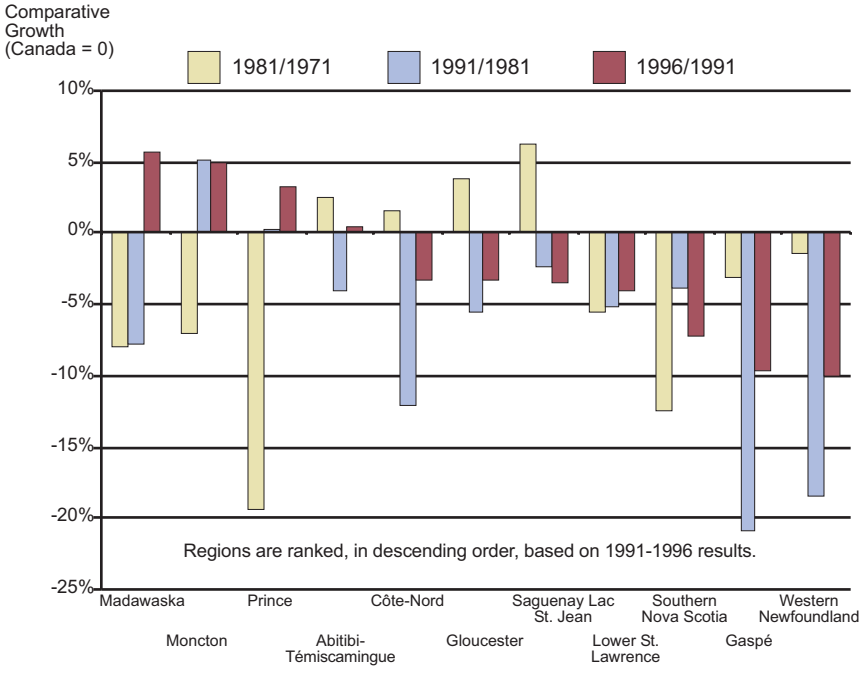


Figure 6.1. Employment Growth Compared to Canadian Average, 1971-1981, 1981-1991, 1991-1996: Selected Regions in Quebec and Atlantic Canada

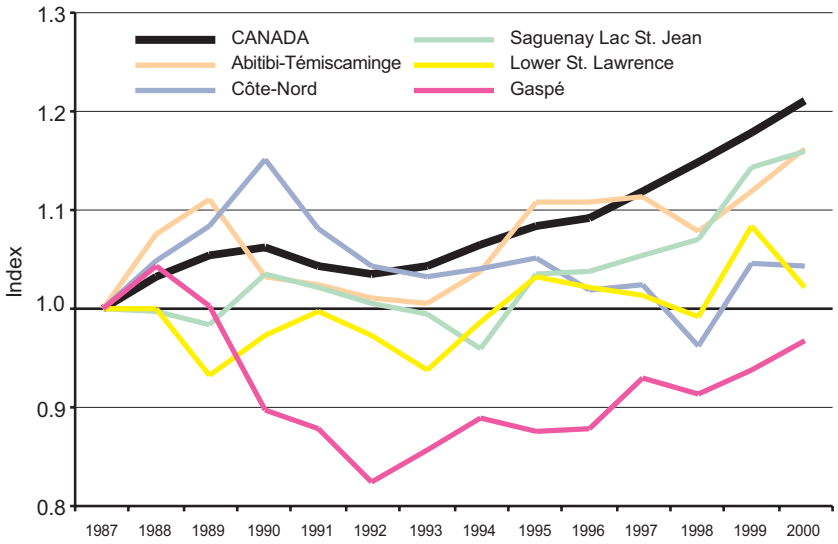


Figure 6.2. Employment Growth, 1987-2000: Five Quebec Economic Regions (1987 = 1.00)

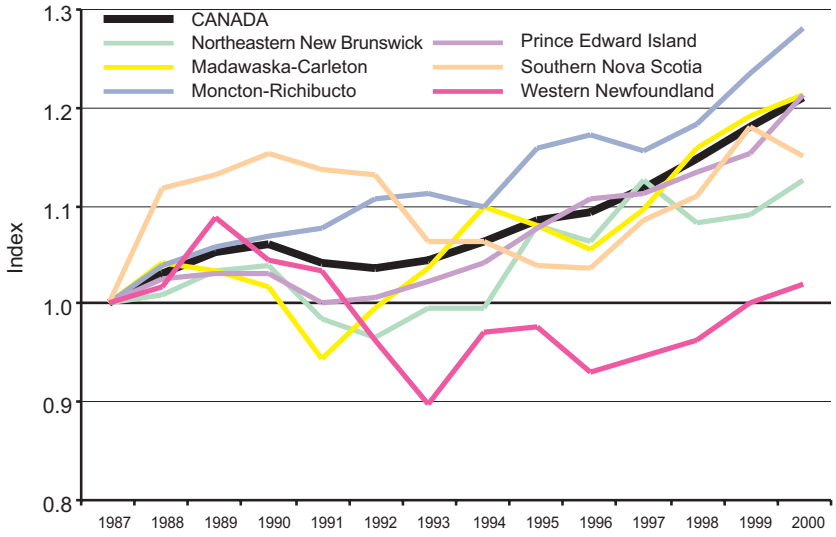


Figure 6.3. Employment Growth, 1987-2000: Six Atlantic Economic Regions (1987 = 1.00)

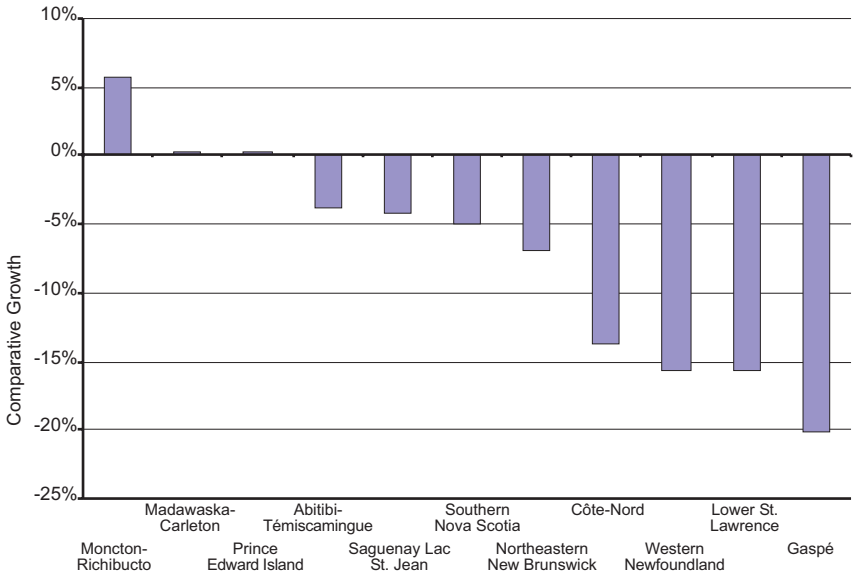


Figure 6.4. Employment Growth Compared to Canadian Average, 1987-2000 (Canada = 0): Quebec and Atlantic Economic Regions

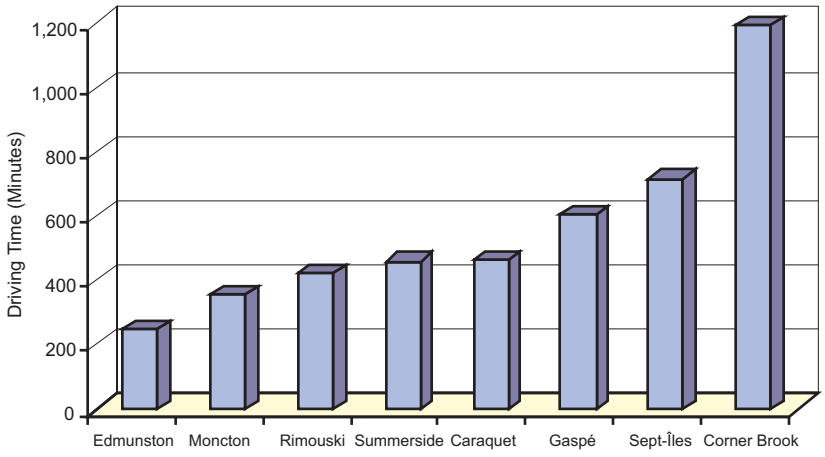
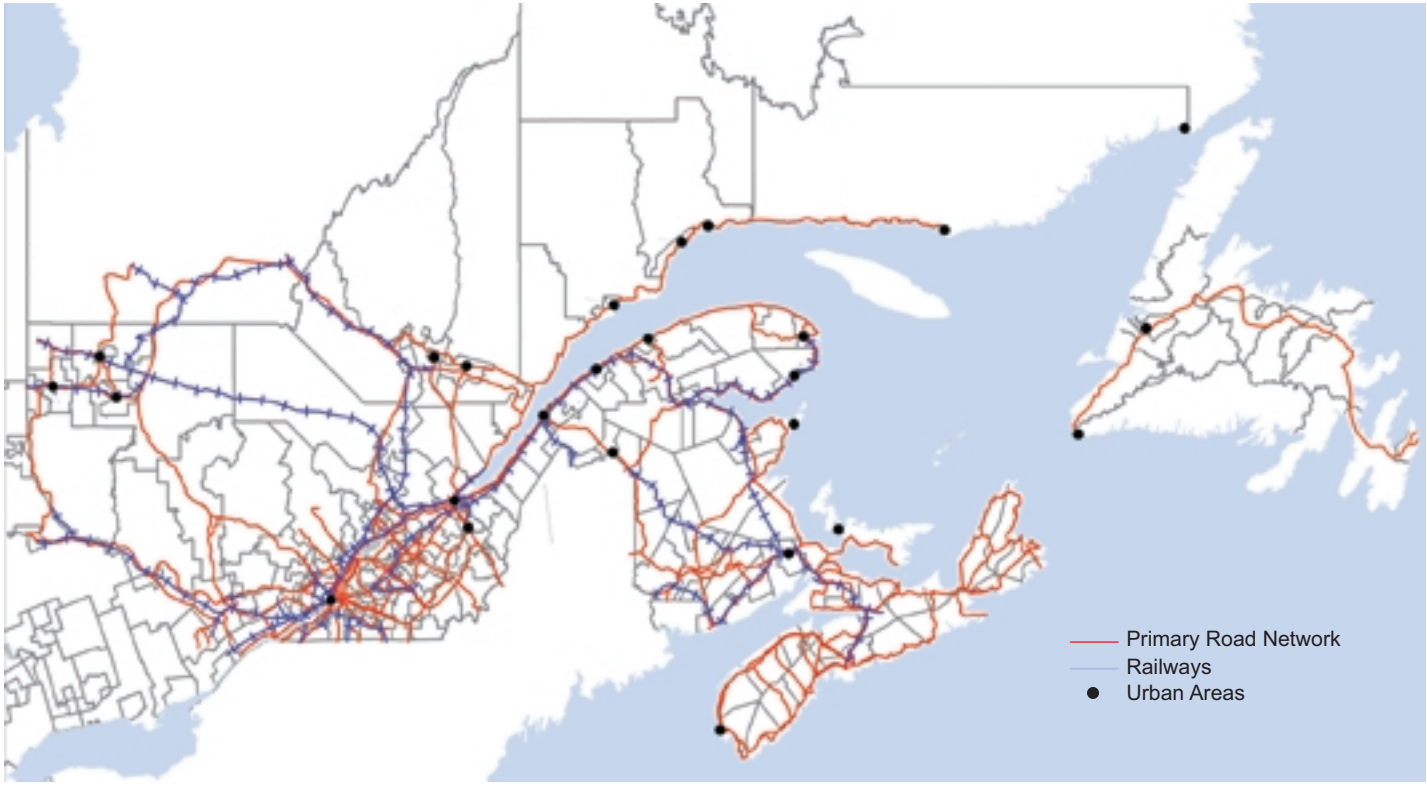


Figure 6.5. Approximate Driving Time from Bangor, Maine (in Minutes): Selected Cities in Quebec and Atlantic Canada



Map 6.2. Road and Transport Networks in Eastern Canada

most regions show growth rates below the Canadian average, indicating a *relative* shift in employment to other regions. The two worst performers are the Gaspé and Western Newfoundland, where employment growth falls systematically below the Canadian average over the whole period, followed by Southern Nova Scotia and the Lower St. Lawrence. The latter result is surprising given the attributes of the Lower St. Lawrence. We shall return to this case when we analyze more recent data below. Equally surprising is the apparent turn-around in the fortunes of the three star performers, Moncton, Madawaska, and Prince. All three have gone from below average to above average growth. By the same token, the Saguenay Lac St. Jean, Gloucester, and Quebec North Shore regions have gone from above average to below average performance since 1981. As we shall see, recent changes and geography are helpful in understanding these shifts. Let us now examine more recent trends.

Figures 6.2 and 6.3 show annual employment growth from 1987 to 2000 for eleven economic regions in Quebec and in Atlantic Canada, compared to Canada as a whole (line in bold). Let us recall that the boundaries of Economic Regions (defined by Statistics Canada) sometimes deviate from those of the eleven study regions, specifically for Madawaska, Gloucester and Prince, where Economic Regions cover a wider area. Not surprisingly, growth in all regions is more volatile than for Canada as a whole, with the most noticeable ups and downs in Quebec's North Shore, the Gaspé Peninsula, Western Newfoundland, and Southern Nova Scotia, among the most resource-dependent and least urban regions. The five Quebec regions do less well, in general, than the six Atlantic regions. We have seen that Quebec's peripheral regions have, on the whole, been less successful in diversifying their economies (chapter 4). However, the two worst performers are, again, the Gaspé Peninsula and Western Newfoundland, with growth rates well below the national average, a continuation of a long-term trend noted on figure 6.1. At the other end of the spectrum, the superior performance of Moncton (and its surrounding counties) is confirmed. It is the only region that has systematically maintained a growth rate above the national average since 1987[3]. Both P.E.I. and North-western New Brunswick (which includes Madawaska County) have growth patterns close to the national average, suggesting that the turn-around (since about 1990) is continuing.

Figure 6.4 summarizes these recent growth patterns for the eleven regions. Not surprisingly, most regions continue to show below average growth. As expected, Moncton (including its surrounding counties) is the only region that has managed to significantly increase its share of Canadian employment since 1987, followed by slight increases for P.E.I. and North-western New Brunswick. The results at the bottom end of the scale are more difficult to explain. As noted earlier, finding the Lower St. Lawrence in the second lowest position is surprising given its location and geography. The Lower St. Lawrence region harbours two medium sized-cities, including Rimouski with a university and good institutional base. Its western part, with Rivière-du-Loup, is located on the Halifax-Montreal transport corridor, an extension of the Maritime "growth" corridor referred to earlier, with a direct highway link to Quebec City[4]. The Lower St. Lawrence is probably the least peripheral of our eleven "peripheral" study regions. That its performance on this index places it in approximately the same position as Western Newfoundland, which has none of the above advantages, is proof that simple geography cannot explain everything[5]. On the basis of its location on the map, the Lower St. Lawrence region should have faired better. Geography is, however, an important factor in explaining the apparent success of Moncton, as we shall now see.

6.2 The Importance of Geography for Central Place Functions

We have at various occasions noted the rise of Moncton as a regional service centre. This transformation goes a long way in explaining its success in maintaining a high rate of employment growth, despite major job losses during the 1970's and 1980's[6]. Services, especially producer services, are the major engines of employment growth in modern economies. Moncton's rise as a central place owes much to geography[7]. Indeed, Moncton's initial prosperity has its roots in its role as a rail hub for the Maritimes. For a city to become a central place (a service centre), it must, as the very name dictates, be at the *centre* of something. A central place cannot develop without a catchment area, without a local market; that is, without surrounding inhabited regions which it can service. A look at map 6.2 reveals that Moncton is strategically located in the Mari-

times, at the confluence of all three provinces. Visibly Moncton has the most central location in the Maritimes for the marketing and distribution of goods. Indeed, its location is more geographically central than that of Halifax, the largest urban centre in the Maritimes. The recent completion of the fixed link with P.E.I. (the bridge, which opened to traffic on 31st May 1997) has reinforced Moncton's location advantage as a central place.

Other factors have also contributed to its rise as a regional service centre. Added to its central location, the fact that Moncton is (a) *not* a provincial capital and (b) has a good supply of bilingual workers makes it a good neutral ground to locate various Maritime wide (and Atlantic) institutions. The regional head offices of ACOA and the regional lottery are examples. Although the Maritimes do not have a large French-speaking population (about 15% of total), that population must nonetheless be serviced in its language, giving Moncton an advantage for firms wishing to service the entire region. Bilingualism has also been a major factor in the development of call centres, often for servicing all of Canada. Few other cities in Canada of similar size (i.e. with comparably low wages) can offer a comparable bilingual labour force. The comparison with Chicoutimi is not difficult to make. The presence of a significant French-speaking (Acadian) population has also had another positive effect. With its French-language university, regional studios of Radio-Canada, and other institutions, the Moncton CMA has evolved into a cultural and commercial centre of l'*Acadie*. Its role as a central place for a linguistic community has allowed it to attract certain institutions and has probably made it more attractive to knowledge workers, although admittedly at a small scale when compared to cultural capitals such as Montreal or Toronto[8].

Let us return to more directly geographic considerations. We have seen that Moncton, its surrounding counties, and neighbouring Prince County in P.E.I. have also been more successful than others in diversifying their economies and in attracting medium and high value-added industries (chapter 4). Producer services and industrial diversification generally go together. We have often noted the importance of the proximity of a major service centre. Moncton does not stand alone. Moncton is located at the core of a regional urban sub-system of small and medium-sized towns, some with university institutions, notably the University of P.E.I. at Charlottetown and Mount Allison University at Sackville. None of these are very far.

Even Halifax with numerous research institutes and institutions of higher learning is not that far. In other words, a small but nonetheless apparently dynamic network of interrelated cities has developed in this part of Atlantic Canada. Prince County in P.E.I. is part of that network. With the new fixed link, Summerside about an hour's drive from Moncton.

This geography is very different from that of Chicoutimi, the only other urban area of comparable size in our study sample. We have already noted that the Saguenay Lac St. Jean region has been less successful in diversifying its industrial base (chapter 4). It may also be that part of the problem lies in Chicoutimi's location, which makes it difficult to expand its service area beyond that of its traditional captive hinterland. No potential inhabited hinterland exists for which it could act as a hub (rail, road, or air) or as a distribution and marketing centre. In other words, the expansion of Chicoutimi's service employment base is almost wholly dependent on the prosperity of its traditional catchment area, whose contours are largely defined by geography. Quebec's North Shore, which might have fallen within its commercial influence sphere, is too far and poorly linked. Expansion to the south or to the east is blocked by the commercial dominance of Quebec City. Indeed, the relative proximity of the provincial capital, which might have been an advantage under other circumstances, means that Chicoutimi will continue to develop within the commercial shadow of Quebec City and even Montreal for many of the most advanced services.

Rimouski on the Lower St. Lawrence is more advantageously located as a central place, which in part explains why it ranks fairly high on the relative concentration of specialized services (chapter 3, figures 3.8 and 3.9) despite its smaller population. Rimouski is the natural point of entry for the Gaspé Peninsula and also fulfills certain central place functions for Quebec's North Shore because of ferry and air links and labour migration between the two shores. It is the chief institutional city in Quebec east of Quebec City, with a high concentration of provincial and federal civil servants, plus the only university in the east of the province. The relatively poor performance of the Lower St. Lawrence region is all the more surprising. Unlike Moncton, Rimouski's role as a central place has not, it appears, sparked an equivalent movement of industrial development. Part of the answer may lie in the relative dispersion and small

population of Rimouski's hinterland. Unlike Moncton, Rimouski is not a hub location for a market of some half a million consumers[9]. Other factors are also at play, one of which is the city's location on a major transport axis, a point to which we shall now turn.

6.3 The Importance of Being Located on a Major Transport Axis

Earlier in this chapter, we noted the apparent (positive) impact of a location along the Halifax-Montreal (Trans-Canada) transport axis, large portions of which are connected by four lane highways, plus an active rail link. A parallel (less dense) transport axis, equally with roads and rail links, runs north of Moncton, passing through Bathurst, eventually connecting with Rimouski. Transportation services are sensitive to economies of scale; the greater the volume the lower the unit costs. The implications of this are threefold:

a) Location on a major transport axis means greater volume, which in turn means lower unit costs (say, per ton-kilometre), more competition, and a greater diversity of services. Differences in volume between locations can be considerable. Thus, between Montreal and St. Hyacinthe on the Trans-Canada highway, the daily registered level of truck traffic (for vehicles with more than one unit) was 6,284 crossings, compared to 174 daily crossings on route 132 between Matane and Sainte-Anne-des-Monts on the Gaspé Peninsula[10]. Obviously, competition and diversity will be greater, and unit costs probably lower, in St. Hyacinthe than in Sainte-Anne-des-Monts. Volume also allows unit costs to fall by ensuring two-way traffic, permitting rail cars or trucks to fill up in both directions. The lower the level of volume the more difficult it is to maintain balanced two-way traffic. In addition, for regions dependent on the export of bulky (heavy) goods, the relative weigh (or bulk) of goods shipped in each direction can be a source of traffic imbalance. Thus, according to some estimates[11], the total volume of industrial goods shipped out of the Lower St. Lawrence region in 1996 was 3,2 million metric tons (mostly lumber, paper, and peat) compared to 1,5 million metric tons for in-coming shipments.

b) If volume is insufficient or traffic not sufficiently balanced, it may simply become impossible to maintain certain infrastructures, specifically capital-intensive infrastructures such as rail lines and fully equipped harbours. In localities that are not located on a major transport axis, the profitability (and thus maintenance) of such infrastructures will depend wholly on locally generated traffic. The closing of one mine or plant can put an infrastructure at risk, in turn raising transport costs for other firms. This is exactly what appears to be happening on the south shore of the Gaspé Peninsula, where the closing of the Murdochville copper mine (and its smelter) and the Gaspesia paper mill at Chandler has put the local rail link at risk, as well as reducing maritime traffic. In this case, as well as similar cases elsewhere, it is not surprising that the private sector has remained wary about financing or taking over (publicly owned) infrastructures. Dispersed populations and low volumes have, in some cases, led to the abandonment of existing infrastructures: rail lines in the Northern Abitibi, Southern Nova Scotia, and Newfoundland. In other cases, rail links were never built: Quebec's North Shore and the northern shore of the Gaspé Peninsula east of Matane. The Lower North Shore of Quebec east of Natashquan lacks a road link.

c) Low volume will often mean a lower quality and range of transport services. For example, an entrepreneur wishing to sell local dairy products in urban markets will need to count on scheduled runs of refrigerated trucks. In a low density region with little two-way traffic (for example, the North-western agricultural Témiscamingue region of Quebec), such a specialized service may not be automatically forthcoming[12]. The more fragile, perishable, and customized the product, the greater will be the reliance on specialized transport services. The unavailability or unreliability of the service will translate not only into higher direct monetary costs, but also into the cost of time lost (in looking for or negotiating better services) and potential markets lost.

Given the link between traffic volume and transport costs and quality, the importance of geography is not difficult to understand. Some regions are indeed more peripheral than others. This, when added to the impact of deregulation (and, in turn, privatization) can have dramatic effects. Thus, in the case of Southern Nova Scotia, the merchandise ferry service to New England has been abandoned,

meaning that fresh lobster and other products must now take the longer land route via New Brunswick.

Geography affects transport costs in other ways. Regions with no direct land links, requiring changes in transport modes (truck to ferry or rail to ferry), face both higher direct transport costs and higher costs in terms of time lost. This clearly puts Newfoundland and the North Shore of Quebec at a disadvantage, compared to other regions. The importance of volume for transport costs also means that regions that are located at the end of the line, so to speak, are at a disadvantage, compared to other regions. With the exception of the Lower St. Lawrence (specifically, its western extension around Rivière-du-Loup), all Quebec regions are more or less dead-end locations from a transport perspective. The Gaspé is a peninsula. The North Shore's route 138 ends at Natashquan, as noted earlier. The area north of the Saguenay Lac St. Jean region is largely uninhabited, with all due respect to Native communities. The position of Abitibi-Témiscamingue is similar, although its road links with Northern Ontario and connection to the northern alternative of the Trans-Canada highway makes it less a true dead-end location.

Northern Quebec and Labrador will, of course, continue to be developed; but it is unlikely in most cases that this can generate sufficient traffic to significantly alter the peripheral semi dead-end condition (from a transport perspective) of the three Quebec regions north of the St. Lawrence River. All three regions, plus the Gaspé Peninsula and Western Newfoundland, are doubly challenged: not only are transport costs high because of distance, but unit transport costs (including quality considerations) may also be higher because of lower volume and a more limited range of transport modes. Plainly, geography has not been kind to these regions, at least not from a transport perspective. This undoubtedly plays a role in explaining why these regions have, on the whole, performed less well than other peripheral regions. As we shall now see, the impact of geography will probably be even greater in the future

6.4 The Return of Geography: NAFTA, Deregulation, and Globalization

Recent developments have decreased the capacity of states to influence trade flows. Trade flows are increasingly determined by com-

parative advantage, including geography, and less and less so by regulations, subsidies, and national borders (tariffs and other trade barriers). The evolution in the Canadian case is clear. Regulations and subsidy schemes aimed at developing the national market and east-west trade have been dismantled. Rail and air transport services have been privatized and subsidies reduced. The Federal government is increasingly transferring the management of harbours and airports to the private sector or to local consortia. The signing of the North American Free Trade Agreement (NAFTA) has meant an ever lessening of trade barriers with the United States. Other agreements in the framework of the World Trade Organization (WTO) go in the same direction. The results are not difficult to deduce: an ever-greater share of Canada's production is exported to U.S. markets. Today Quebec exports more to USA than to other Canadian provinces, and the trend for Atlantic Canada is very similar.

North-south flows are replacing what some would say were artificially created east-west flows. These new trade patterns are changing the relative locational advantage of regions. "Natural" trading patterns are re-emerging. It is geography that is increasingly determining the direction of trade, rather than public policy. This changes what it means to be peripheral, defined in terms of proximity to markets. Being "peripheral" is increasingly perceived in terms of relative distance from U.S. markets rather than from Canadian markets. For most firms that seek to expand beyond their home regions, the ultimate (or even primary) objective is increasingly the U.S. market[13]. In this new game, not all our regions are equally well positioned. A rapid glance at any map of North America reveals that all of our eleven regions are poorly located for serving core U.S. markets. Southern Ontario and South-eastern Quebec have a clear cost advantage for serving U.S. markets. This is an additional factor driving the concentration of economic activity in and around the greater Montreal and Toronto areas.

Let us take a closer look at our eleven study regions in terms of their potential for serving U.S. markets. The important criterion is the *relative* location of a region, compared to others. Again, some regions are more peripheral than others. Figure 6.5 gives the approximate driving time to Bangor, Maine[14], for selected cities in the nine most easterly regions[15]. Unsurprisingly, Edmunston in Madawaska County and Moncton are the two favoured "peripheral" loca-

tions. This is undoubtedly a factor in their positive performance. Not only are these two regions located on the Halifax-Montreal axis (thus well located for east-west trade) but they are also well located for trade with the U.S. It is interesting to note that Summerside (P.E.I.) is not that "peripheral", at least not when compared to Gaspé, Sept-Îles, or Corner Brook. Indeed, we were somewhat surprised to discover during our visit to P.E.I. that most persons did not perceive Prince County as being far from U.S. markets. New England was perceived as their natural market.

The *relative* nature of location is best understood by looking at the three Maritime Provinces relative to the Windsor-Quebec City corridor (the core of the Canadian market) *compared* to New England and the Boston-New York corridor. The three Maritime Provinces are better positioned for trade with New England and New York than for east-west trade with the Canadian heartland. Their transport disadvantage within Canada has been a grievance since the origins of Confederation, and was one of the motivations behind the construction (and subsequent subsidization) of transport links with the rest of Canada. One of the (perhaps unintended) consequences of NAFTA and deregulation has, in essence, been to "liberate" the Maritime Provinces, allowing them to trade more with their natural partners, while reducing their dependence on Canadian markets for which they are less well located. In this respect, NAFTA has probably *improved* the relative location of the Maritime Provinces. By the same token, the abolition in 1995 of long-standing federal subsidies for the transport of goods (to *Canadian* markets) from points east of Lévis, Quebec, probably had less effect on Maritime producers, although there is some debate in this issue[16].

The situation for most Quebec regions is almost the opposite, notably for the Abitibi-Témiscamingue and Saguenay Lac St. Jean regions. Both are as well situated for trade with the rest of Canada as for trade with the U.S. (if not better). It can be argued that NAFTA has, globally, accentuated the peripheral character of Quebec's five peripheral regions[17]. None of Quebec's peripheral regions is well located for trade with the United States, that is, not *relative* to the others. Even if Madawaska County, located to the north of Maine, is obviously peripheral seen from New York, the Lower St. Lawrence, the Gaspé and the North Shore are even further. To serve U.S. markets, why locate a plant in the Gaspé if it is equally

possible to locate it in Madawaska County? A location in the Gaspé or on the North Shore will be profitable only if there is a cost advantage to offset the additional transport cost. As we shall see in chapter 9, there is little evidence of such a cost advantage.

Conclusions

1. Differences in geography and location play a major role in explaining difference in performance among peripheral regions. The above average performance of Moncton and its surrounding counties owes much to geography, specifically Moncton's hub location at the heart of the Maritime region. The fixed link with P.E.I. reinforces Moncton's position as a regional service centre with a large catchment area. Moncton is also the only urban centre (of comparable size) with a supply of bilingual labour. Its position as a cultural centre of the Acadian community has probably also been a positive factor, as has the proximity of other small and medium-sized cities with institutions of higher learning. Moncton's location on the Halifax-Montreal transport corridor and its relative accessibility to U.S. markets are additional positive factors. This is a unique combination of conditions, which is difficult to replicate.
2. Some regions are more peripheral than others. Some are further from major markets than others. Geography will often exacerbate this disadvantage, specifically as it affects transport costs. Transport costs are sensitive to economies of scale. The lower volume of traffic in distant and sparsely populated areas often means higher unit transport costs and a lower quality of service. Communities in dead-end locations, with little through traffic, are particularly handicapped. All northerly Quebec regions, plus the Gaspé Peninsula and Western Newfoundland, find themselves in this situation to some extent. In some cases, insufficient volume has made it impossible to build or maintain basic infrastructures such as rail lines. The most distant regions are doubly challenged: transport costs are higher because of distance; but in addition, transport costs are amplified due to lack of volume. Unless distance costs are offset by cost advantages elsewhere, few industries outside the resource sector will find it profitable to locate in these regions. This goes a long way in ex-

plaining why most Quebec peripheral regions, as well as Western Newfoundland, have found it so difficult to diversify their industrial base.

3. Recent developments, notably NAFTA and deregulation, increase the weight of geography. The re-emergence of "natural" north-south trade links accentuates the peripheral character of those regions (specifically, the most northerly) located at the greatest distance from U.S. markets. This is not necessarily good news for peripheral regions of Quebec situated north of the St. Lawrence, nor for the Gaspé Peninsula. On the other hand, the strengthening of trade links with the U.S. is a positive development for the three Maritime Provinces. In *relative* terms, they are better located for trade with New England than for trade with Central Canada. Relative proximity to U.S. markets is also a positive factor in the performance of Madawaska and adjoining counties.
4. Geography does not explain everything. Geography alone does not explain the below average performance of the Lower St. Lawrence, especially when compared with neighbouring Madawaska. Nor does geography alone explain the generally good performance of P.E.I., including Prince County, which has managed to build a diversified industrial base with medium and high value-added manufacturing activities. Nor does geography alone explain why the Gaspé systematically scores so low on various measures (unemployment, relative employment shift, diversification, etc.), often even below Western Newfoundland. Other factors are equally at play, which will be further explored in the following chapters.

NOTES

[1] See chapter 3 for a more in depth analysis of the impact of IT on industrial location.

[2] Employment declines are clearly visible on Cape Breton Island. However, Cape Breton is not part of our study sample.

[3] The slow growth rates observed in and around Saint John (map 6.1) suggest that part of Moncton's growth may be taking place at the expense of South-western New Brunswick, as the province's economy appears to increasingly coalesce around the Moncton-Edmundston corridor.

[4] Recall that the town of La Pocatière with a major Bombardier plant (railway and subway cars) falls in this region. The results on figure 6.2 are thus all the more surprising.

[5] Its "political" geography is, however, of some importance. Its location in Quebec on the New Brunswick boundary is a factor in understanding its underperformance, as we shall attempt to explain in chapter 9.

[6] For a detailed description of Moncton's transformation see Desjardins (2001). See also chapter 8, where Moncton is compared to certain Nordic cities.

[7] The concept of "central place" is further explained in chapter 2.

[8] Moncton has the highest proportion of university graduates among our eleven regions. See figure 10.3 in chapter 10.

[9] Estimating comparative markets is very difficult. The range will vary according to the service or product. If we assume that Moncton is indeed a hub location for all of the Maritimes for some functions then its market potential can go as high as two million.

[10] 1993 figures. Source: Paquin (1999).

[11] Paquin (1999).

[12] This is a real case. Insufficient trucking services are one of the main obstacles faced by speciality producers (berries, cheeses, chocolate) in the Témiscamingue area who wish to penetrate the Ottawa or Montreal markets.

[13] This came out clearly during our regional visits.

[14] Bangor was chosen because of its location on highway (Interstate) 95, leading directly to Boston and all points south and west. Source: MapArt, *Atlantic Canada Road Atlas: Atlantic Provinces Distances Map*. MapArt Publishing Corporation, Oshawa, Ontario, 2001.

[15] Yarmouth was not included because of the availability of ferry services, although not necessarily for merchandise.

[16] Persons met in Southern Nova Scotia were especially critical, perhaps due in part to the loss of their ferry merchandise service, although the link between the two events is not necessarily clear. The total value of the subsidy was $110 million in 1992, of which 37% went to New Brunswick, 26% to Nova Scotia, and 24% to Quebec. Source: Lupien (2000).

[17] A comparison with Mexico is instructive. In a recent World Bank sponsored survey of 862 Mexican manufacturing firms, three factors systematically stood out as determinants of plant location: 1) proximity to markets, meaning chiefly U.S. markets; 2) transport costs; 3) computer literacy and knowledge of English of the local labour force. Southern states are becoming increasingly "peripheral" as Mexico's economic centre of gravity shifts north, closer to the U.S. The answer for language is significant. If transposed to Canada, this further accentuates the *relative* disadvantage of Quebec regions, compared to other regions that trade with the U.S. Source: World Bank (2001).

CHAPTER 7

Local Entrepreneurship and Location

In this chapter we will focus upon entrepreneurship in the specific peripheral regions that have been selected for detailed study in this report. We will begin by briefly outlining the reasons why entrepreneurship is a key activity which merits a chapter unto itself. The second section will provide examples of entrepreneurial and innovative activity in each of the regions visited. Although each example will be brief, it is important to underscore the fact that there is no lack of innovation and entrepreneurship in peripheral regions.

The third section will turn to the barriers to entrepreneurship in peripheral regions: indeed, whilst new business opportunities are seized by imaginative business people, they face considerable challenges in developing their companies locally. This section will draw upon the discussions held in focus groups and with local business people in each of the eleven regions visited.

The fourth section will focus upon a specific barrier to entrepreneurship faced in some regions, that of the "intrusive rentier". Here we will use data to show the effect on local earnings of the presence of large high paying plants such as paper mills, mines or smelters.

In the fifth section the various factors identified in the third section as barriers to entrepreneurship will be analysed geographically: it will be seen that in almost each case these barriers are reduced the closer one is located to a metropolitan area.

To conclude this chapter we will examine to what extent these various factors operate in the eleven regions highlighted in this report, and will comment upon the likely effectiveness of policies aimed at local economic development based upon the stimulation of local entrepreneurship and community activity.

7.1 Entrepreneurship and Innovation

It is often taken for granted that entrepreneurship is a key ingredient of economic development and growth. It is worth reminding ourselves of the reasons for this. The economy is changing rapidly: the combination of globalization (the opening of new markets, and the arrival of new competitors) and technological change (which also creates new opportunities and new competition) require that each company and each region adapt. This adaptation requires the identification of new markets for existing products, and the invention of new processes and new products. Existing markets are no longer secure, as clients have increasing choice. For a region this means that economic development necessarily requires the local presence of individuals and companies capable of reacting rapidly to these changes and of innovating. Although many existing companies are flexible enough to adapt, a key ingredient for regional success identified by economists is the possibility for individuals to seize opportunities and create new companies. This is the process of entrepreneurship, which basically involves two things: an idea for a new product, service or process for which demand exists, and the translation of this idea into a marketable item.

We will see that the first ingredient is present in each of the regions we have visited: examples of new ideas will be given in the following section. It is the second ingredient, access to markets, which causes problems – we will turn to this in the third section.

It should be emphasised that a number of the points covered in this chapter have been raised earlier: but whereas the earlier chapters have focussed upon general trends and economic theory, this chapter is based upon information derived from discussions with local actors. The fact that general trends, economic theory and local actors all lead one to similar observations regarding entrepreneurship in peripheral regions adds credence to these observations.

7.2 Examples of Entrepreneurship and Innovation in Peripheral Regions

The overwhelming flow of innovations and ideas from metropolitan and surrounding areas such as San Francisco, Boston, Tokyo, Munich, Montreal and Toronto sometimes leads to the impression that almost all innovation occurs in large cities (see chapter 2). There is

no denying that such regions are key nodes in innovation networks, but this can blind us to the innovations occurring outside these regions. Innovations in more peripheral areas can be overlooked for two reasons. First, they often occur within traditional industries. Second there are less of them, if only because there are far fewer people and companies in peripheral areas. For this reason we wish to highlight some of the innovative activity in the regions we have studied. For the sake of brevity this will be presented in tabular form (table 7.1).

Table 7.1[1] highlights some of the innovative activity of which we were made aware in each region. We have concentrated on innovative products and processes. However, each entrepreneur that we met was innovative in the sense that solutions had been found to transportation problems, information gathering and marketing. In terms of transportation, the imaginative use of trucks returning empty from deliveries to dominant local companies permitted a number of small companies to overcome some of the direct costs of distance outlined in chapter 6. Information gathering – on markets, clients, competitors – is often performed by way of travelling sales staff, employees in key markets (such as Montreal), or regular travel by the entrepreneur to visit clients and trade shows. A key tool for this function is Internet: whilst it does not provide entrepreneurs in peripheral regions with any advantage over entrepreneurs in more central locations (see chapter 3), the lack of access to a good Internet connection can be a major competitive disadvantage.

These specific examples should not blind us to the major hurdles faced by entrepreneurs in peripheral regions. Despite the many new ideas, and the many small firms starting up to exploit new niches, nearly every entrepreneur recognised that his or her company faced considerable obstacles. These hurdles were *not* linked to the identification of new ideas or niches: they nearly all related to the creation and growth of a small company once an opportunity has been identified. We will now turn to these hurdles.

7.3 Barriers to Entrepreneurship in Peripheral Areas

A series of barriers to entrepreneurship were systematically identified by entrepreneurs in the regions visited. Of course, some barriers are specific to some of the regions visited, but only those high-

Table 7.1. Examples of Innovative Activity in Eastern Peripheral Regions

Region	*Examples of Innovative Activity*
Abitibi-Témiscamingue	Mining techniques and technology; growth of mining consultancy; beginnings of exploitation of new agricultural/food resources (bottled water, biological farming…)
Saguenay Lac St. Jean	Development of new joining technology for high tensile wooden beams; new technique for adding value to previously underexploited type of wood
Côte-Nord	Mining consultancy; growing civil engineering consultancy; new cutting techniques for high-end wood products
Lower St. Lawrence East	Development of process to extract three distinct products from shrimp waste; development of technique for rapid access to internet course content; development of new geographic information techniques in partnership with local telephone company
Gaspésie	Industrial extraction of kytosane from shrimp waste; beginnings of biological farming, niche products; development of new pharmaceutical product for headaches
Madawaska	Furniture industry; geographic information services
Acadian Peninsula	Successful development of aquaculture techniques adapted to local waters; environmental engineering; geomatics
Southern Nova Scotia	Conversion of fishing vessels to leisure craft (US market); film production facilities and training
Prince (P.E.I.)	Successful development of aquaculture techniques adapted to local waters; development of international servicing facility for aircraft; new teleconferencing software
Moncton	Growth of multi-lingual answering service industry; advanced food-processing facilities
Western Newfoundland	High value added berry products sold on-line

lighted in at least two regions will be mentioned below: in other words, any barrier specific to a particular region has been excluded from our analysis.

There are two principal barriers to successful entrepreneurship in peripheral regions: distance from markets and workforce limitations. Each of these can be further divided: distance from markets is a problem because of distance from suppliers and because of distance from clients. The limits to growth imposed by the workforce are due to lack of qualified workers and to various institutional and cultural factors.

In this section we will briefly describe each of these. It should be emphasised that we are reporting information conveyed to us during focus groups and local visits and that, whilst this information is, on the whole, compatible with a more theoretical economic analysis (see part 1 of the report), it has not been derived that way[2].

Despite the barriers outlined below, there are many examples of successful entrepreneurship in the regions which we visited: paradoxically, it is often the successful entrepreneurs who are most acutely aware of the disadvantages linked to their location, and who suggest that full exploitation of the market they are in would require expansion in a more central location. We will return to this paradox in the conclusion of this chapter.

Distance from Markets

Under this heading we include two types of market: that for inputs to the production process, and that for outputs. Underlying the problem of distance to both types of market are three factors: transport costs (time, money), variety, and learning processes. We will begin by outlining the problems posed by distance from suppliers.

Distance from Suppliers

It is often assumed that in "traditional" sectors – particularly those relying on inputs derived from natural resources – location in a peripheral region should be an advantage. In a limited number of cases this is true: for example the making of two by fours is often easier close to the supply of wood. But in an entrepreneurial context where innovation is the key, the mere supply of a single raw input is rarely of great advantage. One of the few exceptions of note which we

came across was the innovative process linked to the extraction of high value-added produce from a bulky waste product (such as shrimp waste – see chapters 3 and 4).

In general, though, innovation in traditional (and in most other) industries calls upon a variety of inputs (including capital). For example, as has been pointed out in chapter 5, the making of new types of wood panel often requires different types of wood on the outside (for example hardwood) and on the inside (e.g. compressed softwood chips). Whereas softwood chips are a by-product of traditional forestry and wood operations easily available in many peripheral regions, the same is not true for the hardwood exterior, which must be shipped in from a variety of international sources. In such an example, the innovative entrepreneur will tend to locate at a point of good access to both inputs: the wood chips can easily be trucked to metropolitan areas, and the supply of hardwood can be trucked, railed, flown or shipped in from across the world to the same city, which, by definition, is located at the intersection of air, road, rail and often maritime transport routes.

This example can be generalized: as soon as a new product or process requires a variety of inputs accessible from a variety of locations, it is access to *all* inputs which is important. Often, the point of maximum access to a wide variety of inputs is close to a metropolitan area. The nature of niche markets, markets dependent on new techniques, new materials, or new combinations of traditional materials is that they require a mixture of inputs most often only available in a central location.

Apart from the cost and variety argument which has just been outlined, distance from suppliers – particularly in innovative or entrepreneurial situations – has another disadvantage: contact between the supplier and the entrepreneur is more difficult. Frequent interaction between the entrepreneur and the supplier can lead to a learning process for both parties which can eventually lead to a better input and better production processes as each learns the requirements, possibilities and limits of the other's activity. The difficulty of interactive learning between entrepreneur and supplier if both are separated by a long distance is a further barrier to the development of new companies in peripheral regions[3].

Thus, distance from suppliers in peripheral regions is a handicap for innovative entrepreneurial activity as soon as a variety of inputs

from different locations are required, and as soon as particular specifications are required for an input from a distant location.

Distance from Clients

Distance from clients is often cited as a problem for a number of reasons. These reasons are similar to those which concern distance from suppliers.

In order to launch a new product – particularly an innovative niche product – a large local market is of great advantage. The probability of finding a large enough number of clients locally is directly proportional to the size and variety of the local potential clientele. The importance of a local clientele in this context is one of transport and marketing costs. The provision of samples, the rapid delivery of goods or services – all are easier when the clients are nearby. This is true even if international markets are the prime objective since an international clientele is accessible from a metropolitan area with direct international flights more easily than from an outlying region.

In the same way that entrepreneurs may benefit from interaction with their suppliers, they also benefit from frequent contact with their clients. Such contact provides crucial feedback which can enhance the innovation process and the adaptation of their product or service to each market.

Workforce Limitations

The other principal problem which was repeatedly raised by entrepreneurs in the regions studied is that of the local workforce. Whilst in some cases a peripheral location can be an advantage – particularly with respect to the low turnover of workers – in a context of innovation and entrepreneurship a key problem is access to the right combination of skills. Thus accessibility to qualified workers is a major factor. The other limitation often cited is linked to institutional or cultural factors: it is often difficult to recruit workers, and the reasons given for this will be outlined below.

Qualified Workers

In the knowledge economy, innovation is not only an outcome of the combination of various material inputs. It is often the *ingenuity*

of the combination, more so than the material inputs themselves, which determines the success or failure of an entrepreneur. Furthermore, the more sophisticated the process (or combination) elaborated by the entrepreneur, the higher the requirement for a qualified workforce.

In most of the regions visited the recruitment of qualified personnel was cited as a major problem. The problem does not occur during the initial phases of a company start-up, since it is usually the entrepreneur him or herself who provides the knowledge and skill input. Indeed, without such an initial skill set there would be no start-up to speak of.

The problem occurs when the entrepreneur seeks to expand beyond the initial stage of innovation in order to service larger, wider and/or more sophisticated markets. At this stage, and in nearly every single case come across, the entrepreneur envisages opening a branch close to a metropolitan area or collaborating with a more central partner. Unless such an option is envisaged, the entrepreneur accepts to limit the size of his/her company to the size compatible with the available workforce.

It may at first appear paradoxical that peripheral regions, with higher than average levels of unemployment, are faced with labour shortages. This is due to the higher propensity to migrate of the most qualified workers: despite the high unemployment rates, it is not the most qualified who are unemployed. However, it is these qualified people that the entrepreneur often needs. This segment of the labour force has either obtained a job locally, or moved to an area where one is available.

Institutional and Cultural Factors

Our discussions with local actors revealed that labour shortages were not always only confined to qualified workers. In some regions entrepreneurs are unable to recruit or keep low-skilled labour. Three factors recurred as explanations for this situation.

— The first is a lack of entrepreneurial spirit. The fact that in some regions there are few examples of small start up companies deters many workers from applying for jobs that are perceived risky or low wage.
— The second, and related, factor is the local presence of large, well paying and stable employers. In such circumstances, the

expectations of the local workforce in terms of salaries, benefits and stability are set by the large employer. This is the case in areas which have relied for a long time on forestry, smelters, paper mills and mines. In such a context, the salaries and benefits which an entrepreneur can offer are uncompetitive.

— The third factor – particularly evident in coastal areas – is the effect of employment insurance (EI) and seasonal work. In a context of seasonal employment the EI system often creates a disincentive to work owing to the method of calculating the number of days worked in view of setting benefit levels. In a few places it was also pointed out to us that the tradition of seasonal work is so strong that a year-round job with relatively low pay and limited vacations is unattractive.

It should however be pointed out the EI system itself is an important stabilising factor in these peripheral economies, without which industries relying on seasonal work would not survive. The key problem resides in mechanisms which prevent workers from taking on jobs because the EI rules penalise them for doing so: these rules have the perverse effect of increasing unemployment and reducing the workforce available to local entrepreneurs.

It is not possible for us to explore in detail the extent to which each of these factors impacts local entrepreneurs. However, the fact that they were mentioned in a number of regions by different individuals and groups suggests that they certainly play a role in limiting the availability of the workforce even in situations of relatively high unemployment. We feel that it is necessary to be aware of these mechanisms, but that the extent to which they impact the overall dynamics of the labour market has yet to be quantified.

Other Barriers to Entrepreneurship

Other barriers to entrepreneurship were mentioned, the principal one being lack of finance. This barrier always led to debate, since it is not clear that lack of start-up capital is really a problem. Indeed, many government programmes provide start-up funds, as do private banks. Thus, lack of private start-up capital, to the extent that the problem exists, is a reflection of the perceived risk of investing in peripheral regions. In the light of the trends identified in this report

this perception of risk may be justified. Government programmes designed to overcome this problem are in place, and on the whole these are perceived to be functioning relatively well.

That being said, *The 1999 Survey of Innovation* by Statistics Canada has shown that 33% of innovators in Atlantic Canada (28% in New Brunswick, 34% in Nova Scotia, 38% in Newfoundland and 40% in Prince Edward Island) were confronted with a "lack of financing for the development or introduction of new or significantly improved products or processes". This was only true for 29% of innovative firms across Canada. Furthermore, according to a McDonald & Associates study[4], the Atlantic region accounts for only 2% of total Canadian venture capital expenditure for 1998 and 1999.

However, even if the difficulty of access to capital is considered to be a barrier to entrepreneurship, the extent to which it is a problem separate from distance to markets is not clear. If a bank or venture capitalist is considered as a supplier of capital, then the problems described above apply to them in much the same way as they do to other suppliers of goods and services.

7.4 The Syndrome of the Intrusive Rentier

In this section we will use some data to highlight the syndrome of the intrusive rentier. This syndrome has been described in the previous section, and was brought to our attention repeatedly by entrepreneurs in the regions affected: it refers to cases where a large employer bids up salary and benefit expectations to the detriment of local entrepreneurship.

In our opinion this syndrome is general in nature: high wage levels in peripheral regions (table 7.2), particularly in urban areas, can be explained by this phenomenon. Many of these urban areas are dominated by employment in forestry, wood products, mining, transformation of metals and public service employment. This emerges clearly from the detailed analysis of economic structures conducted in the statistical report[5].

A corollary observation also emerges: wage levels are substantially lower in urban areas located close to metropolitan areas. Even rural areas close to metropolitan areas have salary levels not much higher than those in similar peripheral areas. These areas, close to

matropolitan areas, are dominated by second and third transformation industries, as well as by certain high-tech sectors.

The paradox of this syndrome is that it is often the employer upon which the local economy depends that is stifling start-up projects, and that is ultimately undermining the ability of the local economy to adapt. Even if the large employer is fully aware of this situation, it is often impossible for the company to do anything about it since salary and benefit levels are usually subject to collective agreements. This lack of flexibility, and the high expectations engendered, mean that it is often central regions which are the lowest cost locations and which harbour the most flexible workforce.

Thus, an added hurdle is erected for entrepreneurs in peripheral areas: they must not only try to meet the high salary and benefit expectations of local workers, but they must also compete with the lower wage and more flexible workforce available to competitors in more central regions.

Table 7.2. Earned Income by Person with Earned Income (Salary), 1971 to 1996 (Index: Cities over 1 Million = 1.00) [a]

	1971	1981	1991	1996
Cities over 1 Million	1.00	1.00	1.00	1.00
Cities 500 K-1 M	0.92	1.00	0.90	0.90
Central Cities, 100-500 K	0.95	0.92	0.92	0.95
Central Cities, 50-100 K	0.86	0.88	0.85	0.85
Central Cities, 25-50 K	0.86	0.87	0.83	0.82
Central Cities, 10-25 K	0.79	0.83	0.80	0.80
Central Rural Areas	0.72	0.80	0.78	0.78
Peripheral Cities, 100-500 K	0.87	0.90	0.86	0.86
Peripheral Cities, 50-100 K	*0.89*	*0.91*	0.84	*0.85*
Peripheral Cities, 25-50 K	*0.85*	*0.91*	*0.84*	*0.85*
Peripheral Cities, 10-25 K	*0.88*	*0.92*	*0.86*	*0.86*
Peripheral Rural Areas	0.70	*0.80*	0.71	0.72

a. This table represents incomes in the 12 types of region as a proportion of incomes in the four largest metropolitan areas. Situations where salaries in equivalent peripheral areas are equal to or greater than salaries in central areas are highlighted in italics.

7.5 Qualified Workers and Peripheral Locations

The general problems associated with the lack of qualified workers have been outlined above and in chapter 3. In this section we wish to illustrate the fact that the lack of qualified workers is not primarily due to the lower proportion of the population with a university degree in peripheral areas: indeed, we have seen in chapter 3 that outside metropolitan areas, for a given city size, peripheral cities have a higher proportion of graduates than central ones. The principal competitive advantage of central areas in terms of their qualified workforce is the sheer number of qualified workers located on a very small proportion of Canadian territory.

Figure 7.1 compares the absolute number of university degree holders in the eight central regions of Canada (eight metropolitan areas and the surrounding urban and rural areas) to the absolute number in all peripheral areas, urban and rural combined. From 1981 onwards the ratio of central to peripheral degree holders has been increasing (central areas are gathering relatively more degree holders). However, the key point being made is that, despite the similar *proportion* of degree holders in central and peripheral areas (see figure 3.2), central areas harbour four times more degree holders than all peripheral areas combined.

Furthermore, it should be noted that the degree holders within central areas are concentrated in a very small portion of Canada: the central areas represent about 250,000 km^2 [6], against a total land area of about 7,000,000 km^2 for Canada. Allowing for the fact that most settlement is in a band of approximately 400 km wide along the U.S. border, this still means that in 1996 the 588,000 degree holders in peripheral areas were spread over about 2,000,000 km^2 [7], whereas the 2,723,000 degree holders in central areas were spread over 250,000 km^2. Thus, not only does location in a peripheral area entail a substantially smaller pool of qualified labour from which to draw, but even cursory consideration of geography reveals that accessibility to this pool is very limited.

A final consideration is the nature of qualified labour: by definition, such labour is not interchangeable: a worker qualified as an engineer cannot be substituted for an accountant, nor a skilled joiner for a mechanic. The likelihood of finding an available person, possessing the specific skills needed, and within easy distance of the place of work, is far greater in a central location.

Thus, there are three factors to bear in mind when considering the difficulty faced by entrepreneurs in peripheral regions to recruit qualified staff.

1. The first is that, in absolute terms, they are drawing from a far smaller pool of qualified labour. To some extent, this is also true for unqualified labour.
2. The second is that this smaller pool of labour is extremely dispersed. To some extent this is also true of unqualified labour.
3. The third, and key, consideration is that qualified labour is specialized and non-substitutable. Whereas even a small and dispersed labour force can, to some extent, permit economic activity if each worker is identical, the fact that entrepreneurs are usually seeking specific qualifications means that it is often impossible for them to find the right worker locally.

From the perspective of the educated worker, a similar reasoning can apply: if the worker wishes to settle in one place and have access to a variety of jobs requiring his or her qualifications, then a central location is ideal. If the necessity of adequate employment for couples is factored in, then the pressure is intense for qualified people to turn towards central locations for employment.

7.6 Conclusion

Entrepreneurship in the Eleven Regions

Each of the eleven regions studied is not faced by identical challenges in terms of entrepreneurship. In this concluding section we will briefly indicate which regions are faced by the challenges outlined above.

Distance from markets, whether for suppliers or clients, is almost part of the definition of each of the eleven regions – to the extent that the principal Canadian markets are to be found in metropolitan areas. However, as access to U.S. markets increases in importance under the influence of NAFTA, access to purely *Canadian* markets may diminish in importance. This does not fundamentally alter the reasoning being put forward, but it does alter the relative accessibility of each region to markets.

As we have seen in chapter 6, some regions are more remote than others. In particular Gaspé, Quebec's North Shore and Western Newfoundland are very isolated: this can be attributed to the fact

that not only are they far removed from Canada's economic core, there is also very little beyond them. This is reflected in the poor road and rail connections. Saguenay Lac St. Jean also has little beyond it, but its location within 120 to 200 km of Quebec City and its relatively large urban core reduce to some extent the distance problem. Whereas the western part of Lower St. Lawrence is on the Trans-Canadian highway to New Brunswick and within 150 km of Quebec City, the eastern part shows similarities – in terms of market access – to the Gaspé. Moncton is at the heart of Atlantic Canada and is the focus of rail and road routes. Furthermore – and in common with the other four Maritime regions (Southern Nova Scotia, Acadian Peninsula, Madawaska and Prince County) – it benefits from relatively good access to the U.S.A. Access to markets in these regions is not always easy, but in relation to the Quebec and Newfoundland regions mentioned above it can be said to be less difficult. Finally Abitibi-Témiscamingue is remote from Montreal (600 km to the north), but James Bay to the north and Northern Ontario to the west mean that there is a certain diversity of opportunities open to local entrepreneurs.

The difficulty of recruiting qualified workers is a factor in all regions, though the problem is different in Moncton than elsewhere: in Moncton, it is the region's successful development that has led to scarcity. In the other regions, development problems and lack of large urban centre may in part be responsible for the difficulties faced by entrepreneurs. This difficulty is compounded when an intrusive rentier dominates the economy: mines in Quebec's North Shore, Abitibi and Bathurst, smelters and paper mills in Saguenay Lac St. Jean, paper mills[8] and mines in certain parts of Gaspésie – in these regions entrepreneurs face the most difficulty in recruiting staff at wages competitive with those offered by companies in central areas. Some areas or towns in the remaining regions also have dominant employers, but their effect upon the local labour market is not as marked as in the places just listed.

Finally, the problems linked to seasonal work are most marked in coastal regions dependent on fishing such as Gaspé, the Acadian Peninsula and Western Newfoundland. Since there is a year-long fishing season in Southern Nova Scotia, the problem is less marked there. In Prince County fishing and agriculture do not cover identical seasons and a major industrial park stabilises employment, so the problem – whilst present – is somewhat attenuated.

Entrepreneurs in each of the study regions do not face the same problems to the same degree: but they all face challenges in relation to their competitors in central regions. However, there are many successes in the face of these challenges. Each success is the result of the individual effort of a particular entrepreneur: there are few if any "factors of success" which can be generalised. The factors highlighted in the chapter correspond to some of the extra challenges which the entrepreneurs in peripheral regions have to overcome over and above the 'normal' challenges of entrepreneurship.

Local Economic Development

In the context of these extra challenges, we believe that exercises in Local Economic Development designed to encourage local entrepreneurship are of crucial importance, but that their objectives must be realistically set.

The encouragement of endogenous innovation and entrepreneurship is positive: indeed, it is one of the only ways that new activities and sectors will develop in peripheral regions, since it is extremely rare that entrepreneurs choose to locate in a peripheral area without having an emotional or family attachment to the region. This was noted in the course of our focus groups: as mentioned above, nearly all entrepreneurs in peripheral regions agree that their business would grow and develop faster in central locations. Why then do they locate in less competitive regions? The answer nearly always lies in the entrepreneur's personal attachment to the region. In the same way, it is far more likely that qualified workers with a family link in a particular region may be enticed back than qualified workers in general.

Therefore, if innovation and entrepreneurship in peripheral regions is primarily growing out of local roots (and not as a result of the attraction of outside entrepreneurs), Local Economic Development initiatives are critical to maximizing entrepreneurial activity.

However, the maximization of entrepreneurial activity does not necessarily mean that population and employment decline will be reversed: these trends may be mitigated to some extent, but given the barriers to entrepreneurship identified in this chapter and the wider trends outlined in part 1, it is unlikely that Local Economic Development will lead to sustained local employment growth.

In sum, there is no evidence to suggest that new ideas do not appear in peripheral regions. We are in fact tempted to suggest that entrepreneurial success in peripheral regions requires more originality and ingenuity (to succeed despite the many barriers) than in central areas. However, there are many factors which limit the growth potential of innovative businesses in peripheral regions, whatever the level of ingenuity of the entrepreneur. In many cases, ambitious entrepreneurs, even if their head office remains in a peripheral region, end up creating more jobs in central locations by opening plants or by finding centrally located partners.

NOTES

[1] This table provides examples of innovative activity which were gathered at focus groups and/or in the course of visits to specific companies during our visits to each region. The list is not exhaustive and only highlights the innovation we are aware of. It should be noted that we have chosen to highlight *innovation*. Each of the examples given is of a new service, product or production process enabling exports to international markets. We have *not* included examples of successful entrepreneurs who are not obviously innovative (for example the export of crab to Japan, or of chocolate bars to Montreal – whilst a marketing achievement – is not considered innovative in the sense given here).

[2] For a recent empirical analysis of the presence of the innovation in Atlantic Canada, see Bourgeois and LeBlanc, 2002.

[3] We feel that this type of interaction is particularly relevant in terms of finance (see "Other Barriers to Entrepreneurship", below). Personal relationships with financial backers – which necessitate frequent face-to-face contact – lead to mutual understanding and trust between the entrepreneur and the backer. This is easier in metropolitan areas where much of the financial decision-making is made for reasons of economy of scale in the financial sector.

[4] This report is available at www.canadavc.com/industrystats.asp?cat=venturecap&year=&quarter=4.

[5] Shearmur and Polèse (2001).

[6] This area is simply calculated as $8 \times \pi R^2$, where R = 100 km. No account is taken of water, mountains or the US border – thus this is an overestimation of the actual area in which the graduates are concentrated.

[7] This area is calculated as 400 km × 5000 km, where 400 is the notional band of 400 km along the US border and 5000 km is the length of this border.

[8] An apparent exception to this is Edmundston, which has a paper mill. However, this paper mill has not recruited for a number of years, and is not the city's dominant employer: it is not, therefore, paper mills *per se* which are a problem but the dominance of any labour market by a small number of high paying employers.

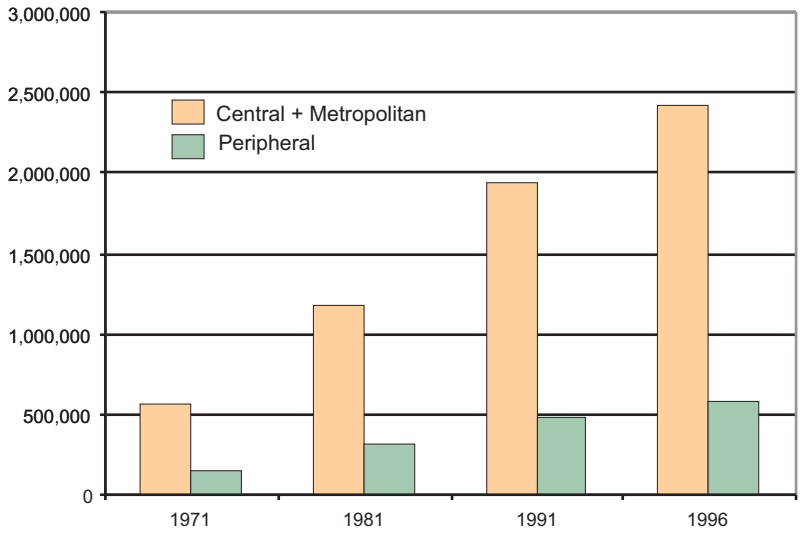


Figure 7.1. Number of University Degree Holders by Type of Region, Canada

CHAPTER 8

Successful Regions: What Can We Learn?

The overall trends described in the preceding chapters for peripheral and outlying regions point to continued decline in population and employment for a variety of reasons. These trends are general in nature, and there are exceptions. In the course of our research across Canada and Northern Europe four regions which meet the criteria of peripherality stand out as having undergone successful economic restructuring and employment growth. These are Tromsø in Norway, Oulu in Finland, Inverness in Scotland and Moncton in New Brunswick[1].

In this chapter we will briefly describe the situation of each of these regions and point to some explanatory factors. It should be noted from the outset that these more successful regions are all urban areas of more than 50,000 people, and we will see that their role as a central place for a relatively large hinterland, combined with other more specific features, lies behind their development.

We will describe each in turn.

8.1 Tromsø, Norway

Tromsø is located in Northern Norway, about 1300 km to the north of Oslo on the 70th parallel[2]. As such it is well above the Arctic circle, although its coastline location combined with the remnants of the Gulf Stream mean that the weather at this latitude is not comparable with the equivalent in Canada, where settlement at such a latitude would be extremely difficult.

The city is the principal administrative and economic centre for Northern Norway, which comprises the counties of Finnmark, Nordland and Troms. This sprawling hinterland, which stretches

about 500 km to the northeast and 500 km to the southwest of Tromsø, has a population of 464,000 (table 8.1). The table shows that between 1970 and 2000 the city of Tromsø grew considerably, from 39,000 to 59,000. At the same time, however, the city's hinterland shrank from 417,000 to 405,000, with a peak in 1980. Thus, in net terms, there has been a transfer of population from the hinterland to the city – a process of metropolisation at the scale of a local central place.

Table 8.1. Population in Tromsø and Northern Norway, 1970-2000

	1970	1980	1990	2000
Tromsø	38,791	46,404	51,218	59,154
Northern Norway (less Tromsø)	417,330	422,086	409,000	405,174
Tromsø as % of Northern Norway	8.5 %	9.9 %	11.1 %	12.7 %
Tromsø as % of Norway	1.0 %	1.1 %	1.2 %	1.3 %
Northern Norway as % of Norway	11.8%	11.1%	10.8%	10.2%

Source: Isaksen, 2001.

In what context did these trends take place? Northern Norway grew faster than the Norwegian average until the 1960's. From then on, despite overall growth (until 1980) and subsequent stagnation (1980 to 2000), its share of total Norwegian population has declined. One contributing factor to the weak population development in Northern Norway is the low impact of Norwegian oil activity in this part of the country. The petroleum sector in Norway employed nearly 74,000 in 2000, but only 400 of these jobs were in Northern Norway.

The development of Tromsø is, however, markedly different from the overall development of Northern Norway. The growth of higher education and research is often put forward as the most obvious explanation: the city is by far the most important centre for education and research in Northern Norway. This growth started in 1972 when the university opened with 420 students: it now counts 6500 students and 1500 employees, of which half are scientific positions. The Tromsø hospital, with 3500 employees, serves the whole of Northern Norway. Tromsø college (equivalent to a CEGEP or community college) has 2200 students and 300 employees. These institutions have developed in parallel with the university over the last thirty years.

In conjunction with this institutional development, a sizeable research community has grown in the city. Research is conducted in four main fields: medicine; fishery and aquaculture; data, telecommunications, space and atmospheric research; and research into the history and culture of Lapp communities.

This activity has a major impact on the city: the university represents 10% of employment in Tromsø, and the students 17% of the population. The direct multiplier effect of these activities is significant. Furthermore some graduates of the university are recruited by local firms, and some collaborative projects have developed between these firms and the university. However, the total number of jobs involved in these private initiatives remains small (in the order of a few hundred).

In sum, Tromsø is primarily a service centre for Northern Norway, relying heavily on public service employment. However, this activity has led to some limited development of private sector establishments.

8.2 Oulu, Finland

Oulu, a city of approximately 100,000 people, is located on the Baltic coast about 600 km north of Helsinki[3]. Since 1987 the city, together with the rest of Finland, has suffered a major recession (table 8.2), exacerbated by the political changes in the ex-USSR which have profoundly modified trade patterns and markets in the region. However, whereas Oulu has recovered significantly over the latter part of the 1990's, its hinterland (the rest of its province) has scarcely benefited from any employment growth since the deepest trough of the recession in 1993. Although we do not have figures relating to population trends over time, it is worth noting that in 1996 whereas the city of Oulu grew by 1400 people, Northern Finland as a whole lost 3700 people[4]. Thus the general picture is similar to that observed for Tromsø: there is a marked relative shift of population from the hinterland to the city.

Oulu is a port city, founded in 1531, and has historically been one of the principal entrance points to Finland's vast northern regions, also providing access to the arctic and Barents regions. This northern region comprises 458,000 inhabitants[5] (excluding Oulu), similar in population to Tromsø's hinterland. The city continues to

have an active port and to play an important role as a shipping point for resources extracted from this hinterland.

The basic preconditions for Oulu's recent development were created in 1958 with the opening of the university. This university, with 13,000 students and 3000 employees, is an important structural element in the city's economy, with a relative weight similar to that of Tromsø's university in Tromsø. The city also houses a major hospital.

Table 8.2. Total Employment in Oulu, the Oulu Labour Market and the Rest of Oulu's Province, 1987-1999 (1987 = 100)

	1987	1989	1991	1993	1995	1997	1999
Oulu	100	107	100	86	93	105	112
Rest of Oulu Labour Market	100	106	97	90	96	100	111
Rest of Province	100	103	93	82	83	87	89

Source: Kangasharju, 2001.

An important role was played by the university's electrical engineering department, which concentrated heavily on research into electronics. A Science Park, set up in 1982, provided an environment which stimulated cooperation between business and public institutions. But perhaps the principal and most noteworthy element in Oulu's economy is the presence there of Nokia: this firm, founded in 1865 as a paper mill, has grown via rubber, chemicals and cables into a producer of mobile telephones and cutting edge communication equipment. It has a major production plant in the city. A cluster of other electronics and communications firms has grown around Nokia's plant and the university, and one of the city's principal problems is lack of qualified labour in the field. This has also led to difficulties in retaining teaching staff in the university and colleges, who are enticed into the private sector by the high salaries.

Oulu has apparently succeeded in creating a dynamic private sector economy in parallel with its public service sector and its more traditional transport and primary sector activities. However, few general lessons can be learned: even the Finnish Minister for Regional and Municipal Affairs states that "what has worked for Oulu does not necessarily work elsewhere: that is to say, the 'Oulu model' cannot be the 'Finnish model' "[6]. In effect, it is the location

decision of a single large international firm which has been the cornerstone of Oulu's success in the new economy. Whilst this location decision was obviously dependent upon the presence of a sizeable labour market, an active university and other institutions, it is difficult to argue that the presence of these factors will *necessarily* lead to private sector growth: similar preconditions in Tromsø have not enabled the city to evolve beyond a successful central place – dependent on public sector employment – for its surrounding regions.

8.3 Inverness, Scotland

Inverness is located in Northern Scotland about 200 km (or three hours drive) north of Glasgow[7]. The Glasgow to Edinburgh corridor comprises about three quarters of Scotland's 5 million inhabitants: therefore, Inverness is three hours from a major population centre, as well as being 1½ hours drive from Aberdeen, an agglomeration of over 220,000 people.

These figures immediately bring to the fore the fact that Scotland is qualitatively different from Canada and the Scandinavian countries. Peripherality in the latter areas usually involves vast distances with very scattered population. In Scotland, not only is Inverness not particularly remote, it is at the heart of a fairly densely populated area[8]: its hinterland – widely defined as including all of North Western Scotland – comprises over 220,000 inhabitants, to which can be added Inverness's 76,000 (table 8.3). This population, though smaller than that of the Oulu and Tromsø hinterlands, is dispersed over a far smaller area. Except for the Shetland Islands, no point of this hinterland is much further than 200 km from Inverness.

Inverness has grown significantly – 3,9% – over the 1991 to 1998 period, and its immediate hinterland has grown at a similar rate (2,5%). Despite this fast growth, a process of metropolisation is evident to the extent that the city of Inverness is outpacing the surrounding areas. If the more remote parts of North Western Scotland are included in the analysis, a familiar picture appears: these remote areas are losing population, as Inverness and areas closer to the city are growing.

The city of Inverness is principally an administrative centre for the Highlands. In general, public sector jobs account for 29% of all Highland employment. Another important activity for the region is

tourism: unlike many peripheral cities which hope to develop a tourist industry (see chapter 4), Inverness is at the heart of a region which is itself a major tourist attraction. In the Highlands, the tourist industry (including retail) accounts for 27% of all employment. Whilst Inverness itself has some attractions, its principal role is as a focus point for exploring the Highlands. The density of population combined with the density of cultural and natural attractions in the surrounding areas are unique amongst all the peripheral regions we have visited.

Table 8.3. The Population of Inverness and its Hinterland, 1991 and 1998

	1991	1998	Change
Inverness & Nairn [a]	73,090	75,940	+ 2,111
Immediate Hinterland [b]	113,348	116,211	+ 2,863
Rest of North Western Scotland [c]	111,380	109,210	– 2,170

Source: HIE, 1999, Economic Update, November 1999.

a. The city of Inverness comprises about 50,000 people. The region of Inverness & Nairn stretches beyond the city.

b. Inverness's "Immediate hinterland" has been defined as follows: Moray, Badenoch & Strathspey, Ross & Cromarty, Skye & Lochalsh, Lochaber. Each of these areas is immediately adjacent to Inverness & Nairn, most of the population is within a 1½ hour drive of Inverness.

c. The Rest of North Western Scotland has been defined as follows: Caithness & Sutherland, Western Isles, Orkney, Shetland. For these four areas, Inverness remains the closest city of over 20,000 inhabitants. Whilst the distance between each of these areas and Inverness is not great (except for Shetland – 350 km), the time of travel can be significant due to poor roads and the crossing of water.

Growth in and around Inverness is principally the result of in-migration. This in-migration is mainly comprised of returning out-migrants who are at or near retirement age, and of an increasing number of individuals making "lifestyle choices".

In sum, the success of Inverness can be attributed to two factors. First, it is situated in a region which offers exceptional amenities. In this respect it differs significantly from the peripheral regions in Scandinavia and Canada[9]. Second, the scale at which remoteness and peripherality are to be understood in Scotland differs from that in the other countries under study: Inverness is relatively close to major population centres. These two factors explain the success of

Inverness at developing a strong tourism industry, and its success at attracting retirees and certain footloose professionals.

It should be borne in mind, however, that its role as a central place for Northern Scotland, and the attendant public sector employment which this entails, still sustains the backbone of Inverness's economy. Finally, even in Scotland the remotest regions are declining – thus, despite the differences just outlined, similar trends to those observed in Canada, Norway and Finland are evident.

8.4 Moncton, New Brunswick

Moncton and its surrounding area is maybe the most successful region amongst those studied in Canada, and it arguably stands out amongst the four successful regions described here[10]. This is because it is the only one of the four regions which is not principally reliant upon public sector employment. Unlike the three other cities, it is not a central place with a vast hinterland. On the contrary, it is part of a fairly dense network of cities in the Maritimes – Fredericton, Saint John, Charlottetown, Truro, Halifax – all within about three hours' drive of Moncton (see chapter 6).

Therefore, the key factor regarding Moncton's location is not necessarily that it is the only service centre for a vast hinterland (though it does play this role for the Acadian part of New Brunswick, along the eastern coast), but rather that it enjoys a central position *within* the system of cities just listed.

Table 8.4 presents employment figures for the Moncton CA and for the immediately surrounding rural areas (comprising the parts of Kent and Westmorland Counties excluded from the CA). Unlike for the three other cities it is not possible to define a wide hinterland for the city, since beyond these counties other urban areas come into play. The outer surrounding area therefore comprises rural areas adjacent to Saint John, Fredericton and Truro.

Moncton has grown steadily over the 25 years from 85,000 people in 1971 to 111,000 in 1996. The rural areas immediately surrounding it have also grown, but since the 1980's this growth has been at a slower rate than that of the city. If one looks beyond the immediate areas, then it can be seen that most of the rural areas in Southern New Brunswick actually benefited from fast growth until 1991. Since 1991, however, it appears that population growth in

rural areas is stagnating whereas the Moncton CA has grown substantially faster.

Table 8.4. Employment in Moncton and Immediately Surrounding Rural Areas, 1971-1996 (1971 = 100)

	1971	1981	1991	1996
Moncton CA	100	114	123	130
Surrounding Rural Area [a]	100	116	119	121
Outer Surrounding Area [b]	100	116	131	133

Source: Desjardins (2001), and INRS-UCS data.

a. This area comprises Kent County and the rural part of Westmorland.

b. This area comprises all the rural areas which are adjacent to Kent and Westmorland Counties, i.e. the rural parts of Charlotte, Queens, Northumberland and Cumberland Counties.

This is in keeping with the trends observed for the other three cities. The data for Oulu and Inverness focus upon the 1990s, and during this period a local process of metropolisation is observed. For Tromsø, a break occurs between 1980 and 1990: over that period the hinterland began losing population and Tromsø continued to grow. The Moncton data shows that a break occurred over the 1991 to 1996 period: over this period, Moncton grew fast whereas the immediate and outer rural areas stagnated.

The Moncton area benefits from a diversified economy with a variety of industrial employers in industries such as food, printing and metal work. The transport sector comprises nearly 7% of total employment. Recently, a cluster of call centres has developed in Moncton, partly as a result of an active policy to attract the industry, partly as a result of the presence of a large, educated and bilingual workforce. Finally, we have seen in chapter 6 that, although not a central place in the same sense as the other three cities discussed in this chapter, Moncton does benefit from the presence of a number of public institutions, in particular two large public hospitals (4000 jobs) and two universities (1200 jobs).

In sum, Moncton's success appears to be based upon three factors. First, it benefits from its location at the geographic centre of a system of cities and at a crucial transport node (all rail and road freight from Prince Edward Island, Nova Scotia and Newfoundland must pass through Moncton, as must all road and rail freight des-

tined from the west to the port of Halifax). Second, although not a central place in the sense that it is the only large city serving a vast hinterland, it is the cultural and service centre for New Brunswick's Acadian community: this is epitomised by the presence of the French language Moncton University. This cultural distinctiveness appears to have been an asset for the city. Third, Moncton has managed to maintain a diversified economy, not overly reliant on any particular sector. This is partly a consequence of the first two points.

8.5 What Can We Learn from These Successful Regions?

The successful peripheral regions identified in this study have a number of factors in common. They are all urban agglomerations of over 50,000 people and they all play an important role as a central place for a wide hinterland.

In all cases, over the 1990's, this hinterland has grown more slowly than the agglomeration or has declined. In other words, even within peripheral areas the process of urbanisation is occurring. At the national level, it is metropolitan areas and their immediate surroundings which are growing fastest. At the regional level, it would appear to be the principal urban areas which stand out relative to the more rural regions and smaller agglomerations.

Of the four cities identified, the two most successful – Oulu and Moncton – are strategically located on transport networks. This has enabled both of them to maintain an active transport sector. Although this may not necessarily be a direct consequence of the strategic location, it should be noted that these two cities also have a diversified economy: whilst there is in both cases some reliance on public sector employment, both also have diverse manufacturing and service sectors.

The two smaller cities – Inverness and Tromsø – have succeeded partly as a result of tourism. But the function of both is primarily as a service centre for a relatively prosperous hinterland. In Norway this prosperity is attributable not only to the economic activity of the hinterland, but also to the redistributive policies which ensure a basic level of well-being. In Inverness, the high amenity value of the Highlands, and the *relative* proximity of major popula-

tion centres have led to some return migration in areas closer to the city.

The Importance of Geography and Agglomeration

From this brief summary it is clear that the two principal lessons which can be learned are that geography matters, and that larger cities have better prospects for success than low density rural areas. Neither lesson is revolutionary, each has already been articulated in this report, and in many ways it can be argued that these conclusions reflect common sense: a well located large city stands a better chance of developing than a poorly located sparsely populated area.

These remarks reflect a particular case of the more general conclusions which were expressed earlier: a good location is one which enables access to markets and workforce. At a national level, such "good locations" are metropolitan areas and their surrounding regions. Within the periphery, the "best locations" reflect similar criteria.

The Marginal Effect of Policy

In each of the four cases described above policy has played an important, but not a determining, role. The location of hospitals and universities in these towns, the active promotion of local businesses, the strong marketing of tourist attractions (particularly in Inverness) have all played a role. But these policies have built upon the advantages of geography and agglomeration, they have not created these advantages.

In other words, given favourable conditions – a central place, good transport connections, a city of a certain size – policies can enhance the prospects for an area. Tromsø university, which was opened in 1972 by the Norwegian government, initially met with skepticism: but the university has thrived despite the remote location. However, the choice of location was not random: the university was placed in Northern Norway's principal city, its central place. By reinforcing Tromsø's advantages as a central place, the Norwegian government has – until now – managed to maintain a viable city in this remote area despite the decline in the surrounding

region. However, the policy has neither prevented decline outside Tromsø, nor fundamentally modified the spatial distribution of activity in Northern Norway: it has merely reinforced and supported what was already there. It is in this sense that we claim that policy is marginal: we are not arguing that it is unimportant, only that its success would appear to depend upon correctly identifying positive trends, and amplifying them, and not on attempting to reverse negative trends.

Another example of the important – but marginal – effect of policy is the tourism industry in Inverness. The Highlands have been a tourist destination since the late eighteenth century, as Johnson and Boswell attest[11] – admittedly for the upper classes until more recently. Thus, the marketing policy implemented by Highlands and Islands Enterprise, and their efforts to raise the standards of local hotels, are building upon a strong and well-established tradition. In addition, it is not necessary for any attractions to be created: some may be enhanced or presented in more appealing ways, but the basic tourist attractions are the Highlands themselves, and the strong images of whisky, Macbeth, and mountains that the word conveys. Here too, the policy works because it is building on existing strengths.

As we have seen, Oulu and Moncton – both twice as large as Inverness and Tromsø – have developed relatively diversified economies. In both cases government policy has actively encouraged the electronics industry (in Oulu) and call centres (in Moncton), and has also provided a variety of incentives for other businesses. Within the periphery these two cities present sizeable agglomerations and good transport links. It is doubtful whether similar incentives would have functioned without these basic geographic and agglomerative factors.

Path Dependency and History

The discussion so far has highlighted some of the general lessons that can be learned from analysing successful peripheral regions. It should also be emphasised that each city benefits from particular factors, linked to its history, to its location in terms more specific than so far discussed, and to the nature of the region in which it is located.

Oulu, founded in 1531, is a well-established port. In many ways it can be argued that Northern Finland has developed around this city. Thus, the fact that it remains an important central place today, and that transport networks converge upon it is not surprising. Such advantages are difficult to create elsewhere, and only one city in Northern Finland can have that advantage.

Inverness is also an old and well-established city: its importance as the capital of the Highland region is not new, and the Highlands have developed around the city[12]. As we have seen, the city is particularly well served in terms of tourist attractions and in terms of the international reputation of the region. In addition good links to the Glasgow-Edinburgh corridor mean that Inverness is less remote than many of the regions we have studied. Access to these centres, and Inverness's high amenity value, have led to return migration: many peripheral regions hope for this, but Inverness's success in this respect may be due to these particular factors rather than to a general trend of return to remote areas.

Moncton is unlike the other three cities since it is part of a local urban system, and is not a free standing agglomeration. Thus, whilst it does have a central place role, this is overshadowed by its location at the centre of the Maritimes and by the fact that it is a focus point for rail and road routes through the region. Moncton's location in a fairly densely populated peripheral region also provides its businesses with a sizeable, diversified and relatively accessible local market. Although we have seen that the potential markets for Oulu and Tromsø are large, they are hardly accessible. These cities can serve as central places for their hinterlands, but local businesses need to reach well beyond the city and the region to access larger markets. In Moncton, surrounded as it is by Fredericton, Saint John, Charlottetown, Truro and Halifax, the local markets are relatively concentrated: agglomeration effects are not only operating within Moncton itself, but arguably within the whole area. Paradoxically, Moncton may have also benefited from the upheaval caused by the closure of CN's rail yards in the early eighties: this crisis served to mobilise the local population and business community, thus preparing the way for the city's current resurgence.

Finally Tromsø is the most remote of the four cases highlighted: we have seen that its major employers are the university and hospitals. It benefits from spectacular surroundings, and has a small

tourism industry, but its remoteness precludes a wider development of this sector. Our analysis suggests that the prospects for this city are not as promising as for the other three, since the advantages identified apply to a lesser extent in this city. Its success to date appears to be partly attributable to in-migration from its hinterland, and partly to the location there of public institutions.

8.6 Conclusion

In this chapter we have seen that some peripheral regions can and do succeed. We have also been able to identify some factors which appear to explain this success. These factors – agglomeration, accessibility, central place, amenities – are compatible with the more general analysis of overall spatial economic and demographic trends conducted in previous chapters.

Thus, whilst these successes should be emphasised, their urban nature should not be forgotten. Neither should the fact that being "on the road to somewhere" – not being located at the end of the line – also appears to be a determining factor.

Finally, government policy has played an important but marginal role in these successes. It is not policy that has created the agglomerations, the accessible location or the particular amenities. However, given these, and given the overall spatial and economic trends, policies seem to have been able to build upon some positive factors, thereby reinforcing the economies of these peripheral towns. This is both good and bad news; policies *can* have a positive effect, but this effect seems to be most marked in peripheral areas which are already the least disadvantaged.

NOTES

[1] Prince County in Prince Edward Island also stands out. However, as will be argued in the concluding chapter, part of the region's success can be explained by its proximity to Charlottetown, a regional central place which is itself part of the Atlantic Canada urban system. We feel therefore that Prince's success reinforces the arguments put forward in this chapter.

[2] This section draws principally upon the report prepared by A. Isaksen (2001), *Regional Development and Policy in Norway* and to some extent upon the literature review by Lacas et al. (2001).

[3] This section draws upon the report submitted by A. Kangasharju (2001), *Regional Development and Regional Policy in Finland,* and upon the literature review by Lacas et al. (2001).

[4] City of Oulu (1998), *A Strategy for Northern Finland,* http://www.ouka.fi/pss/english/page.htm (consulted on 3rd April 2001).

[5] Population in 1995 for the Pohjois-Suomi region, excluding Oulu, which comprises all of Northern Finland, from Oulu up.

[6] Quoted in Lähteenmáki-Smith (2001), "The Oulu model cannot be the Finnish model", *Journal of Nordregio,* 3.1, pp. 13-15.

[7] This section draws upon the report prepared by A. Copus (2001), *The Highlands and Islands of Scotland,* upon the literature review by Lacas et al. (2001), and upon a visit to the region in July 2001.

[8] These comments are from the perspective of Canadian peripheral regions. Within a British, and even European, context, qualifying Inverness as "not particularly remote" may seem slightly odd.

[9] It is not being suggested that the other peripheral regions covered in this study do not possess key amenities which may be exploited for the purposes of tourism. But the Highlands possess a density of cultural (villages, castles, battlefields, churches, abbeys…), natural (lochs, highland mountains, hiking trails…), sporting (golf, canoeing, hunting…), culinary (distilleries), mythical (Loch Ness monster, ghosts…), and other amenities unrivaled in their diversity and proximity to each other. For the purposes of tourism the fact that all of these amenities are within easy reach is a major advantage for the Highlands, though, as in all areas, the tourism industry is seasonal (approximately late April to late September).

[10] This section draws upon the report prepared by Desjardins (2001) and upon analysis of data compiled by INRS-UCS.

[11] S. Johnson, 1775 (first date of publication), *A Journey to the Western Islands of Scotland,* London: Penguin (Penguin edition, 1984); J. Boswell, 1786, *The Journal of a Tour to the Hebrides,* London: Penguin (Penguin edition, 1984). Johnson and Boswell describe the problems of remoteness, depopulation, and exhaustion of natural resources (deforestation) in delightful detail. 200 years later many of their remarks and observations remain applicable to peripheral regions. We would like to thank Sara Pimpaneau for pointing out these references.

[12] Johnson, *op. cit.*, pp. 51-52.

CHAPTER 9

It Matters What Province You're in

So far in this report we have focussed upon the urban/rural and central/peripheral dimensions, and we have also looked more closely at certain specific factors which may determine the success of peripheral regions. However, it is well documented that economic development varies across provinces. The system of federal transfer payments – based as it is on a constitutional[1] duty to ensure similar opportunities to populations across the country – is a direct consequence of this.

It is thus legitimate to wonder to what extent the spatial patterns of economic development reported in this document reflect provincial boundaries. Or, to turn the question round, to what extent are the differences between provinces merely a reflection of different levels of urbanisation and peripherality? This is a central question: recent research has clearly demonstrated that in order to understand the different growth rates amongst Canadian provinces it is important to take into account their respective levels of urbanisation[2]. So, in practice, it could be that Ontario's faster growth rates (relative to, say, Quebec's) may to some extent be due to its larger cities and to the greater proportion of its population living in central areas.

Thus, in the first part of this chapter, we will test this hypothesis. We will show that, after allowing for the differences in urbanisation and in the proportion of central and peripheral districts, the basic patterns of economic development across Canadian provinces do not change extensively: in other words, the differences between provinces are *not* only due to these factors. The province in which a region is located has an effect on its level of development whatever its status (urban/rural, central/peripheral).

Given that it matters what province a region is located in, the second part of the chapter investigates in detail two sets of compa-

rable regions located in different provinces. On the one hand Gaspésie is compared to Gloucester County in New Brunswick and to Western Newfoundland. These areas have in common a francophone culture (Gaspésie and Gloucester), dependence on fishing and some mining, and highly seasonal employment. The principal difference between them is their province. On the other hand the Lower St. Lawrence region is compared to the Madawaska region just across the border in New Brunswick. Here too, regions in different provinces with relatively comparable geographic location, industrial structure and culture are compared. These two sets of comparisons will enable us to understand, at the level of individual regions, the nature of the differences identified in a general way in the chapter's first part and briefly discussed in chapters 3 and 4.

9.1 Province Matters: A General Perspective

The question being addressed here is not whether one province is actually growing faster than another, or whether a particular variable (say income) is higher in one province than another. It is rather the following: if a particular region is located in province "A", is it likely to grow faster or have higher income per capita than if it were located in province "B". This is not quite the same question, since the overall growth rates or income levels of a province are often overwhelmingly determined by its one or two largest regions (probably its metropolitan areas if it has any); thus, it is often the case that when Quebec is compared to – for example – New Brunswick, what are in fact being compared are Montreal and Quebec City with Saint John, Moncton and Fredericton (because provincial totals are heavily dependent on these large cities). In the following analysis each region of each province is assigned the same weight – this explains some of the small differences between these conclusions and those which may be found in other analyses.

Employment Growth

Can it be shown that if a region is located in a particular province total employment and private sector employment are likely to grow faster? The answer is no, unless the Western Provinces and the

Northern Territories are considered. This may appear surprising, but as figure 9.1 shows[3], since 1981 there has been very little difference in average growth rate of regions in the eastern provinces. The figure shows the difference between growth rates in Quebec and those in other provinces. It can be seen that during the 1970's regions in Quebec tended to grow faster than those in other eastern provinces, and that since 1981 all regions in eastern provinces tend to grow at similar rates: regions in the Western Provinces – Alberta, British Columbia and the Territories – tend to systematically grow faster over the period.

Proportion of Working Age Population with a Work Income

Employment growth in itself only provides limited information: its relevance depends upon the accompanying population growth, the income derived from employment and other such variables. To begin to assess the well-being of populations residing in particular regions, it is per capita variables which are of interest. Can it be said that if a region is in a particular province there is greater probability that its residents are employed? Here the answer is yes.

Regions located in Quebec tend to systematically have lower participation rates than those in other provinces – only Newfoundland has similarly low levels of participation (figure 9.2). Amongst eastern provinces, Prince Edward Island stands out as having very high participation rates (approximately 20% higher than Quebec's), but New Brunswick and Nova Scotia also have significantly higher rates than Quebec. In addition, although the gap with Quebec closed slightly between 1971 and 1991, it appears to be widening again.

It therefore appears that the relatively similar rates of employment growth across regions in eastern provinces have not led to similar outcomes in terms of the proportion of the population with a job. This is partly attributable to the lower propensity to migrate of certain populations, particularly francophones who have a stronger cultural attachment to their communities and fewer opportunities to work elsewhere in Canada and North America in their mother tongue than anglophones. Newfoundland's similarly low participation rates may also be partly attributable to the strength of the local culture and consequent attachment. This does not mean that there is no out-migration from these regions: only that this out-migration

has not been sufficient to compensate for the decline in employment.

Work Income per Person with Work Income

Do people with a job earn similar incomes in regions located in different provinces? Here again the answer is no. Figure 9.3 shows that the per capita salary[4] in Canadian regions varies depending on which province the region is in. All provinces to the east of Quebec display significantly lower salary levels than Quebec (at least 8% lower in 1996), though it should be noted that the gap between Quebec and New Brunswick and between Quebec and Nova Scotia closed during the 1980s, but has widened again between 1991 and 1996.

Percentage of the Population with a University Degree

A final factor which we will consider before turning to the detailed comparison of Quebec, New Brunswick and Newfoundland regions is education. After subtracting differences due to different levels of urbanisation and peripherality do regions in different provinces tend to have different levels of education? Here too the answer is yes. Regions in Quebec and Newfoundland both tend to have significantly fewer degree holders than regions in all other provinces (figure 9.4). Of particular interest are comparisons with other eastern provinces: regions in Prince Edward Island, New Brunswick and Nova Scotia tend to have at least 20% more degree holders than comparable regions in Quebec. This difference increased substantially over the 1970's and has remained largely unchanged since then.

Conclusion of the General Perspective

Employment growth in regions located in eastern provinces has been similar across the 1981 to 1996 period. However, this similar employment growth hides substantial differences in terms of remuneration, participation rates and education levels. Amongst eastern provinces, regions in Quebec and Newfoundland stand out as hav-

ing low participation rates, and low percentages of degree holders. Quebec regions have the further distinction of significantly higher salary rates than in all other eastern provinces.

It therefore appears that in a new economy context – where the emphasis is put upon education levels – Quebec regions are less well positioned than their other eastern counterparts. Furthermore, in an era of opening borders, the low participation rates and higher salaries may be perceived as disadvantages from the point of view of investors. It should be emphasised that, until 1996 at least, these factors do not seem to have been fundamentally detrimental to Quebec in terms of total employment growth. This may, to some extent, reflect the province's better overall location within a Canadian context[5]. However, the relative disadvantage of the other eastern provinces may be lessening as trade flows increasingly follow north-south axes (see chapter 6).

In any case, the profile of a region clearly varies according to the province it is in, even after taking into account its urban/rural and central/peripheral nature. We will now turn to two sets of paired comparisons which allow us to explore the provincial dimension in a little more detail.

9.2 Detailed Comparison of Gaspésie with Gloucester and Western Newfoundland, and of Lower St. Lawrence with Madawaska

In this section two sets of regions are compared in detail. The first set is Gaspésie, Gloucester County and Western Newfoundland: these three regions are located in similar positions, have similar industrial structures, rely on seasonal employment, and, in the case of Gloucester and Gaspé, share a francophone culture. Thus, if systematic differences in economic performance are identified, it is likely that they are due to provincial factors.

The second set of regions compared is Lower St. Lawrence and Madawaska. These two regions also share a very similar geographical location, a similar francophone culture, and a similar industrial structure. However, since Lower St. Lawrence (over 200,000 people) is significantly larger than Madawaska (36,000 people), the Québécois region has been divided into its eastern and western

parts. This division is further justified by the fact that the western part is on the Trans-Canadian highway to New Brunswick, is relatively close to Quebec City, and shares a border with Madawaska. Here too, if systematic differences emerge between the New Brunswick and the Québécois regions, it is possible that provincial factors may be a cause.

We will first analyse employment growth in these two sets of regions.

Employment Growth

Total Employment

Figure 9.5 depicts employment growth in the five regions under consideration between 1971 and 2000. It must be emphasised that the data from 1971 to 1996 are derived from census data, whereas the 2000 data are extrapolations of the 1996 data using growth trends derived from Statistic Canada's employment survey for the 1996 to 2000 period.

There are striking differences between the overall employment performance of Gaspésie and Western Newfoundland on the one hand, and Gloucester County on the other. Employment in Gaspésie and Western Newfoundland have followed very similar paths: fast growth during the 1970's, marked decline over the 1980's and early 1990's, with some recovery apparent over the end of the 1990s – but the recovery does not even bring employment levels back to their 1981 values. Gloucester, on the other hand, exhibits very rapid job growth over all of the period except for the early 1990's. Thus, despite their similar industrial structures and local culture, these three regions do not follow similar growth paths.

Turning now to the Madawaska/Lower St. Lawrence comparisons, it must first be noted that we have divided Lower St. Lawrence into two parts: Eastern Lower St. Lawrence (LSLE), which comprises all areas to the east of Rivière-du-Loup (and which are thus off the Trans-Canada highway to New Brunswick and further from Quebec City); and Western Lower St. Lawrence (Rivière-du-Loup and areas west of it – LSLW). This has been done in order to take into account the better transport connections of the Western part, and its relative proximity to a metropolitan area (at its closest

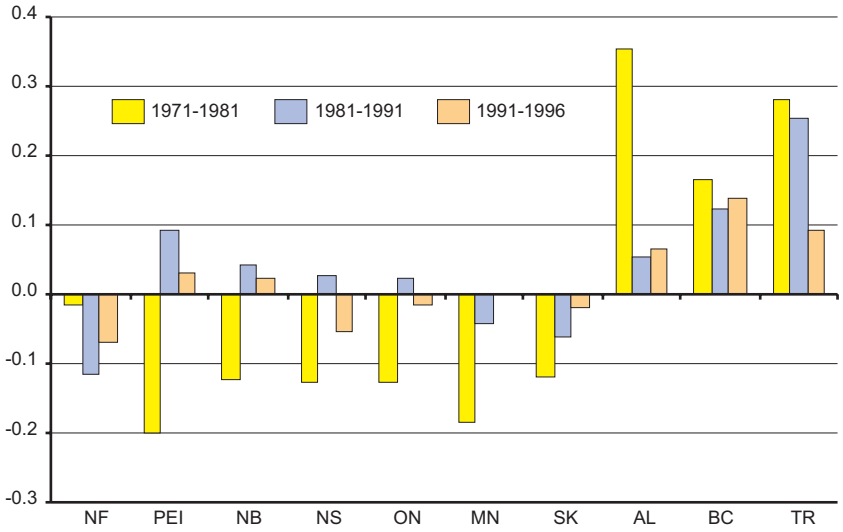


Figure 9.1. Average Percentage Difference in Total Employment Growth Rates, Base = Quebec, 1971-1996

Rural/urban and centre/periphery are controlled for.

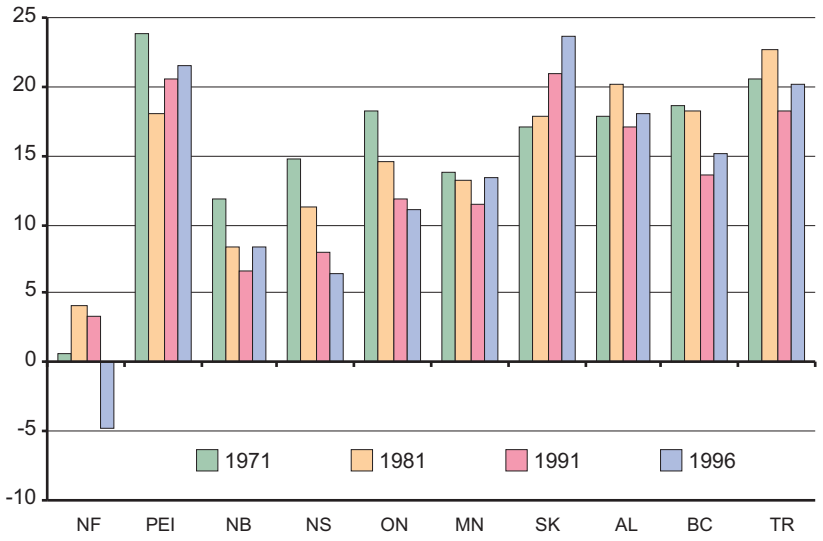


Figure 9.2. Average Percentage Difference in Proportion of Working Age Population with Work Income, Base = Quebec, 1971-1996

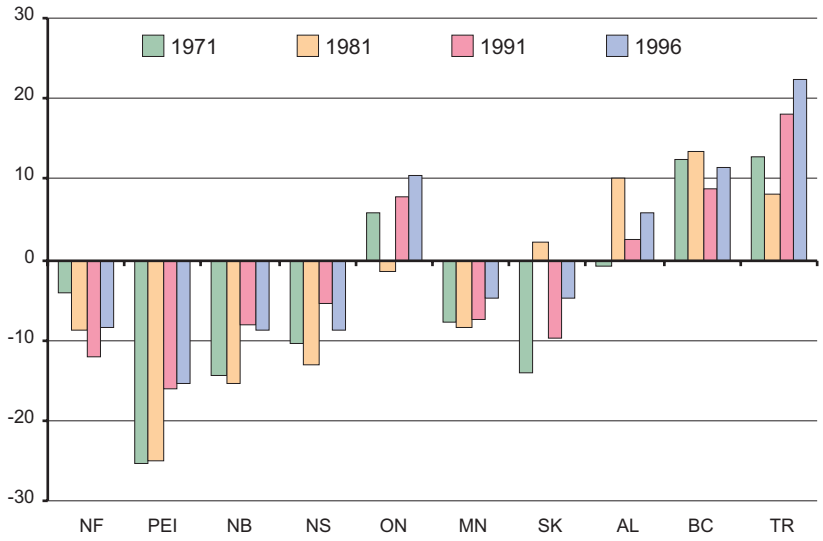


Figure 9.3. Average Percentage Difference in Earned Income by Person with Earned Income, Base = Quebec, 1971-1996

Rural/urban and centre/periphery are controlled for.

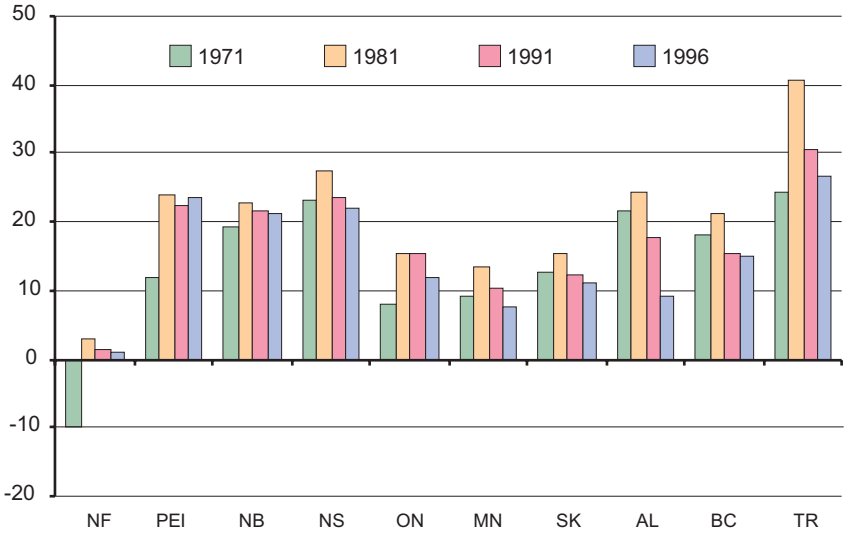


Figure 9.4. Average Percentage Difference in Proportion of Working Age Population with Degree, Base = Quebec, 1971-1996

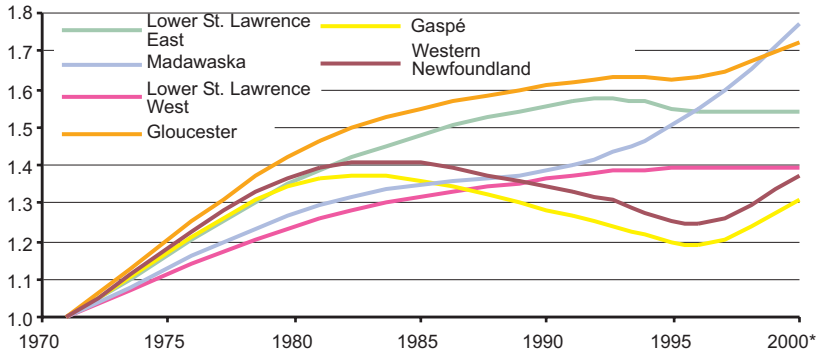


Figure 9.5. Gaspésie/Gloucester/Western Newfoundland and Lower St. Lawrence/Madawaska Comparisons, 1971-2000, Total Employment

* The numbers for 2000 have been estimated on the basis of total employment growth as measured in Statistics Canada's employment survey. The Madawaska area includes Woodstock, and the same trend is applied to eastern and western Lower St. Lawrence since this disaggregation is not available for the survey data.

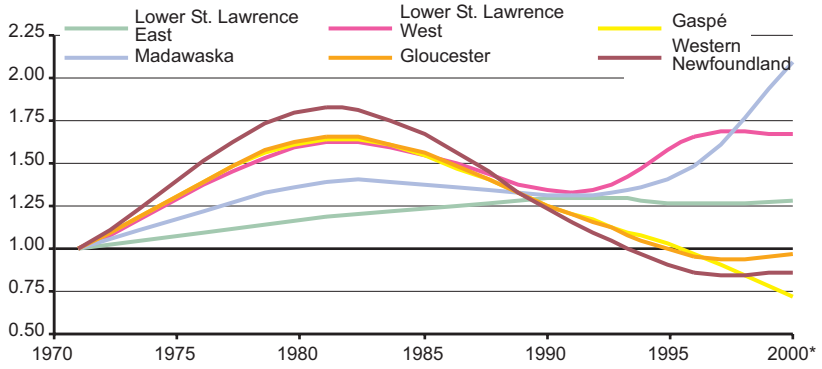


Figure 9.6. Gaspésie/Gloucester/Western Newfoundland and Lower St. Lawrence/Madawaska Comparisons, 1971-2000, Manufacturing Employment, 1971 = 1

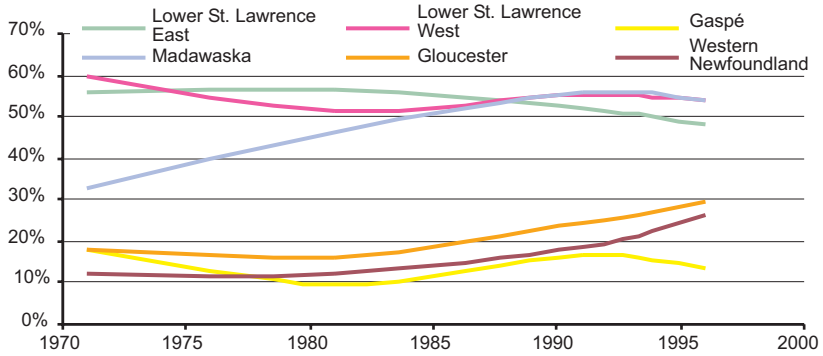


Figure 9.7. Gaspésie/Gloucester/Western Newfoundland and Lower St. Lawrence/Madawaska Comparisons, 1971-1996, Percentage of Manufacturing Employment in Non-traditional Sectors

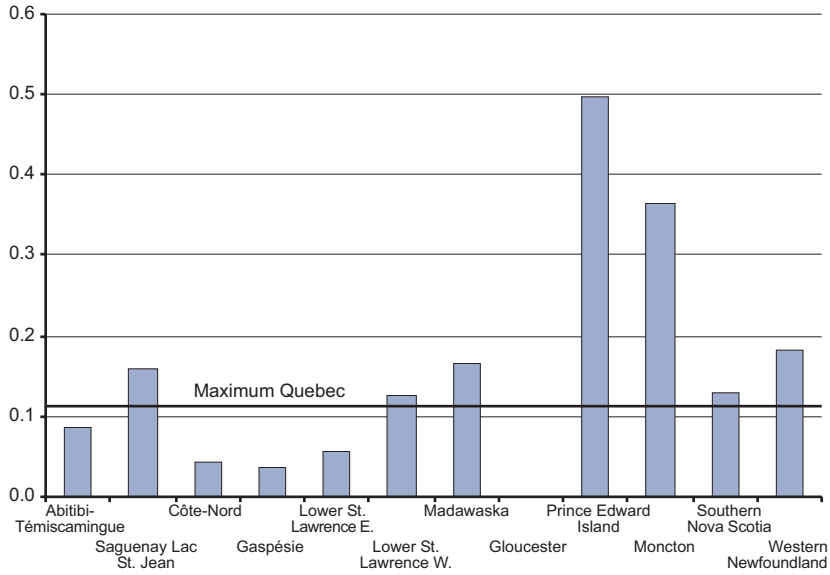


Figure 9.8. Location Quotients for High-tech Sectors, 1996

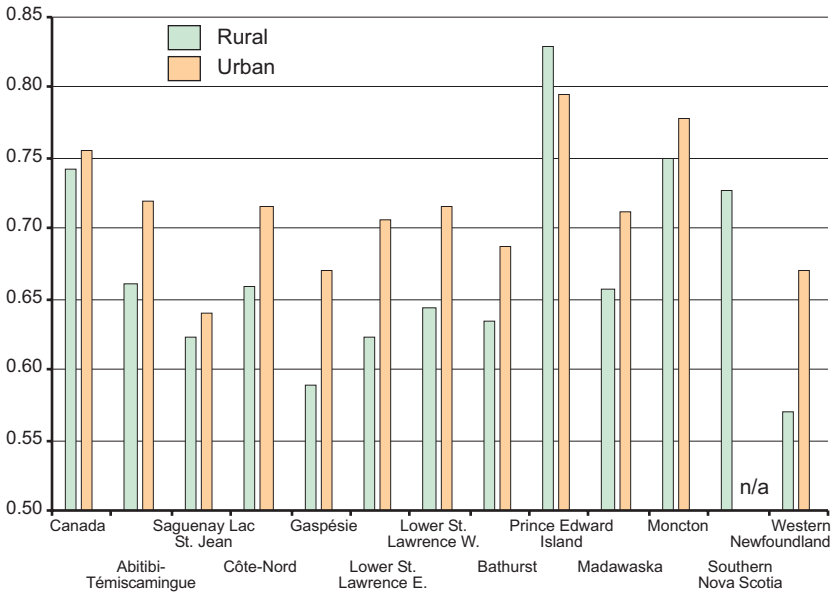


Figure 9.9. Participation Rate, 1996

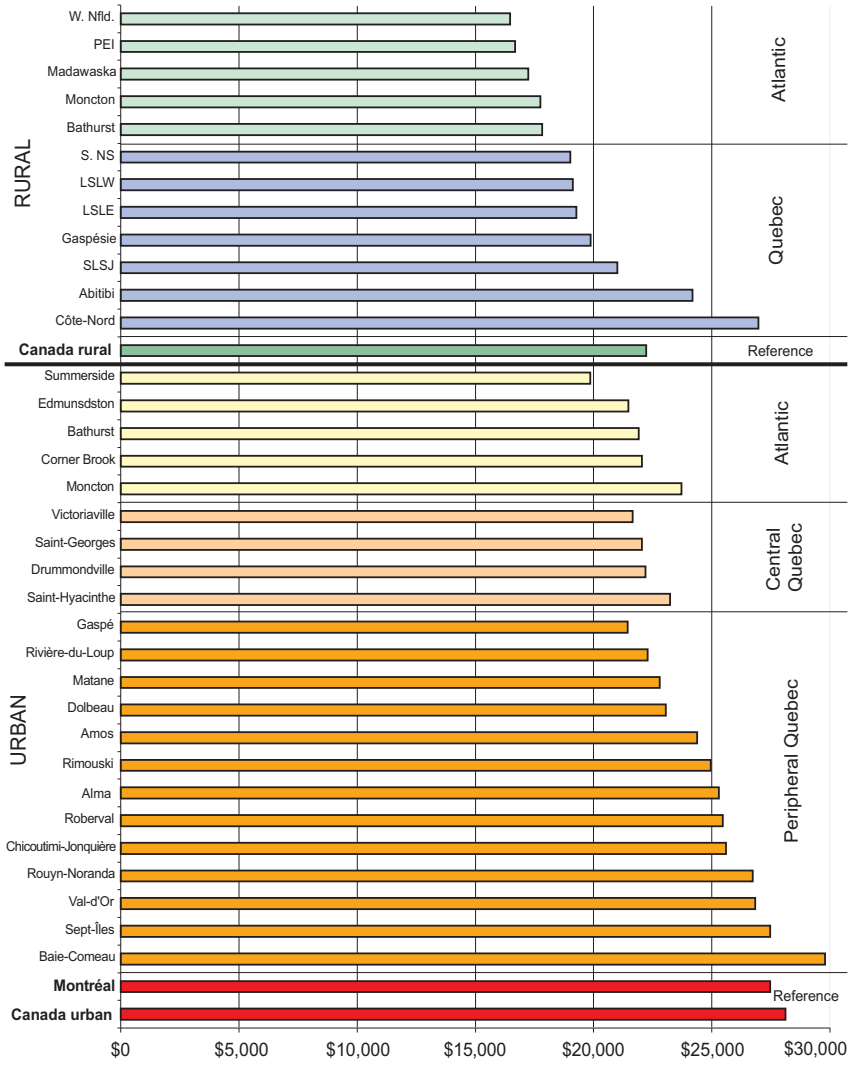


Figure 9.10. Work Income by Worker, Urban and Rural, 1996

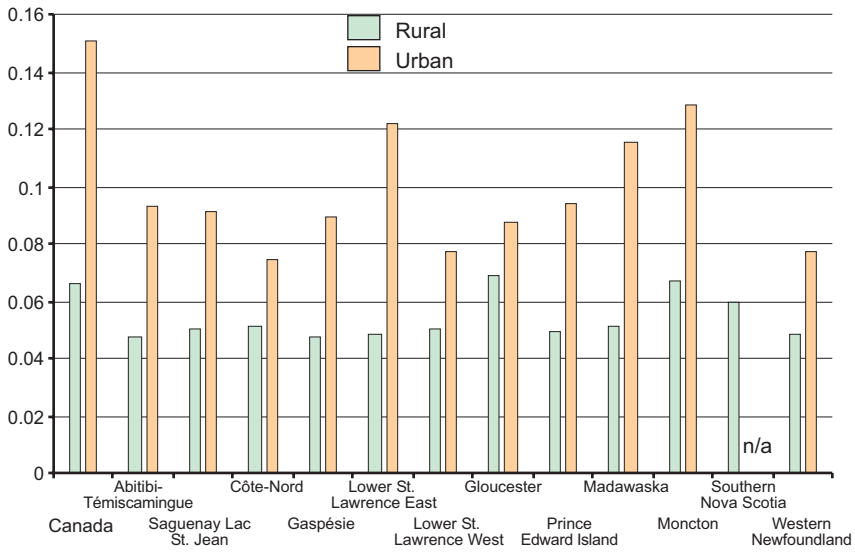


Figure 9.11. Percentage of Population 15 Years and over with Degree, 1996

point it is about 110 km from Quebec City along a four lane highway).

Until 1991 LSLE displayed the fastest employment growth rates, closely mirroring those seen in Gloucester. Since 1991 however employment growth there has halted, and employment levels have remained essentially unchanged between 1990 and 2000. LSLW displays a very similar growth profile, albeit with slower growth over the 1970's and 1980's. Madawaska stands out: over the 1970's and 1980's its growth path closely mirrored that of its immediate neighbour LSLW. But from 1991 onwards, whereas LSLW (and LSLE) have stagnated, Madawaska has taken off. Between 1991 and 2000 employment there has grown by nearly 25% (against 0% in LSLE and LSLW).

This overview of total employment growth trends shows that the two New Brunswick regions have followed significantly different – and more dynamic – growth paths than their Quebec and Newfoundland neighbours. If it is borne in mind that these comparisons are between regions with similar economic bases, cultures and geographic location[6], then the difference in performance is striking.

Manufacturing Employment

Peripheral regions such as those highlighted in this section are strongly dependent upon employment in the primary sector and upon employment in the manufacturing sector[7]. In addition it has been frequently said to us during our visits to the region that the way forward is to shift out of primary into transformative industries (see chapters 4 and 7). Thus a focus on manufacturing employment is particularly relevant for these regions.

Figure 9.6 shows the trends in manufacturing employment over the 1971 to 2000 period for the regions under study.

Between 1971 and 1996 Gaspésie, Gloucester and Western Newfoundland followed almost identical growth paths – manufacturing employment grew during the 1970's, then declined precipitously between 1981 and 1996. However, over the last few years, whereas Gloucester and Western Newfoundland seem to have halted this decline, the trend for Gaspésie has, if anything, accentuated.

If Madawaska, LSLE and LSLW are considered, no simple picture emerges: LSLW benefited from fast growth over the 1970's,

suffered considerable job losses over the 1980's, recovered over the early 1990's and has apparently stagnated over the last few years. Manufacturing employment in LSLE has grown slowly between 1971 and 1990, and has stagnated since. Again, it is Madawaska which displays the most dynamic growth, especially over the last decade: after moderate growth in the 1970's and slight decline in the 1980's, manufacturing employment has taken off in the 1990's with an increase of over 60%.

Thus, for manufacturing employment, trends do not look very positive for the Quebec regions. Over the last four years (1996-2000) the three Atlantic regions have halted their decline or, in the case of Madawaska, grown very fast. The three Quebec regions have either stopped growing or continued their decline. It must be emphasised that LSLW performed well over the early 1990's and our figures for the later period are less reliable. However, to the extent that this region is performing better than shown in figure 9.6, its good location relative to Quebec City is an important factor to bear in mind.

Employment in Non-traditional Manufacturing Sectors

All manufacturing employment is not the same. In particular previous analysis[8] and discussion with local actors have emphasised the important distinction to be made between traditional[9] (employment linked directly to the first transformation of natural resources) and non-traditional (second and subsequent transformation and manufacturing) manufacturing employment. Figure 9.7 shows the percentage of employment in non-traditional manufacturing sectors for each of the six regions.

The six regions clearly separate into two categories: LSLW, LSLE and Madawaska all have higher proportions of non-traditional manufacturing than Gaspésie, Gloucester and Western Newfoundland. Within these two groups, familiar differences emerge.

The industrial structure of Madawaska has evolved away from reliance on traditional sectors. In contrast LSLW's structure has remained unchanged over the 25-year period and LSLE's has actually moved away from non-traditional manufacturing sectors towards traditional ones.

The other three regions all have a far lower reliance on non-traditional manufacturing. But whereas Gloucester and Western New-

foundland display a clear trend towards increasing their reliance on non-traditional sectors, in Gaspé there has been a small move *away* from these sectors over the 25-year period, especially over the 1991 to 1996 period.

Thus, one region – Madawaska – stands out as having decisively moved towards non-traditional industries (albeit in a context of high reliance on traditional manufacturing sectors). However, even amongst the other regions, where shifts have been less marked, what shifts there have been have tended to be favourable in the Atlantic regions and unfavourable in Quebec.

Conclusion regarding Employment

In this section we have examined in detail the employment trends in two sets of comparable regions. To a greater or lesser extent, depending upon the factor being analysed, the Quebec regions fare worse than those in New Brunswick. Western Newfoundland performs no worse than comparable Quebec regions, and some trends seem to be more positive. If the comparison is widened (figure 9.8 – which depicts the concentration of high-tech manufacturing employment in each region), it can be seen that the Quebec regions have, almost systematically, a less developed industrial structure than regions in the Atlantic Provinces.

It is not possible for us to isolate the precise reasons for this: however, amongst the regions analysed there appears to be a distinct "province" or "border" effect which does not operate in Quebec's favour.

Proportion of Working Age Population with a Work Income

From these employment data – which have been analysed in some detail – we will turn to other socio-economic indicators, starting with participation levels. Figure 9.9 shows participation rates for 1996 in all eleven regions covered by this report. However, we will focus upon the six regions which we are comparing in detail.

In the regions being compared the differences in participation rates are more marked in rural than in urban areas. In rural LSLW and LSLE only 62% and 64% respectively of the working age population derived some income from work in 1996. In rural Madawaska this percentage is 66%. In urban areas, however, there is very little

to distinguish these three regions: occupation rates there are all very close to 71%.

Turning now to the other three regions, it can be seen the differences are more marked. Whereas about 63% of the working age population in rural Gloucester derived some income from employment in 1996, only 59% did in Gaspésie, and 57% did in Western Newfoundland. Similarly, in Gloucester urban areas, close to 69% of the population was employed at some point during 1996, whereas the equivalent percentage in both Gaspésie and Western Newfoundland is 67%. In this case, we find that Western Newfoundland and Gaspésie are grouped together with very low occupation rates, whereas Gloucester County – without having exceptionally high ones – displays systematically higher values.

In sum, the differences between the selected regions are not very marked: but to the extent that differences exist it is always the New Brunswick regions – whether rural or urban – which have the higher participation rates. Quebec and Newfoundland regions always tend to have the lower ones.

Work Income per Person with Work Income

In this section we perform an analysis similar to the preceding one, but focussing on earned income per worker – or salary.

Figure 9.10 shows earned income per worker in all of the urban and rural areas covered by our study, as well as providing some benchmarks in central Quebec. Again, we will concentrate upon the regions which are deemed strictly comparable.

Although income levels tend to be higher in Quebec's peripheral urban areas, this is not the case for the urban areas in the regions being compared. Salaries in Gaspé ($21,400) are not particularly high relative to those in Corner Brook ($22,000) or Bathurst ($21,910). However, the difference is considerable if salaries in rural areas are considered: whereas earned incomes in rural Western Newfoundland and rural Gloucester are $16,400 and $17,800 respectively, they are $19,900 in rural Gaspé. In each of these three areas, over 60% of the population is rural (table 1.2): thus, the large difference between salaries in rural areas has a marked effect on salaries overall in the region.

A very similar picture emerges when LSLE, LSLW and Madawaska are compared. Salaries in Edmundston ($21,500) are similar to, but nevertheless lower than, those in Matane ($22,800) and Rivière-du-Loup ($22,300). With average earned income by worker at $25,000 Rimouski stands out as a very high-income city. Abstracting from Rimouski, the differences are more marked if rural areas are considered: salaries in rural Madawaska are $17,200, whereas they are about $19,200 in the rural areas of LSLE and LSLW.

In sum, salaries are systematically lower outside Quebec. This is particularly important in the case of Gloucester and Madawaska since these regions are geographically very close to their Quebec counterparts. With salary differentials of over $2000 per annum (or well over 10%) this difference is not negligible. Indeed, it has been brought to our attention that certain non-traditional manufacturers have expanded into Madawaska from Lower St. Lawrence over the course of the study period: whilst we do not pretend to understand all of the reasons which may motivate such moves, a different regulatory framework combined with large salary differentials (and a somewhat more active workforce, see "Proportion of Working Age Population with a Work Income" above) are surely relevant explanatory factors.

Percentage of the Population with a University Degree

The last factor which we will look at in order to compare the selected regions is education levels: more specifically we will examine the percentage of university degree holders in each region.

Figure 9.11 clearly reveals that rural areas have fewer degree holders than urban areas, and that, in most cases, Quebec areas have fewer degree holders than Atlantic areas. In the case of our comparable regions, it can be seen that whereas rural Gaspésie and Western Newfoundland have similar proportions of degree holders (about 4.8% of the adult population has a degree), the percentage is substantially higher in rural Gloucester (where it is 6.9%). These differences do not carry through to the urban areas where Gaspésie and Gloucester each have about 9% of degree holders, urban Western Newfoundland having only 7.7%. The same reasoning holds as for incomes: with a majority of the population in each of the three

regions living in rural areas, it is the rural percentages which determine the region's overall education level: thus Gaspésie and Western Newfoundland both have low proportions of degree holders whereas substantially higher proportions of Gloucester's adult population have a degree.

Turning now to the more western regions, it can be seen that rural areas in LSLE, LSLW and Madawaska all have similarly low proportions of degree holders (around 5%). However, urban LSLE and urban Madawaska stand out as having very high proportions of degree holders – 12.2 and 11.5% respectively – whereas urban LSLW only has 7.7%. On the face of it, then, LSLE appears to benefit from higher education levels than Madawaska. The reality is not quite as simple. Whereas about 55% of LSLE's population is urban, 62% of Madawaska's is – education levels in the regions as a whole are in fact very similar. However, if this is related to the results of the preceding section, then it can be deduced that substantially lower salaries are paid in Madawaska than in LSLE to a similarly educated workforce[10].

One possible explanation is the heavy dependence of Rimouski (the principal urban area in LSLE) upon public sector jobs: the university, hospital, colleges and government offices account for a good proportion of total employment. This may account for both the high levels of education and for the high wages in LSLE.

To conclude, education levels in comparable regions outside Quebec are similar to or higher than those within. At the very least it can be said that the Quebec regions do not have a competitive edge in relation to their New Brunswick counterparts on the education front. Coupled with the information on wage levels (higher in Quebec) and participation rates (lower in Quebec), these factors may go some way to explaining the different trajectories observed when it comes to total and manufacturing employment.

9.3 The Border Effect

The comparison above is far from exhaustive. However, it highlights some of the principal results derived from our statistical analyses and applies them to some specific regions. In doing so the general trends presented in the first part of the chapter can be better understood and contextualised.

However, we do not feel that the whole story can be told on the basis of data analysis. What we have established with the data is that there are clear differences between comparable regions in adjacent provinces. In particular it is hard to argue that Gloucester and Gaspésie differ fundamentally in terms of resources, climate, location or culture. Similarly, Madawaska and the Lower St. Lawrence are even closer to each other, sharing a common border as well as a similar resource base, climate and culture. Thus, factors drawn upon in the preceding chapters to explain the differences which we have highlighted cannot be drawn upon here without substantial care and qualification. We believe that they do not provide an explanation for the differences observed.

If these factors are ruled out, then those factors which have not been mentioned may play a role. In both cases, the principal difference is the province within which the regions are located: but a province is a purely administrative construct. One is thus inevitably led to suggest that, at least in part, institutional, regulatory and policy factors explain the observed differences.

We have not explored in detail the myriad of institutional, regulatory and policy differences between New Brunswick and Quebec, but a few have been brought to our attention which we believe merit further consideration.

First, the regulatory framework in Quebec is perceived as being more constraining than that in New Brunswick. We are aware that the regulation of the working week, of health and safety considerations and other such matters are important to workers. However, in a competitive environment, these advantages can be perceived as costs by the employer: if a move across a border will reduce these costs without fundamentally altering anything else then the move may be tempting. Whether the regulatory framework should be tightened in New Brunswick or loosened in Quebec in order to even out the border effect depends on whether one adopts the employees' or the employer's perspective.

Second, the minimum wage in New Brunswick is lower than that in Quebec, reflecting the wider point just made about the regulatory framework. On one level this can be seen as an advantage for Quebec workers who receive better remuneration for low-skilled employment. But in a context where employers are not held to a particular province, and in industries where cost advantages are cru-

cial (such industries are all those which are not producing high value added or niche market goods), then over the long term higher wages will tend to drive out employers, particularly if there exists a very similar location with lower wages. Of course, depending on the perspective adopted, it could either be argued that wages should be raised in New Brunswick or lowered in Quebec. The central point being made is that such differences seem to have an effect on location decisions.

Finally, New Brunswick is a far smaller province than Quebec. In relation to the central parts of New Brunswick, peripheral areas carry substantial weight: Madawaska and Gloucester combined represent 17% of New Brunswick's total population. All of our five regions combined (Saguenay Lac St. Jean, Abitibi-Témiscamingue, Lower St. Lawrence, Gaspésie and Côte-Nord) represent only 11% of Quebec's population. This has important implications for the setting of regulations at the provincial level. In New Brunswick items such as the minimum wage and the regulatory framework governing the workplace seem to have evolved with the particular needs of entrepreneurs in resource dependent peripheral regions in mind.

An argument could be made on the basis of this analysis for greater independence at the regional level in matters such as minimum wage and other workplace regulations. A precedent for this exists in Hull where certain taxation rates and other regulations have been harmonised with those in Ontario. A more general application of this principle – with rules and regulations being set at the regional level by regionally representative bodies – could be explored in the context of Eastern Quebec and Madawaska: however, given the apparent trade-off between higher wages and more stringent regulations on the one hand (which benefit employed workers), and more jobs on the other (which will benefit some unemployed workers, and entrepreneurs, at the expense of the employed), it is not certain that shifting this difficult decision to the regional level will necessarily make it any easier.

9.4 Conclusion

In this chapter a close look has been taken at the differences between provinces. For this reason, after a general overview, a series of specific comparable regions have been selected. Had our mandate

also covered Ontario, a comparison of Abitibi-Témiscamingue with Northern Ontario would also have proved fruitful since here too regions which share much in common except provincial regulations could be compared.

Our comparisons have shed important light on some of the differences between provinces which cannot be explained by general principles such as distance and urban size. Of course, it has been amply shown in this report that these dimensions are of crucial importance. However, in this chapter we show that regions which are closely matched along all dimensions except province display substantially different economic and socio-economic profiles. This has led us to hypothesise that it is the provincial regulatory framework which is the principal differentiating factor between these similar regions. This has, in turn, led us to suggest that a degree of increased regional autonomy in the setting of provincial regulations may help to alleviate some of the starker border effects noted in the analysis above. However it should be recognised that increased regional autonomy regarding the regulatory framework cannot resolve the fundamental issue of inter-regional competition.

With this our analysis is at an end, and we will turn in chapter ten to an overview of our principal conclusions and to the recommendations which these conclusions entail.

NOTES

[1] Section 36.(1), 1982 Constitution Act: "Without altering the legislative authority of Parliament or of the provincial legislatures, or the rights of any of them with respect to the exercise of their legislative authority, Parliament and the legislatures, together with the government of Canada and the provincial governments, are committed to (a) promoting equal opportunities for the well-being of Canadians; (b) furthering economic development to reduce disparity in opportunities; and (c) providing essential public services of reasonable quality to all Canadians".

[2] Coulombe (2000).

[3] Almost identical results are found for private sector employment.

[4] In this chapter, "salary" is defined as work income by person employed. Thus it includes part-time and seasonal work. As such, it is not exactly a measure of salary. However, it is an indicator – the only one available – of relative salary levels.

[5] This is not taken into account by controlling for center/periphery and urban/rural. A variable measuring the distance from Toronto may capture this effect.

[6] Western Newfoundland is significantly more remote than the other regions: this will be returned to below, where it is noted that despite its remoteness Western Newfoundland has, on many indicators, performed no worse than Gaspésie.

[7] See Shearmur and Polèse (2001).

[8] See Shearmur and Polèse (2001), and chapters 3 and 4.

[9] Traditional sectors have been defined as follows: fish processing, non-metallic mineral products, wood transformation, paper, metal transformation. All other sectors are deemed non-traditional.

[10] The percentage of university-educated people is a good indicator of overall education levels (Coffey and Shearmur 1996), and it has the advantage of being easy to interpret since it is at the end of the scale. On the basis of this analysis we cannot comment on the specific wages paid to specific types of worker. The point we are making is that lower average wages in Madawaska cannot be attributed to a less qualified workforce.

CHAPTER 10

The Future of Peripheral Regions in Quebec and Atlantic Canada

In this study, we have looked at the fundamental spatial trends shaping the Canadian economy. We have also looked at their impact on the development of what we have termed "peripheral" regions, with particular emphasis on eleven regions in Quebec and Atlantic Canada. We have seen that the global outlook for peripheral regions is cause for concern. Most peripheral regions will see their populations decline. All peripheral regions will, in the future, face major challenges. In this chapter, will shall attempt to summarize those challenges, attempting also to draw certain policy conclusions. We will not, however, be making any detailed policy proposals, since these would go beyond the objectives of this report.

10.1 Peripheral Regions Will not Die: Towards a New Equilibrium

One must beware of drawing the wrong conclusions from the previous chapters. Some observers might be tempted, on the basis of our results, to conclude that most peripheral regions in Canada are destined to die. The policy conclusions that follow from such an attitude are obvious: trying to develop peripheral regions is a lost cause and a waste of taxpayers' money. Money spent on regional development is merely social welfare in disguise. Why not simply let market forces do their work and allow these doomed regions to gradually fade away, and when the process is complete perhaps turn them into national parks or nature reserves? Let the last person to leave turn out the light and close the church door.

It would be unfortunate if such were the conclusions drawn from this study. Not only do such (negative) conclusions not auto-

matically follow from the previous chapters, but they are also useless in policy terms. Before drawing apocalyptical conclusions, a dose of humility is in order. We must distinguish between what we know and what we do not know, and also between what is feasible and what is not. What we *know* is that populations will in all likelihood decline in the majority of peripheral regions, the predictable result of the combined impact of the demographic transition and expected future trends in employment. In some cases, the decline will be dramatic, especially for communities whose livelihood is entirely based on a single threatened resource. But, except for such extreme cases, we do *not know* where this process will eventually end, that is, at what point in time and at what population and employment levels peripheral communities will eventually find a new equilibrium. The majority of peripheral communities will not disappear. There is little doubt in our mind that St. Anthony, Newfoundland, and Gaspé on the peninsula of the same name, to take two clearly "peripheral" communities, will still exist in fifty or a hundred years (and beyond) but, in all likelihood, with smaller population and employment numbers. The employment base of the future will, it is reasonable to predict, have a higher knowledge content, and thus pay higher wages.

Population decline does not necessarily mean the end of development. Economies and population evolve. The long-term process is schematically illustrated on figure 10.1. The lower line, which measures higher knowledge-content occupations, rises over time because: a) all industries, including the primary sector, are becoming more knowledge-intensive; b) new knowledge-intensive, high value-added, products will emerge, which can be profitably produced in peripheral locations. We have seen in previous chapters, notably chapter 7, that there is no lack of innovation or inventiveness in peripheral regions. Entrepreneurs are continually finding new uses for existing resources[1]. However, as noted earlier, the new equilibrium will mean lower employment and population levels. But, let us repeat, we cannot predict what those levels will be. Increases in productivity will, for example, continue to depress employment in specific industries (say, in the fusion stages of aluminium production); but it is unlikely that employment will ever fall to zero. Such export-base employment will pay higher wages; this will in turn support employment in local consumption sectors.

There are numerous reasons why people will continue to live and work in peripheral communities. Many have already been evoked in previous chapters:

a) Local resources will continue to be exploited (and sometimes transformed) although with fewer workers. Consumers will continue to demand fresh fish and seafood. Wood will continue to have its uses. Hydroelectricity is not about to be replaced by other energy sources. Energy-intensive industries will continue to find it profitable to locate near power sources. Goods will have to be transported.
b) In some regions, new resources will be discovered and exploited. Natural gas and oil off the coasts of Newfoundland and Nova Scotia are recent examples.
c) The maintenance, care, and stewardship of natural resources will continue to require a local presence: i.e. game and forest wardens; sylviculture and replanting. The seas must continue to be policed and inspected.
d) Local infrastructures must be maintained: roads; harbours; airports; power lines and stations; etc. Various "peripheral" deep-sea ports will continue to act as transhipment points: i.e. for wheat; iron ore; etc.
e) There will always be a (tourist) demand for the great outdoors and spectacular scenery, with everything from whale watching, hiking, hunting and fishing to cross-country skiing and skidoo expeditions. Again, infrastructure must be maintained and services provided.
f) Public services must be provided for local populations: public administration; policing; education; health. As populations age, the latter will become increasingly important. Population decline will necessarily mean rethinking public service provision in low-density areas.
g) In peripheral communities north of the St. Lawrence River, specifically in the Northern Abitibi and Saguenay regions and on Quebec's North Shore, the demographic vitality of Native populations will, in some cases, compensate for non Native population decline, ensuring continued population growth. This will present new challenges in terms of community organisation, public service provision, and local economic development.
h) Communities that offer a cost advantage (such as lower labour costs and turnover) to offset the costs of distance will continue

to attract industries sensitive to labour costs and employee loyalty. Call centres and textiles are current examples.

i) As noted earlier, innovation at all levels will continue to generate new products and new resource uses, which can be profitably produced in peripheral areas. Many of those products have not yet been invented.

j) There will always be people, at least in most cases, who *want* to continue to live in particular communities, and who are willing to make the effort (and bear the necessary costs) in order to make their enterprises and their communities work. Every community has its heroes. The vitality of the French-speaking business class in New Brunswick manifestly owes a lot to the collective determination and sense of commitment of the Acadian community[2].

The last point merits additional comment. Freedom of movement and of establishment are fundamental values of a free society. Governments in Canada cannot command citizens where to live. Canadians are free to leave their communities (as many do), but are also free to stay, and others to settle. Of course, persons choosing to live in small towns or in low-density areas should not expect to find the same mix of public service as residents of a major city. They know that they will have to travel to have access to, say, a specialized hospital or a post-secondary educational institution. Delivering services to dispersed populations implies costs, which *de facto* put limits on our freedom of establishment. At some point those costs become exorbitant. A discussion of the norms that should guide the financing and delivery of public services falls beyond the purview of this study. Our point is simply this: while acknowledging the constraints imposed by the costs of public services, Canadians nonetheless remain largely free to reside where they the choose over a wide range of possible locations. Governments cannot simply order people to vacate an entire region, putting aside exceptional situations such as natural disasters, armed conflict, or health risks.

This means that statements along the lines “let’s just close down region x” or “why not turn it into a park?” are politically useless and basically irresponsible. This is not to say that we should not expect closures of remote agricultural villages, isolated out-ports, and mining communities whose mine has run dry. Such closures will most certainly occur. In many cases, it is the community itself that will come to the painful conclusion that it is no longer viable, that it

can no longer support the basic services needed to ensure an acceptable quality of life. But, this is a far cry from the abandonment of entire regions or of well-established towns and cities. In most peripheral regions, populations will increasingly concentrate around regional service centres, which in some cases may even grow in size. In sum, the regions identified in this study have a future. They will not simply fade away. Profitable economic activities will continue to develop there and people will continue to live there. However, the transition from A to B will not be easy. For many communities, it will mean accepting a long period of population decline before reaching a new plateau, a plateau whose contours we are unable to predict at the moment.

For the governments, this means introducing strategies that will allow peripheral communities to make the transition in the most economically efficient and socially acceptable manner possible. The emphasis of this study has been on jobs rather than on income maintenance (which can, in part, be achieved via transfer payments). If job opportunities are to be created in the future to offset (at least in part) expected job losses, then future economic development policies must, at a minimum, seek to reduce non-market obstacles that make it difficult for communities to adapt to changes in technology and demand. This, however, implies a better understanding of the obstacles to job creation in the peripheral regions of Quebec and Atlantic Canada.

10.2 For Some Regions the Transition Will Be More Difficult than for Others: Identifying the Obstacles

At this juncture, it is useful to recall the distinction between mega-trends, which affect peripheral regions as a whole, and more specific factors, which explain why some regions do better (or worse) than others. The mega-trends are unambiguous. The peripheral share of total (Canadian) employment and population will continue to fall in the foreseeable future. Employment and population will continue their gradual shift towards central locations, in and around major metropolitan areas. These mega-trends are irreversible, at least as far a we are able to predict. They cannot be changed by public policy. They are the inevitable result of changes in demand and in technology. The arrival of the knowledge-based economy

and information technologies does not alter this fact. All this should be amply clear by now. Public policy, specifically policies that seek to reduce income disparities, may slow down the rate of adjustment, but they will not reverse the observed trends. As such, it is useless both to blame public policy for the concentration of employment in and around major metropolitan areas and to expect public policy to reverse the trend[3].

That being said, we have observed significant differences among peripheral regions, specifically between the eleven study regions of Quebec and Atlantic Canada. Specific factors, including public policy, can affect a regions' ability to adjust and, in particular, affect its future capacity to attract jobs. In preceding chapters, we have attempted to analyze some of those factors. In the remainder of this section, we shall attempt to summarize our conclusions by means of an analysis that mixes qualitative and quantitative information. The qualitative analysis draws heavily on our field visits and meetings with local entrepreneurs, civil servants, and other stakeholders[4].

Four Obstacles to Regional Economic Development

We have synthesized the results of the preceding chapters by identifying four broad factors that can influence a region's relative capacity to attract employment, but which can equally be interpreted (when taken negatively) as potential obstacles to regional job creation. Let us recall that, as always, we are talking about mainly private sector employment, specifically, employment that will strengthen the region's export base.

In figure 10.2, we have rated each of our eleven regions on the four factors (or obstacles), and we compute a composite score. On each factor, a region can obtain a maximum score of + 2 and a minimum score of – 2. This yields a range of 5 points. As noted above, these scores necessarily entail an element of personal judgment and intuition. Each region is rated in terms of its estimated *relative* position compared to the others, not in terms of its position compared to, say, Montreal. All these regions, let us recall, are defined as "peripheral". In principle, a composite score (which is represented by the darkest bar) above "0" should signify an above average estimated potential for future job creation. It might also be interpreted

(although with caution) as meaning possible employment growth above or near the Canadian average. Finally, our rating is based on *existing* conditions, not on what might be. A low rating can therefore be interpreted as an obstacle to development. As we shall see, some obstacles are more difficult to alter than others.

Distance and Transport Costs

All eleven regions are, by definition, distant from major markets. Otherwise they would not have been classified as peripheral. However, some are more peripheral than others, to reuse a phrase coined in chapter 6. The impact of distance on transport costs, its impact on industrial location, and the persistence of that impact, have been amply explained in previous chapters, and need not be repeated here. As we have seen, this factor clearly hurts some regions more than others. We have given the maximum negative score (– 2) on this factor to Western Newfoundland and Quebec's North Shore. In the latter case, however, the Lower North Shore is obviously more "peripheral" than the Upper North Shore (with Baie-Comeau as its chief urban centre). We have also ranked the Gaspé and the Abitibi-Témiscamingue regions below zero, although less so (– 1). Here again, important intra-regional differences exist, notably between the Magdalen Islands (which, taken alone, would warrant a – 2) and the Gaspé Peninsula as such.

For most regions, especially those with the lowest scores, distance will remain a major obstacle to job creation. Given megatrends in the location of jobs, it will most probably signify continued (net) rates of job creation well below the Canadian average. The capacity of governments to modify the distance obstacle is limited. As noted earlier, geography cannot be legislated away. If we exclude the option of massive targeted subsidies to transporters, there is little leeway for public policy to significantly alter relative transport costs. In any case, such subsidies have fallen out of favour, in part because past experience has shown them to be ineffective, with often-unintended side effects[5]. On the whole, transport costs in Canada appear to reflect market forces, notably in trucking where a healthy competition reigns. But this is of little consolation to eccentrically located regions with low densities, which must often bear higher unit transport costs in addition to direct distance related

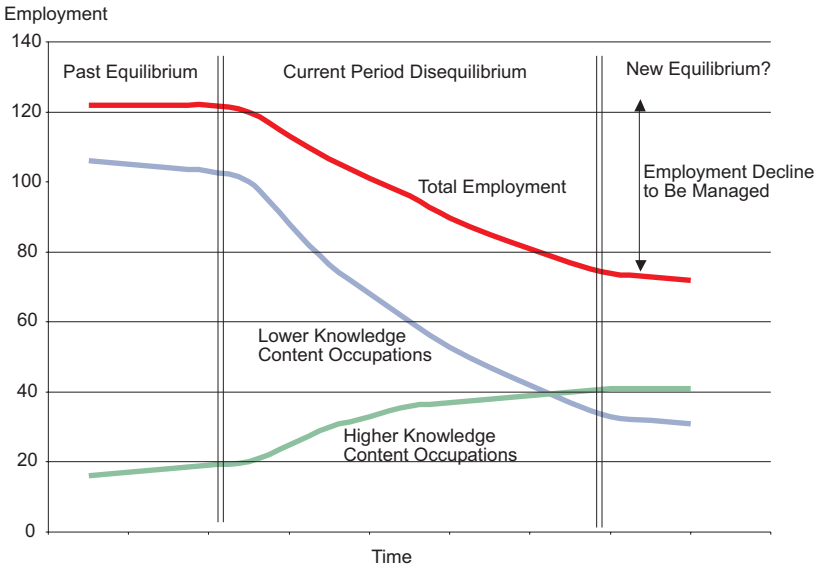
costs[6]. This combination is one of the reasons we scored Western Newfoundland and Quebec's North Shore so low on this factor.

We are, however, much less convinced that current airfares are a true reflection of market forces. It would appear that airfares on low volume routes in Eastern Canada, specifically those now served by Air Nova (an Air Canada affiliate), have risen significantly since the purchase of Canadian Airlines by Air Canada. We have no hard data; nor is this our field of experience. However, we have noted an absence of competition on many routes, and have found ourselves paying fares that appear, *a priori,* difficult to justify. There is a definite perception in the communities visited that they are currently being discriminated against. High airfares are particularly harmful to island economies, where tourism and perishable exports (such as lobster and other ocean products) are very dependent on air transport. Ensuring that airfares are a true reflection of market forces, and are perceived to be, is a valid public policy objective.

Returning to land transport (sometimes with ferry connections), which remains the dominant mode in most regions, every community has its particular grievance and favourite project that it would like to see realized. Commenting on each project falls beyond the purview of this study. There is no doubt that the construction of a bridge (or other fixed link) across the Saguenay River at Tadoussac would improve transport to and from Quebec's North Shore. The completion of a four-lane highway on the Trans-Canada between Rivière-du-Loup and Edmundston might allow the Lower St. Lawrence region to profit more fully from its location on the Halifax-Montreal transport corridor. The completion of route 138 east of Natashquan (a major undertaking) would certainly reduce the isolation of the Lower North Shore and Newfoundland's Northern Peninsula, perhaps making it profitable to launch certain activities[7]. However, in all cases, even with major improvements in transportation infrastructure, distance will remain a major obstacle. The only way that activities can become profitable under such condition is if the costs imposed by distance are offset by advantages elsewhere.

Urban Centres and Agglomeration Economies

The principal factor that offsets the effects of distance is city size and its accompanying agglomeration economies, as has again been amply demonstrated in previous chapters. As we have seen, ag-



Note: Lower and higher knowledge content occupations are present in all economic sectors.

Figure 10.1. Overall Employment Trend and Its Components: Higher Knowledge Content and Lower Knowledge Content Occupations

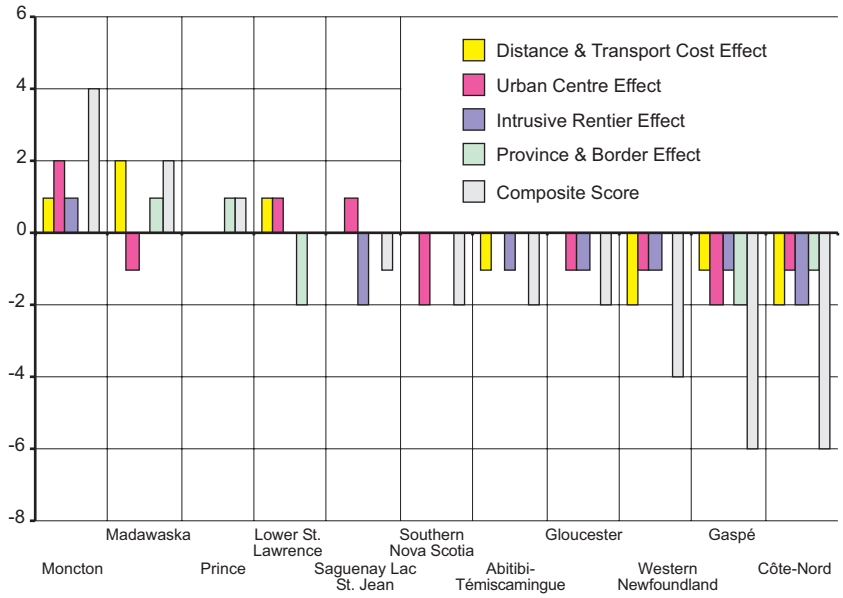


Figure 10.2. Projected Job Creation Potential: Subjective Rating of Eleven Study Regions on Four Factors

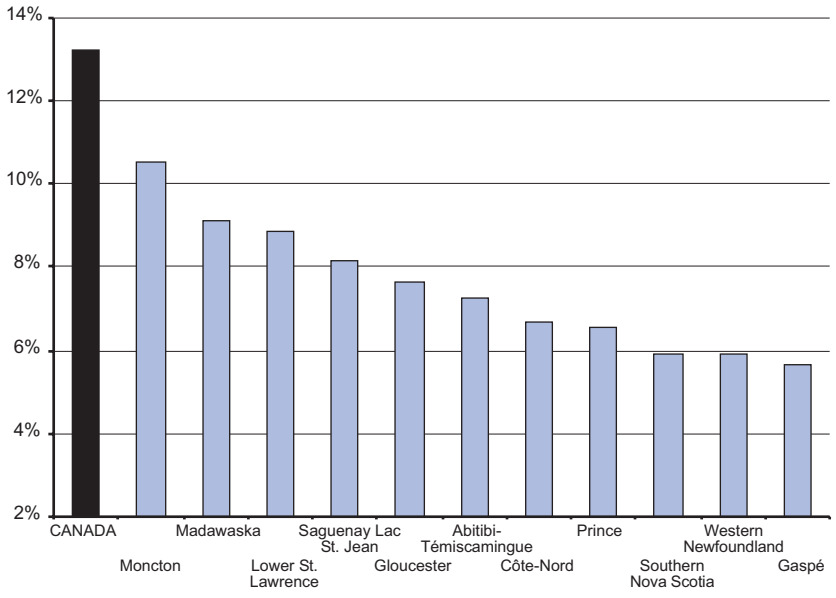


Figure 10.3. Eleven Study Regions Ranked in Order of Percentage of University Graduates (Population 15 Years and over, 1996)

glomeration economies are a key factor for knowledge-intensive activities (see chapter 3). In particular, these activities benefit from the presence or proximity of a large metropolis with a wide range of industries, services, and institutions and a large pool of highly educated labour. Again, all eleven regions are, by definition, at a disadvantage on this factor. Otherwise, they would not have been classified as peripheral. With the exception of Chicoutimi and Moncton, no urban area has a population above 100,000; all other urban areas are below 50,000.

Understandably, the three regions that are ranked above "0" on this factor are Saguenay Lac St. Jean, Lower St. Lawrence, and Moncton, with the latter receiving the highest score (+ 2) due to its role as a hub and regional service centre. All three house a regional university and various public institutions. As its largest centre (Rouyn-Noranda) houses a regional university the Abitibi-Témiscamingue received a neutral score (0) despite the fact that its urban centres are fairly small[8]. Prince was also given a neutral score because of the proximity of Moncton and Charlottetown. All others received negative scores, with the lowest scores (– 2) going to Southern Nova Scotia (totally rural) and the Gaspé, which lacks a medium-sized urban centre. The capacity of governments to influence this factor is probably even more limited than their capacity to curb the effects of distance. Canada's urban hierarchy, especially in the East, is well established. The great waves of settlement and urban growth lie in the past. There is little likelihood that the *relative* ranking of cities will change much in the future. The Montreal urban region will always be around thirty times more populous than Chicoutimi; the Toronto urban region will always be about forty times larger than Moncton. This relative disadvantage will not disappear.

We know that education levels and city size are strongly correlated (see chapter 3). We have thus ranked the eleven regions in order of the proportion of university graduates in the labour force (figure 10.3). All eleven regions are below the Canadian average, a confirmation of their collectively "peripheral" character, and of the disadvantage of not having a big city. As would be expected, the three regions that received positive scores on the city-size factor (figure 10.2) have higher proportions of university graduates, with Moncton at the top. The three most rural regions have the lowest proportions, with the Gaspé in last place. However, two cases merit

further comment. That Prince County ranks low in terms of the proportion of university graduates is not entirely surprising, since this remains a largely rural county. But the result is more surprising if we recall Prince County's apparent success in attracting high and medium value-added industries (chapters 3 and 4) and in maintaining a growth rate of employment close to the Canadian average (chapter 6). Thus, Prince County's success is not based on the presence of a major urban centre or of a large pool of highly educated workers. This suggests that employment in high and medium value-added industries in Prince County is largely composed of medium-technology and assembly-style functions, which are sensitive to labour costs and to worker turnover.

The position of Madawaska in second place is also somewhat surprising. The fact that this is largely an urban county is part of the explanation. The University of Moncton has its second largest campus in Edmundston. However, a complete analysis must include the positive global performance of the Madawaska economy, which "pulls in" educated workers because of high sustained labour demand. This is in part a circular process: growing labour markets draw in skilled labour. This would explain why the Moncton area has a higher proportion of university graduates than the Lower St. Lawrence and Saguenay Lac St. Jean regions. This is an encouraging result, for it suggests that educated labour *can* be attracted to smaller cities *if* the conditions are right. Policies aimed at attracting and holding educated labour are thus not necessarily doomed to failure, which is especially good news in the knowledge-based economy. We were often told in the field, and have repeatedly emphasised in this book, that skilled labour is *the* key variable in the knowledge-based economy.

Thus it is not surprising that almost every community has its favourite project for a research centre, a university, a community college (CEGEP in Quebec) or other learning and research facility. Such facilities are plainly a means of attracting and holding skilled labour. However, governments have only limited leeway in playing with the location of educational and research facilities. The number of potential facilities is necessarily limited; they cannot be located everywhere. Educational facilities must be located close to the populations they wish to serve. The most sophisticated facilities (i.e. universities and research centres) are necessarily very sensitive to scale and agglomeration economies. In most cases, considerations

of efficiency and performance will push governments to locate such facilities in or near a large urban centre, unless the research (or learning) function requires a physical presence elsewhere, for example, mining or ocean research. The forces that push knowledge-intensive activities to concentrate should be clear by now.

The essential conclusion at this point is not to repeat that governments cannot locate universities and research centres left and right, but rather that the presence of a university or of a research centre is not, in and of itself, a sufficient condition to ensure a dynamic local economy. It may not even be a necessary condition. The capacity of a university or research centre to stimulate the local economy will be limited if other conditions are not also present. For example, the economic performance of the Lower St. Lawrence region is below what one expects considering its location, the presence of a regional university, research and training centres, and a comparatively high level of university graduates. To a lesser extent, the same might be said of the Saguenay Lac St. Jean region. This suggests that there are other factors at play holding back the region's job potential, which brings us to our next obstacle.

The Intrusive Rentier (and the Impact of Seasonal Employment)

The intrusive rentier syndrome was described in chapter 7. In essence, it refers to the problems faced by local economies highly dependent on one or two high-wage (capital-intensive) industries, which largely set the tone for the local labour market. As we have seen, the impact of an intrusive rentier on industrial diversification and local entrepreneurship can be devastating. Although less dramatic in its effects, we have also seen in other communities that a highly seasonal job structure (together with the rules governing employment insurance benefits) can constitute an indirect barrier for firms wishing to diversify into other less traditional sectors, in essence, via its impact on labour recruitment. However, our rating emphasizes the intrusive rentier syndrome.

As would be expected, the two regions that are most negatively affected by the intrusive rentier syndrome (and thus receive the lowest scores: – 2) are Saguenay Lac St. Jean and Quebec's North Shore. In both cases, this is largely attributable to the dominance of

the aluminium industry, but sometimes also the occasional large paper mill. Baie-Comeau, let us recall, had the highest average wage level of any urban area in our sample, higher even than Montreal, which is certainly not conducive to business starts. The Abitibi-Témiscamingue, Western Newfoundland and Gaspé regions, as well as Gloucester County, were ranked equally negatively on this factor, but less so (– 1), due to the localized presence of smelters, mines, and large paper mills. Moncton receives + 1 because of its diversified economy. The effects of seasonal employment are most harshly felt in northern fishing communities with short seasons. Thus we have lowered Western Newfoundland's rating by an additional point[9]. All other regions were given a neutral score (0).

We need not repeat the analysis of previous chapters. Suffice it to recall that neither the Saguenay Lac St. Jean nor Quebec's North Shore have been very successful in diversifying their industrial base (see chapter 4). This, in large part, explains their low rates of employment growth. The intrusive rentier syndrome is probably the primary culprit. These are, and will most likely remain, high labour-cost locations, which when added to the costs of distance make these singularly unattractive locations for business starts in any sector where labour and transport costs are a factor. Many communities find themselves in a conundrum. As long as the large plant operates (which is of course a good thing for those employed there) employment in most other (export) sectors will stagnate because of the intrusive rentier effect. When the large plant finally closes, employment will plummet because there are no other sectors to absorb the jobs lost.

It is difficult to imagine how public policy, aside from the payment of unemployment benefits and the usual last minute exhortations to plants not to close, can intervene to remedy such situations. Subsidizing unprofitable plants is not a feasible option. Last minute attempts to restructure or re-finance plants only put off the problem to a future date, and do not go to the root of the problem. The greatest challenge to escaping the intrusive rentier syndrome is to create conditions that will allow other sectors to develop *while* the large plants are still in operation. As the unhappy record of mono-industrial communities demonstrates, this is easier said than done. The solution will necessarily imply a change in the mindset of the community, particularly that of the labour unions representing plant

workers. If the community is to diversify and to survive, workers (and thus the union) should actively *support* technological change and productivity increases at the plants in question. This will generally mean fewer jobs, which is why, understandably, it is hard for unions to accept. However, if changes are brought in cooperatively, they can in principle be planned. The long-run effect on the rest of the community will be beneficial because: a) employment will gradually wind down rather then fall all at once; b) the plant will remain profitable over a much longer period; c) as the number of employees progressively decreases, the impact of the intrusive rentier syndrome on the local labour market should also progressively decrease.

This is, admittedly, only a partial solution since the (high) wage effect remains, even if its impact is reduced as the number of workers in high-wage plants falls. Expecting workers (unions) to accept lower wages is unrealistic. However, if the community does not find some way, with the cooperation of workers and unions, to offset the high-wage effect, there is little hope of truly escaping from the negative consequences of the intrusive rentier syndrome. This will, in each case, require a high degree of community solidarity, and imagination. We can only repeat that the community must somehow offer a cost advantage to offset the additional costs of distance if it hopes to create employment in new sectors. The options are limited. Unlike nations, regions do not have the option of devaluating their currency in order to re-establish their competitive position, and unlike provinces they cannot adapt labour laws or other legislation to ensure their competitive advantage. This brings us to our fourth obstacle.

The Province and Border Effect

The impact of provincial location and provincial borders were amply demonstrated in chapter 9. In that chapter, we showed that a region can find itself at a competitive disadvantage for a number of reasons linked to the presence of administrative boundaries or to its location in a particular province. In simple terms, a region can be at a competitive disadvantage for the following reasons: a) a small region in a large province, or a region located far from the provincial capital, tends to have limited influence on provincial legislation and

limited access to the provincial administration; b) a region in which economic conditions deviate significantly from the provincial norm will tend to find that provincial legislation and regulations are not necessarily adapted to its needs; c) a region which borders on a province with laxer (or more competitive – depending on the viewpoint) work legislation and other measures affecting business costs than its home province will tend to find it difficult to attract new employers.

As we have seen, the province and border effects put regions in Eastern Quebec, especially those located close to the New Brunswick border, at a comparative disadvantage. The Lower St. Lawrence and Gaspé regions were thus given the lowest scores (– 2) on this factor. Equally, we gave the North Shore a negative score (– 1), albeit a less negative one, because of the effect of the Labrador border on Lower North Shore communities[10]. By contrast, the border effect favours New Brunswick regions close to the Quebec border, especially Madawaska (+ 1), while the province-size effect clearly helps Prince County (+ 1). All other regions were rated neutral (0) on this factor. These scores probably understate the advantage the other two New Brunswick regions draw from being located in a comparatively small province. During our meetings in New Brunswick, this advantage was constantly stressed. Fredericton, the provincial capital, is never very far; each region, though small by some standards, looms large within the New Brunswick context. Two recent premiers were graduates of the University of Moncton, which has undoubtedly had a positive impact on Moncton's access to the corridors of political power[11].

The evaluation of the province and border effect is of course highly laden with political and subjective implications. However, it has clearly had an impact, although its precise effects are difficult to quantify without further information. A rigorous analysis of the border effect would, for example, require a detailed study of Quebec/New Brunswick differences in minimum wage legislation, labour regulations, industrial decrees, and other regulations and fiscal incentives that affect business costs, and how those differences have affected the behaviour of particular firms[12]. For the moment, we can only deduce that those differences have had an effect on the basis of our data and meetings with local businessmen and women. The border effect is perhaps the chief factor that explains why the Lower

St. Lawrence has not performed better, despite a comparatively good location and two medium-sized urban centres.

It is not easy to draw direct policy implications from the province and border effect. We cannot redraw provincial boundaries. Nor should we expect provinces (in this case Quebec) to define their labour legislation and other province-wide policies on the basis of regions that account for very small proportions of their population. In Quebec, for instance, the realities of Montreal and Quebec City and of their surrounding regions will understandably continue to define most provincial norms. That being said, the lessons coming out from New Brunswick and Prince Edward Island remind us of the importance of adapting policies (provincial or federal) to local needs. Should communities be given a greater say in the manner in which certain policies are applied locally? Should greater geographic flexibility be allowed in the application of certain federal or provincial norms? If regions are to adjust and to adapt, the system must be sufficiently flexible to allow them to do so. Governments cannot change geography, but they can make policies more responsive to regional differences and to local conditions. This means rethinking the powers of local communities. Should, for example, local communities (such as MRC's in Quebec) have the option of asking Quebec City, Fredericton, Halifax, Charlottetown, St. John's (or Ottawa) to apply certain measures differently on their territory? We do not have the answer; but a debate on the issue seems in order.

10.3 Synthesis: Rethinking the Priorities of Regional and Local Economic Development

Although our analysis neglects many details and necessarily involves elements of subjective judgement, it has given us a better understanding of why some regions have fared less well than others over the last thirty years. Success as well as failure is generally not the result of one factor alone, but rather of a unique combination of factors. This does not make the search for solutions any easier. The Gaspé region scores negatively on all four factors, which largely serves to explain why its performance has been so poor, often below even that of Western Newfoundland. The Gaspé region: a) is distant from major markets, located on a dead-end transport route; b) has

no major urban centre and has a correspondingly low pool of educated labour; c) is generally not a low labour cost location because of the legacy of large high-wage employers; d) is saddled with province-wide norms that put it at a competitive disadvantage compared to its provincial neighbour. This is an explosive mix, which cannot be remedied by one or two policy measures or simply by spending money. The subsidization of industries, which is necessarily a one-shot measure, will not alter the objective realities of the costs of doing business in the Gaspé.

At the other end of the spectrum, the apparent success of some regions is also based on a unique combination of factors. Prince County: a) has a less eccentric location, within about an hour's drive from the Halifax-Montreal and Moncton-Boston transport axes; b) lacks a major urban centre, but is within close proximity to Moncton and Charlottetown; c) has a diversified industrial base with no dominant high-wage employer; d) is located in a small "flexible" province. Together with the previous factor, this flexibility has allowed it to keep the costs of doing business, especially labour costs, below that of other regions. In the case of Prince, the last two factors not only appear especially critical, they also demonstrate the advantage of regional flexibility and adaptability. The region must be able to offset the costs of distance (for Prince is indeed peripheral) with some other durable cost advantage. Admittedly, some industries in Prince have received fiscal advantages (or other subsidies), but these are only effective *in the long* run when added to other cost advantages. In the end, in Prince as in the Gaspé, it is the fundamentals that will determine the long-term development of the region and its capacity to create jobs.

Looking beyond Traditional Regional and Local Economic Development Initiatives

Some readers will undoubtedly be surprised that we have not identified financing, especially small business financing, as a major obstacle. Obviously, businessmen and women in the field raised the issue. It is natural for entrepreneurs to be concerned about financing. Few entrepreneurs like their banker, and most believe that they are being underrated. This, however, is as true in Montreal as it is in Summerside. What entrepreneur would not like better financing

conditions? That being said, there is little evidence that the financial system is working poorly and that potentially profitable projects cannot find financing. One of the attributes of a good entrepreneur is the ability to identify potentially profitable projects and then to sell his (or her) idea to a bank or other financial institution.

The evidence from the field is that there is no lack of institutions to which a local entrepreneur can turn. In addition to private banks and financial institutions, the Federal government and the Provinces have created an impressive array of institutions, to advise, support, and finance local business ventures[13]. Although different opinions were expressed, on the whole these programmes appear to function fairly well. Over the last few decades, much effort has gone into the creation and streamlining of institutions and programmes whose objective it is to promote regional and local economic development and innovation. They have *de facto* become the flagships of Canada's (and the Provinces') regional economic development strategy. By some accounts, Canada is today a leader in the field[14]. These varied institutions, whose names differ from province to province, are invaluable policy tools, and should be maintained[15]. The dynamism of local entrepreneurs (noted all throughout this report) is perhaps the best proof of their utility. This is not to say that improvements cannot and should not be made, especially in the direction of greater flexibility, a point to which we shall return. As noted in chapter 7, information gathering and dissemination continues to be a problem, especially in the most distant regions. It might also help if there were more federal-provincial cooperation. It seems silly, for example, that there are two separate networks of local development organisms in Quebec (SADC's and CLD's), one federal and one provincial. On the other hand, perhaps competition between the two levels of governments is not all that bad. Ideally, the option should be left to the community. If local leaders wish to integrate the two, that option should be open to them.

However, fine-tuning existing local development organisations is not the primary challenge. The Federal government and the Provinces have probably gone about as far as they can at this stage in the creation of local development organisations aimed at supporting, advising, and financing local entrepreneurs. We repeat, these initiatives should be continued and constantly improved. But the policy challenges of the future now lie at another level. There is no lack of potential entrepreneurs, but rather a lack of *profitable* ventures that

will create the jobs needed to offset future job losses. This means taking a new look at the obstacles that make it difficult to start up profitable ventures. This means looking at *comparative costs*, which implicitly include comparative know-how and productivity. Even the most dynamic entrepreneur will fail if he (or she) does not have a cost and know-how advantage that will allow the firm to offset the disadvantages of distance and a restricted labour pool. The tools must be adapted to local conditions and realities, and allow communities to address, where possible, the underlying obstacles to local economic development.

Facilitating the Transition to the Knowledge-based Economy

Let us return to figure 10.1. The challenge is to raise the lower curve, which represents occupations with higher knowledge content, as fast and as high as possible, in the hope that it will offset the falling upper curve, which represents occupations with lower knowledge content. This is of course easier said than done. In many cases, strategies will need to take population decline into account. Perhaps the most difficult change, especially for the most peripheral communities, is the need for a change in mindset and a rearticulation of the meaning of economic development. Population decline should not be equated with economic decline or reduced welfare. It useful to recall that even Canada's large urban centres will one day face demographic decline. The only difference is that Canada's peripheral regions will get there earlier. From a historical perspective, the demographic transition is a result of economic development, not its opposite. All industrialised societies are entering a new demographic phase, which will necessarily challenge our ways of thinking.

In the face of this reality, how best to facilitate a transition that ensures acceptable levels of welfare for all Canadians, including those who choose to live in peripheral communities? Much of the burden will fall on Canada's (and the Provinces') system of income maintenance and transfer payments[16], including the public provision of health, education, and other services. However, these policy issues fall outside the mandate of this study. Our focus is on economic development, specifically, on the creation and location of

jobs. As we have seen, Canada's peripheral communities face unique challenges, some more than others. There are many obstacles to the creation of knowledge-intensive jobs. Although these obstacles are not necessarily insurmountable, no miracle solutions exist.

That being said, what have we learned, and what are some of the possible avenues for public policy?

— The continued importance of city size, location, and geography means that strategies must be allowed to adapt to regional characteristics. Policies based on "one-size-fits all" evaluation criteria will necessarily work against the smallest and most peripherally located communities. An urban centre such as Halifax, which possesses many of the attributes of a large metropolitan region, is very different from communities located on Newfoundland's Northern Peninsula or on Quebec's Gaspé Peninsula. This not a very original statement, but the persistence of distance as an obstacle (IT will not change this) means that the differences should be explicitly recognized and addressed.

— In the context of Atlantic Canada (classified as entirely peripheral in our analysis) the Halifax agglomeration stands out as an important regional metropolitan centre. Given the importance of city size and centrality, emphasised throughout this report, the Halifax agglomeration could play an important economic role in this region[17].

— It follows that local economic development organisations and officers (who deliver federal or provincial programmes) should be given maximum leeway, within the normal constraints of accountability and transparency, in the application of those programmes. This might mean, in some cases, accepting higher levels of financial risk. It also means that local economic development (LED) organisations and officers should have the option of going beyond traditional business-promotion interventions, if that is what the local situation requires.

— Abstracting from city size and location (about which little can be done), we have seen that some communities face specific challenges, which raise the costs of doing business. For example, we have identified the intrusive rentier syndrome and the border effect in Eastern Quebec. Obstacles of this nature cannot

be overcome if they are not first recognized and openly discussed within the community. If the primary function of LED organisations is to promote the community, then it is unlikely that such issues will be addressed. Reconciling diagnosis and promotion remains a difficult policy challenge.

— In the context of the demographic transition, if community needs are to be respected, it might be appropriate to invite communities facing population decline to identify priorities and choices, and to explicitly develop strategies for public service delivery and maintenance. In the absence of locally proposed strategies, the decisions will be made in the provincial (or federal) capital.

— Education and the recruitment of skilled labour must be at the heart of any strategy aimed at facilitating transition to the knowledge-based economy. As noted on numerous occasions, net migration of the young and the educated continues to favour large urban centres. It is unreasonable to expect public policy to reverse this trend. However, it is not unreasonable to imagine a mix of incentives (federal and provincial) that could increase the attractiveness of peripheral communities. For example:

1. Tuition or debt relief for university graduates who settle in targeted regions.
2. Scholarships for graduate or post-graduate internships in targeted regions.
3. Tax relief for students studying in post-secondary institutions in targeted areas.
4. Research chairs for institutions, including industrial research, in targeted areas.
5. Increased focus on knowledge-transfer centres and applied learning, specifically via community colleges (CEGEPs in Quebec), including access to the incentives above.

In addition to existing federal and provincial programs, such incentives might be part of a more diversified tool-kit available to LED officers and organisations, whether provincially or federally funded.

— Certain transportation and communications policies (federal and provincial) might be re-examined in light of the realities of the

knowledge-based economy. We have noted the growing importance of face-to-face contacts. As such, a new look at the regulations governing air travel in Canada might be appropriate. We are not convinced that current service (in peripheral regions) is a true reflection of market forces. Regulations governing IT might equally be re-examined in a similar light.

We have also seen that inter-provincial differences can affect the relative competitiveness of communities, specifically border communities. This suggests two further avenues for policy reform:

— Both the Federal and the Provincial governments should examine the possibility of greater territorial flexibility in the application of policies and regulations that affect the relative competitiveness of territorial communities. Provincial governments might allow local governments greater flexibility in certain areas. Provincial and federal regulations should not become straightjackets that make it difficult for communities to compete. However, greater flexibility should not become a pretext for a "race to bottom" (i.e. subsidy wars) between communities.

— Both the Federal and the Provincial governments should explore the possibility of establishing inter-provincial local development agencies in border areas. At least, they should try to promote greater inter-provincial harmonization in the area of local economic development[18].

NOTES

[1] Côté and Proulx (2002) produce a useful list of new products and new resource uses found in the five peripheral regions of Quebec. See also table 7.1 in chapter 7.

[2] The rise of this Acadian business community is described in Desjardins (2001).

[3] It is important that this statement not be misinterpreted. We are not saying that public policy has no impact on the location of economic activity. It does. In Canada, major public policies such as the National Policy, the Auto-Pact, and, more recently, NAFTA, have undoubtedly affected the location of economic activities across regions. What we *are* saying is that public policy has little impact on mega-trends, observed in all nations, of geographic concentration in and around

large urban centres. No nation, even those in the past with planned economies (USSR, China), has been successful in controlling the rate of urbanisation.

[4] See appendix 5 for a complete list of persons met. The reader may also wish to consult Desjardins (2001), Johnson (2001a, b, c), and Côté and Proulx (2002), which include more detailed information about each study region.

[5] Subsidizing the out-shipment of bulk goods can, for example, hamper the development of a local processing sector. Such a policy ends up being a subsidy to centrally located processors. During our October 2001 Montreal workshop with Scandinavian and British experts, there was a general consensus that subsidized transport was an inappropriate tool for regional economic development. See also chapter 6.

[6] The relationship between location and unit transport costs is explained in chapter 6.

[7] In both of these remote areas, we were told that undertakings had failed simply because of transport costs. For example, the cultivation of mussels was discontinued because of the (excessive) cost of getting them to market. The completion of the Trans-Labrador highway (linking Blanc-Sablon, Goose Bay, Labrador City/Wabush, and then Baie-Comeau) will somewhat reduce the isolation of these two regions. However, it still leaves the communities west of Blanc-Sablon without a road. Also, the indirect northern circuit taken (via Labrador City/Wabush), with some parts not necessarily paved, means that this will remain a costly route for getting goods to southern markets.

[8] Recall also that the (urban) Abitibi-Témiscamingue scored well on the two indicators of advanced services (chapter 3, figures 3.7 and 3.8).

[9] Correctly relating these two obstacles to diversification necessarily involved an element of judgment. The two obstacles are often intermingled. Thus, in the case of the Gaspé and Gloucester, we felt that the negative points given to these regions on the intrusive rentier syndrome were sufficient to account for the impact of the seasonal effect. Southern Nova Scotia, although highly specialized in fishing, has a longer season.

[10] Distance aside, the much more favourable conditions in neighbouring Labrador were identified by those we met as the chief obstacle to economic development on the Lower North Shore. Some interviewees went so far as to suggest that the area would be better off as part of the Province of Newfoundland and Labrador. As in other regions, distance from Quebec City (and from Ottawa) was a constant complaint.

[11] In some ways, our argument is similar to that of Savoie (2001), but at a different geographic and institutional level. Savoie argues that the problems of the Maritime Provinces stem in part from their lack of political clout at the federal level, due in part to the absence in Canada of a true senate or regional chamber (as in the U.S.), where all constituent members of the Federation, no matter how small, carry the same weight. We are basically saying that the same reasoning applies to small regions located in big provinces.

[12] An in-depth study would undoubtedly reveal that all the differences do not necessarily favour New Brunswick. For example, it seems that Quebec has more generous R&D incentives. However, the overall impression is that New Brunswick is often a lower cost location, especially for medium and lower value industries. But again, this impression needs to be verified.

[13] See Côté and Proulx (2002) for a more detailed discussion and listing of institutions. Johnson (2001a, b, c) also raises this issue for West Coast Newfoundland and for Prince County.

[14] OECD (2002).

[15] The importance of such institutions for local communities was brought home during a recent visit by one of the principal authors to the three poorest southern states of Mexico, as part of a World Bank mission, with the objective of formulating an economic development strategy for these "peripherally" located regions. It soon became clear that the absence of local economic development organizations in Mexican localities was one of the primary factors explaining the relative lack of a local entrepreneurial culture.

[16] As well as mentioning traditional transfer payments, some of the people we met raised the possibility of local communities levying a tax upon the extraction of natural resources located on their territory. This is a very delicate question which basically calls for a transfer of taxation powers between levels of government: as such, this question goes well beyond the mandate of this report.

[17] The study of Halifax was not part of this report's mandate. However, it is clear that a more detailed study of Halifax's role in Atlantic Canada would be of particular interest.

[18] On this last point, there is room for optimism. The Quebec and New Brunswick governments recently announced the creation of a bilateral committee to jointly promote the economic development of Northern New Brunswick and the Gaspésie. *L'Acadie Nouvelle*, March 6, 2002.

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APPENDIX 1

Employment and Population Statistics, Canada 1971-1996: Data Base and Geographic Classification

1. Data Source

Most of the statistics presented in this report are derived from the 1971, 1981, 1991 and 1996 censuses. Thus the basic trends identified in this report are derived from the analysis of a unique database constructed from census data. This database enables the detailed analysis of spatial trends in the Canadian economy. The data are unique because they combine three characteristics.

First, they cover the 1971 to 1996 period, and are comparable both in terms of geographic boundaries and in terms of variable definitions over this period. They enable trends to be analysed over the long term.

Second, the level of geographic detail is high. Canada is divided into 382 distinct geographic units. Furthermore, these units distinguish between urbanised (CMAs, CAs and CSDs of over 10,000 inhabitants[1]) and non-urbanised areas.

Third, the number of variables available for analysis is high. The database comprises employment numbers for 142 distinct economic sectors (see appendix 2) crossed with 6 occupational categories, and the entire 2B census profile (approximately 200 variables, depending on the year) for *each* of the 382 spatial units.

A second data source has enabled us to update certain economic trends over the 1996 to 2000 period. This is the Statistics Canada labour force survey, specifically the CD-ROM entitled *La Population active* (Catalogue 71F0004XCB, 2000). This data source is based upon a survey, and therefore presents estimates of the number of people employed in each sector and each economic region of Canada. Two important provisos should be mentioned: first, the estimates by sector and by region are based upon very small samples. Therefore the data are indicative only, and when there is an incompatibility between these data and the census data it is always the census data which should be relied upon. Second, economic regions as used in the labour force survey are not always identical to the regions we have chosen to study in this report. Although we do not think that the trends identified by using these data and regions are misleading (they are in nearly all cases compatible with the longer term trends identified from census data), they should nevertheless be treated with more caution than the results derived from census data.

2. Geography

Two "geographies" have been combined in order to arrive at the 382 distinct geographic units upon which the analysis of census data is based. On the one hand, the 152 urban areas (25 CMAs, 115 CAs and 12 CSDs[2]) with over 10,000 inhabitants in 1991 have been identified according the 1991 boundaries. All data for 1971, 1981 and 1996 have been adjusted to these urban boundaries. On the other hand, data covering the entire territory of Canada by 1991 Census Division (290 CDs) have been obtained. All data for 1971, 1981 and 1996 have been adjusted to these territorial boundaries.

To create a single database, data for the urban areas have been subtracted[3] from data for the CDs within which they are located. In cases when an urban area overlaps a number of CDs, the CDs were first aggregated, and the urban area variables subtracted from the values for the aggregated area. The result of these geographic operations is a total of 382 distinct spatial units (SUs), 152 of which are "urban" and 230 of which are "rural" (map 1.1).

3. Variables

Two separate sets of census data are combined in this analysis: detailed employment data, and data from the 2B census profiles.

The employment data for 1971 to 1991 were obtained prior to this project by Coffey and Polèse, and various analyses have been conducted (e.g.: Coffey and Shearmur, 1996; Polèse et Roy, 1999), though none which focussed upon development in outlying regions. The data were selected according to the 1970 Standard Industrial Classification (SIC) codes and the 1971 Standard Occupational Classification (SOC): 161 economic sectors and seven classes of occupation (including one undefined) were obtained. In the context of this study the data were updated to include the 1996 data, defined according to the 1981 SIC and 1991 SOC codes.

In order to make the economic sectors compatible, it has been necessary to aggregate some of the 1971 to 1991 sectors: the result is that there are 142 compatible sectors which can be analysed from 1971 to 1996. It has not been possible to adjust the occupational classification in this way since the 1991 SOC is radically different from the 1971 SOC. For this reason, no attempt has been made to ensure strict comparability: indeed, by 1991 the 1971 SOC was outdated, so the shifts observed between 1991 and 1996 in our data (particularly for some white collar occupations) are a necessary correction. In terms of occupations we therefore have 6 occupations[4] covering the 1971 to 1996 period, with a shift between 1991 and 1996 corresponding to the reclassification of some activities.

4. Some Definitions

In the analyses which follow, a number of key concepts are used. They are defined as follows (see also map 1.2):

— *Metropolitan area:* A CMA of over 500,000 inhabitants in 1991.

— *Urban area:* A CMA, CA or CSD of over 10,000 inhabitants in 1991. It should be noted that Statistics Canada defines a CMA and a CA as a group of adjacent municipalities with a high degree of social and economic integration.

— *Rural areas:* All areas which are not urban areas. It should be noted that rural areas can contain towns, but these are necessarily smaller than 10,000 inhabitants.

— *Central areas:* All areas within approximately 1 hour's drive (100 to 150 km) of a metropolitan area. The classification of areas in this way was introduced by Coffey and Polèse (1988a, 1988b) and subsequently used in studies such as Coffey & Shearmur (1996). The 382 areas studied have been classified in this way: account has been taken of the highway infrastructure, the spatial extent of the metropolitan area, and the characteristics of the area being classified. Thus, the central areas do not necessarily form perfect rings around metropolitan areas. It should be noted that the central areas thus defined closely mirror the ZMIs (Zones of Metropolitan Influence) which Statistics Canada has introduced for the 2001 census.

— *Peripheral areas:* This term has two slightly different meanings in the context of this study. Its basic meaning is "all areas not classified as central or metropolitan". This is its meaning in most of the general statistical analyses.

It should however be noted that in the context of our study of specific peripheral regions, a further constraint is added: in this context, a peripheral region does not include any urban area of over 150,000 inhabitants.

These definitions lead to the following classification of geographical areas. The codes correspond to those which are found in the figures and tables of the supporting statistical report (Shearmur, 2001).

AM1: metropolitan areas of over 1 million inhabitants

AM2: metropolitan areas of between 500,000 and 999,999 inhabitants

AM = AM1 + AM2

AC1: central urban areas of between 100,000 and 499,999 inhabitants

AC2: central urban areas of between 50,000 and 99,999 inhabitants

AC3: central urban areas of between 25,000 and 49,999 inhabitants

AC4: central urban areas of between 10,000 and 24,999 inhabitants

AC = AC1+AC2+AC3+AC4

AP1: peripheral urban areas of between 100,000 and 499,999 inhabitants

AP2: peripheral urban areas of between 50,000 and 99,999 inhabitants

AP3: peripheral urban areas of between 25,000 and 49,999 inhabitants

AP4: peripheral urban areas of between 10,000 and 24,999 inhabitants

AP = AP1+AP2+AP3+AP4

RC: central rural areas

RP: peripheral rural areas.

Each of these twelve classes is called a "synthetic region" (or SR). The SUs within an SR are said to be of the same type.

5. Methodology

In this report a variety of different approaches are used to present these data. The principal aim of the analysis is to understand to what extent key variables (relating to both employment and to socio-economic characteristics) vary over the classes described in section 4 above. To this end measures of relative concentration (location quotients) and absolute value – together with their changes – are calculated for spatial units (SUs) classified by centrality and urban size.

There are two ways of doing this. The first is to create "synthetic regions", for which all data from SUs of a particular class are aggregated. The aggregate data are then compared. Most of the analysis is of this sort. The second is to calculate mean or rank values for each class of SU – in effect using statistics (parametric or not) to compare a given variable over classes. Although we present the results of the first type of analysis the results are very similar if the second approach is used.

Finally, it should be noted that the income variables are means. Therefore, a complete comparative analysis should take into account the standard deviation of incomes within each region. For the purposes of this report the mean value has been taken as a deviation free variable. Furthermore, in all cases it has been assumed that the census data is error-free.

NOTES

[1] 1991 population figures have been used to select urban areas.

[2] CMA: Census Metropolitan Area; CA: Census Agglomeration; CSD: census subdivision; CD: census division.

[3] All data have been transformed into additive variables. For instance, average earned income has been multiplied by number of people with earned income. Some variables – in particular values for median income – cannot be treated in this way.

[4] The "undefined" occupation has been reassigned – proportionally – to the six defined occupations.

APPENDIX 2

Definition of 142 Economic Sectors, 18 Sector Aggregation, and Canadian Employment in Each Sector, 1971 to 1996

18 Sector Aggregation		Sector	1971	1981	1991	1996
Primary	1	Agriculture	238 607	457 648	483 283	433 605
Primary	2	Forestry	62 519	78 157	76 582	66 820
Primary	3	Hunting and fishing	23 953	31 915	34 216	33 560
Primary	4	Metallic mines	63 799	74 151	49 723	40 875
Primary	5	Coal mines	8 422	11 569	11 568	9 540
Primary	6	Petrol and natural gas	19 455	47 369	52 895	41 205
Primary	7	Non-metallic minerals	21 766	25 676	21 858	18 900
Primary	8	Oil wells and “other mining services”	6 767	14 371	33 446	39 075
Low Value Added	9	Meat and poultry	36 056	45 793	44 195	48 710
Low Value Added	10	Fish processing	27 044	48 384	39 931	25 035
Low Value Added	11	Fruit and vegetables	15 985	15 861	14 345	14 595
Low Value Added	12	Milk	28 531	26 562	23 976	22 300
Low Value Added	13	Mills and animal food	15 936	17 306	13 952	14 230
Low Value Added	14	Bread	39 725	42 573	48 247	27 085
Low Value Added	15	Other foods	31 801	39 972	41 767	40 040
Low Value Added	16	Drinks	30 369	35 617	29 502	24 540
Low Value Added	17	Tobacco	8 457	7 808	4 249	4 920
Medium Value Added	18	Tires, rubber etc.	23 232	27 693	21 212	22 495
Medium Value Added	19	Plastics	18 855	36 080	46 196	55 560
Low Value Added	20	Shoes, leather etc.	26 329	29 176	15 005	12 745
Low Value Added	21	Carpets	5 132	7 132	4 690	3 845
Low Value Added	22	Various textiles	59 090	66 325	44 837	44 665
Low Value Added	23	Clothing	104 032	130 433	101 425	93 890
Low Value Added	24	Wood transformation	92 472	135 436	108 650	133 085
Medium Value Added	25	Furniture	41 267	63 314	59 209	52 480
Low Value Added	26	Paper	115 804	138 433	119 773	104 905

Appendix 2

18 Sector Aggregation		Sector	1971	1981	1991	1996
Communication	27	Printing	97 683	126 622	153 425	159 730
Low Value Added	28	Metal transformation	104 398	122 587	100 924	85 545
Low Value Added	29	Metal products	126 441	176 985	135 688	153 260
Medium Value Added	30	Machines	59 378	93 868	67 106	79 735
High Value Added	31	Business machines	14 195	20 294	21 687	18 665
High Value Added	32	Aeronautics	23 965	37 387	42 080	38 270
Medium Value Added	33	Cars	51 613	50 380	68 353	57 225
Medium Value Added	34	Truck bodies	12 655	16 797	11 853	16 115
Medium Value Added	35	Car parts	34 592	52 164	57 437	95 835
Medium Value Added	36	Rolling stock	8 273	12 130	7 270	8 970
Medium Value Added	37	Ships and vessels	16 521	22 236	17 717	13 230
Medium Value Added	38	Other transport equipment	5 229	2 821	2 289	5 780
Medium Value Added	39	Small electrical products	7 527	7 680	4 188	3 060
Medium Value Added	40	Large electrical products	9 496	10 407	6 796	6 735
Medium Value Added	41	Lighting products	4 138	4 769	4 010	5 660
Medium Value Added	42	Radios and televisions	6 253	4 033	3 566	2 385
High Value Added	43	Telecommunications equipment and micro-electronics	42 671	49 126	44 439	58 775
Medium Value Added	44	Industrial electrical equ.	21 453	26 543	18 147	16 855
Medium Value Added	45	Electrical wires and cables	6 911	8 484	7 931	6 260
Medium Value Added	46	Other electrical products	11 472	15 717	9 660	7 870
Low Value Added	47	Non metallic mineral products	52 553	64 790	51 217	48 240
Low Value Added	48	Oil and coal products	19 132	25 574	16 778	14 550
Low Value Added	49	Fertilisers	2 951	2 561	2 564	6 120
Low Value Added	50	Plastics and resins	4 325	6 661	9 752	7 050
High Value Added	51	Pharmaceutical products	13 362	15 925	21 829	22 625
Low Value Added	52	Paint and varnish	8 029	7 808	6 874	7 060
Low Value Added	53	Soap and cleaning prod.	5 464	6 081	7 550	7 045
Medium Value Added	54	Personal hygiene products	5 390	7 403	7 619	6 245
Low Value Added	55	Industrial chemical prod.	21 907	32 260	19 310	18 805
Low Value Added	56	Other chemical products	14 037	17 199	20 911	14 930
High Value Added	57	Professional and scientific equipment	19 671	27 316	26 950	22 230

142 Economic Sectors, 18 Sector Aggregation, and Employment in Each Sector

18 Sector Aggregation		Sector	1971	1981	1991	1996
Medium Value Added	58	Other manufacturing	38 361	50 566	52 090	64 730
Oonstruction	59	Construction	482 650	663 797	735 733	668 285
Transports	60	Air transport	28 393	51 181	60 107	57 185
Transports	61	Services auxiliary to air transport	4 976	9 740	13 849	15 875
Transports	62	Rail transport	106 392	104 957	65 012	48 745
Transports	63	Maritime transport	21 171	22 253	17 832	16 695
Transports	64	Services to maritime transport	13 085	11 646	12 847	10 955
Transports	65	Trucking, removal and storage services	103 380	143 553	166 803	198 055
Transports	66	Urban transport and inter-urban coach transport	27 655	41 181	49 024	83 265
Transports	67	Taxis and other transport	34 460	54 300	70 618	36 505
Transports	68	Road maintenance	38 524	55 423	73 235	44 995
Transports	69	Services auxiliary to transport	4 544	6 376	9 257	8 120
Transports	70	Warehousing	15 365	20 606	18 363	18 810
Communication	71	Radio and tv broadcasting	23 399	41 506	56 907	49 950
Communication	72	Telephone services	73 915	114 405	122 571	109 560
Communication	73	Telegraph services	6 672	7 362	973	3 285
Communication	74	Postal services	52 974	74 489	75 215	120 395
Low Value Added	75	Electricity	61 403	90 942	104 490	83 845
Low Value Added	76	Gas distribution	9 940	13 991	15 183	16 750
Low Value Added	77	Water distribution	6 415	8 754	6 706	9 665
Low Value Added	78	Other public utilities	6 880	11 958	18 190	23 770
Wholesale	79	Food wholesale	39 953	56 501	72 729	74 880
Wholesale	80	Ironmongery - Wholesale	16 015	22 416	25 375	27 510
Wholesale	81	Other wholesale	273 337	443 284	445 062	611 710
Retail	82	Food retail	175 527	253 158	348 341	378 890
Retail	83	Various merchandise retail	217 387	274 215	228 802	185 585
Retail	84	Tire retail	20 299	38 798	46 933	47 040
Retail	85	Gas stations	69 478	76 054	91 787	72 950
Retail	86	Car dealers	63 121	90 634	102 187	122 280
Retail	87	Car maintenance and re-pair	57 725	91 064	119 001	128 795

Appendix 2

18 Sector Aggregation		Sector	1971	1981	1991	1996
Retail	88	Shoe shops	13 682	18 141	21 210	18 495
Retail	89	Men's wear shops	15 712	19 449	19 839	13 585
Retail	90	Women's wear shops	26 712	43 660	52 978	48 675
Retail	91	Clothing shops	19 759	34 725	51 815	60 230
Retail	92	Ironmongers	20 057	28 893	43 525	37 485
Retail	93	Furniture shops	34 782	61 538	81 017	53 690
Retail	94	Electrical repair shops	8 765	10 226	12 646	37 560
Retail	95	Pharmacies	36 419	51 961	83 696	90 080
Retail	96	Bookshops and stationers	7 538	14 622	25 577	24 900
Retail	97	Florists	7 748	13 487	16 274	25 000
Retail	98	Jewels and jewel repair	12 791	21 812	23 289	19 260
Retail	99	Spirit (alcohol) shops	12 093	18 230	21 379	20 175
Retail	100	Tobacco and other shops	46 427	128 200	174 299	219 935
FIRE	101	Banks	128 053	244 808	299 840	272 190
FIRE	102	Other credit organisations	16 814	18 867	20 096	18 610
FIRE	103	Stock brokers	13 811	21 474	27 302	39 075
FIRE	104	Investment companies	19 527	20 417	22 604	34 505
FIRE	105	Insurance	68 328	98 414	153 783	128 530
FIRE	106	Insur. and real estate agents	67 964	111 266	147 597	153 350
FIRE	107	Real estate managers	30 191	79 398	77 911	93 750
Education	108	Day care and establish-ments for annex care	81 343	212 487	355 609	476 805
Education	109	Primary and secondary schools	400 803	500 298	610 263	616 825
Education	110	Art, professional, and non-university post secondary	39 735	67 384	90 630	113 450
Education	111	Universities and colleges	93 286	127 921	155 563	155 660
Education	112	Libraries	13 966	24 941	33 646	32 940
Education	113	Teaching and related serv.	2 294	3 414	7 074	23 920
Health and social security	114	Hospitals	344 883	459 545	536 614	487 555
Health and social security	115	Doctors, surgeons and dentists	56 923	98 700	140 386	159 690
Health and social sec.	116	Para-medical practitioners	7 629	15 437	37 107	55 715
Health and social security	117	Diagnostic services	6 501	16 780	70 246	22 400

142 Economic Sectors, 18 Sector Aggregation, and Employment in Each Sector

18 Sector Aggregation		Sector	1971	1981	1991	1996
Health and social security	118	Other health related services	5 856	11 840	20 901	116 345
Entertainment	119	Cultural organisations	46 545	59 420	61 283	98 210
Entertainment	120	Cinemas	9 328	10 589	8 044	9 030
Entertainment	121	Film production and distribution	4 308	7 424	21 205	33 160
Entertainment	122	Entertainment, leisure, golf, billiards, bowling…	45 873	78 955	111 433	158 850
Entertainment	123	Theatres and shows	7 405	16 861	28 329	31 925
Other services	124	Temping agencies	8 649	20 903	37 369	52 435
High-tech producer services	125	Computer services	4 454	30 280	97 567	133 115
Other services	126	Security, investigations, and other business services	45 796	107 913	163 220	158 325
Professional services	127	Accounting	30 338	56 593	85 649	97 770
Professional services	128	Marketing and advertising	13 663	24 111	51 853	67 780
High-tech producer services	129	Architects and engineering consultants	53 522	112 505	158 885	164 370
Professional services	130	Legal	36 900	71 586	106 606	106 270
High-tech producer services	131	Management consultants	4 941	25 285	41 645	82 070
Other services	132	Personal services	167 167	165 963	262 064	270 725
Hotels, restaurants etc.	133	Hotels and motels	99 910	155 979	145 417	148 670
Hotels, restaurants etc.	134	Boarding houses	12 373	2 946	6 489	4 175
Hotels, restaurants etc.	135	Camp sites	5 517	8 669	15 292	13 320
Hotels, restaurants etc.	136	Restaurants	181 031	400 769	595 446	686 485
Other services	137	Other services	109 001	224 116	292 927	364 705
Civil service	138	Federal administration	317 104	365 518	407 215	341 330
Civil service	139	Provincial administration	155 713	244 895	292 495	223 795
Civil service	140	Local administration	140 537	219 029	313 690	248 305
Civil service	141	Foreign governments	2 160	1 555	1 888	1 820
Undefined	142	Unclassified	261 044	245 002	329 038	397 355

APPENDIX 3

The Research Team

John Bryden is Programme Director of The Arkleton Trust for Rural Development Research in Aberdeen, and has worked extensively on European rural development issues. He has been a consultant to, amongst others, the EEC Commission, the Council of Europe, the OECD, the World Bank, the Economic and Social Research Council, Scottish Office, Highlands and Island Enterprise and British Telecom.

Serge Côté is a professor at the Université du Québec à Rimouski, where he teaches in the undergraduate social development and analysis programme. He also teaches in the masters and Ph.D. regional development programmes. His principal areas of research are the migration of young people, inter-regional economic relationships, socio-economic aspects of forestry, the development of insular communities, regionalism, decentralisation, innovation processes and the territorial impact of new technology. Over the last few years he has published articles in *Recherches sociographiques, Acadiensis, Canadian Geographer* and *Revue Organisations et territoires*. He has co-ordinated, alone or with colleagues, the publication of a number of monographies at GRIDEQ: *Et les régions qui perdent…?* (1995), *La Pratique du développement régional* (1995), *Le Québec des régions : vers quel développement ?* (1996), *Action collective et décentralisation* (1997) and *Espaces en mutation* (1998). Furthermore, in 2000, in collaboration with Mario Carrier, he edited *Gouvernance et territoires ruraux : éléments d'un débat sur la responsabilité du développement* (Presses de l'Université du Québec).

Andrew Copus leads the rural policy group at the Scottish Agricultural College in Aberdeen. His main research interests lie in the economic development of marginal/peripheral areas, rural innovation systems, policy evaluation, and the spatial impacts of rural/agricultural policy. A geographer by training, he has worked extensively on spatial targeting of rural policy using small area statistics and Geographic Information Systems. He has conducted comparative research covering Northern Europe for Nordregio - the Nordic Centre for Spatial Development.

Pierre-Marcel Desjardins has been professor of economics at Moncton University since June 1990, and since July 2001 he has been associate researcher at the Canadian Institute for Research on Regional Development—a position which he also held from 1990 to 1996. Between 1996 and 2001 he held the Acadian Caisses Populaires and Co-operative Studies Research Chair. He obtained his Ph.D. from the University of Texas (Austin), and obtained his bachelor and masters degree from Moncton University. His doctoral thesis dealt with the regional impact of trade liberalisation. His current research is focussed upon inter-regional transfers, the development of peripheral regions, and exporting SMEs in rural areas. He has acted as a consultant on a number of economic development studies for the Canadian and New Brunswick governments.

Arne Isaksen is a researcher in the STEP group in Oslo, Norway. He has worked on innovation and SMEs in Northern Norway, on the link between industrial agglomeration and regional development, and on regional policy in Norway and Europe. He is currently co-ordinating a project for the Norwegian Ministry of Labour and Regional Affairs on the policy implications of regional innovation systems.

Marc Johnson has been principal researcher at the Canadian Institute for Research on Regional Development since January 2001. He holds sociology degrees from the universities of Moncton, Strasbourg and Bordeaux (where he completed his Ph.D. in 1992). He has worked as a research and programme evaluation consultant, collaborating with a variety of ministries and government organisations: Human Resources Development Canada, Canadian Heritage, Canadian International Development Agency, the Official Languages Commission and the Ontario Education Ministry. He has also worked for the National Anti-Poverty Organisation and the Canadian Council of Professional Fish Harvesters. His areas of interest are social, community and economic development, adult literacy and training, employability measures, the vitality of linguistic minorities and reinforcing collective capacities in Canada, but also in Africa, South America and Eastern Europe.

Aki Kangasharju is research director at VATT, the Finnish Government Institute for Economic Research. He specialises in welfare state service structure and regional development. He has investigated firm formation in Finnish regions, the role of education in self-employment success, the role of transport infrastructure investments on regional productivity, and, more generally, the competitiveness of Finnish regions.

Lars Olof Persson is a senior research fellow with Nordregio, the Nordic Centre for Spatial Development, in Stockholm. He is active in European networks dealing with the development of peripheral regions, and has worked extensively in the areas of regional development, labour markets, regional competition and policy analyses and evaluation.

Mario Polèse has been professor at INRS-Urbanisation, Culture et Société in Montreal since 1970. He holds a senior Canadian research chair in urban and regional studies, and heads the Montreal Inter-university Group *Villes et Développement*, which is a Canadian International Development Agency (CIDA) centre of excellence. He holds a Ph.D. in City and Regional Planning from Pennsylvania University, and has authored many articles and monographies on urban and regional development. In particular, he wrote the university manual *Économie urbaine et régionale* (Paris, Economica, 1994), which has been translated into Spanish and Portuguese. He regularly acts as a consultant in matters of urban and regional economic development for municipalities, the Quebec and federal governments, as well as for international agencies.

Marc-Urbain Proulx, professor at Université du Québec à Chicoutimi, is a specialist in regional affairs. He has conducted a number of research contracts in this area for a variety of local, regional, national and international agencies. Since 1995, his research has focussed upon regional economies, approached from an institutional perspective aimed at elaborating corrective policies. His results have been published in *Interventions économiques, Économie et solidarité, Québec Studies* and *Action nationale*. In 1996 he edited *Le Phénomène régional au Québec* (Presses de l'Université du Québec).

Richard Shearmur is a professor of urban and regional economics at INRS-Urbanisation, Culture et Société. He has degrees from Cambridge, McGill and Montréal universities, and has practiced as a chartered surveyor in Europe for five years. His current research focuses on the spatial dynamics of the economy, and their development implications, at both regional and intra-metropolitan scales, with particular emphasis on dynamic industries such as high-tech manufacturing and high-order services. His recent publications have appeared in *Environment and Planning A, Canadian Public Policy, Urban Geography* and *Urban Studies.* He has consulted for various local, provincial and federal bodies.

APPENDIX 4

End Note: The 2001 Census

After completing this report, but before going to print, the first results of the 2001 census were published by Statistics Canada on 12th March 2002. These results consist of a preliminary analysis of the distribution of population across Canada. We will briefly outline the principal elements which emerge from Statistics Canada's publication: these results confirm the analysis contained within this report.

Between 1996 and 2001 Canada's population grew by 4.0%, to reach 30,007,094. Only three provinces grew faster than average, Ontario (6.1%), Alberta (4.8%) and British Columbia (4.9%). Quebec and the Maritime Provinces stagnated (growth of between – 1.2 and 1.4%), and the population of Newfoundland and Labrador declined substantially (– 7.0%).

Of maybe more relevance in the context of this report are the conclusions regarding population growth in urban and rural areas. Between 1996 and 2001, Canada's population has further concentrated in four large urban areas: the Golden Horseshoe (Toronto and the western end of Lake Ontario; + 9.2%), Montreal and its surrounding area (+ 2.8%), lower mainland British Columbia and the south of Vancouver island (+ 7.3%), and the Calgary-Edmonton corridor (+ 12.3%). Taken together these four regions grew 7.6%, whilst the rest of Canada stagnated (+ 0.5% population growth): it should be noted that whilst the Montreal region still represents a sizeable portion of Canada's population (12%), its growth rate is below the Canadian average and considerably lower than growth in the three other principal urban areas.

The main cause of growth in these urban areas is in-migration: but whereas migration from other provinces was a key growth factor in the three fastest growing regions, Montreal suffered from an inter-provincial migration *loss* as people moved towards other provinces. Coupled with relatively low international in-migration, Montreal's growth is principally attributable to in-migration from peripheral parts of Quebec.

In this respect, the distribution of population growth between the constituent parts of Quebec is of interest (table 1). From this table it can be seen that there is a clear tendency for population to decline in the non-metropolitan parts of Quebec. Furthermore, the very fast growth noted in the Laurentides (6.9%), Lanaudière (3.6%) and Estrie (2.5%) regions suggests that rural and urban areas adjacent to Montreal have continued to grow. The largest population declines are noted in peripheral regions: Gaspésie (– 11.1%), Côte-Nord (– 5.4%) and Abitibi-Témiscamingue (– 5.1%). Declines were also recorded in Saguenay Lac St. Jean (the population of Chicoutimi-Jonquière fell by 3.4%) and in the Lower St. Lawrence.

These results for Quebec reflect a wider trend: across Canada, rural areas in which over 30% of the working population commutes to an urban area registered population growth of 3.7%. Rural areas where fewer than 30% commuted in this way suffered from population decline. Thus proximity to, and links with, an urban area are determining factors with regards to rural growth.

Table 1. Population Growth in Quebec's 3 Metropolitan Areas, and in Non-metropolitan Areas, 1996-2001

	1996	2001	Change (%)
Province of Quebec	7,138,795	7,237,479	1,4
Ottawa-Hull	247,072	257,568	4,2
Montreal CMA	3,326,447	3,426,350	3,0
Quebec CMA	671,889	682,757	1,6
Non-metropolitan Quebec	2,893,387	2,870,804	– 0,8

Source: derived from Statistics Canada, 2002.

These results are not complete, and the geographic divisions used do not exactly reflect those used in this report. However, the overall picture is clear: between 1996 and 2001 the trend towards metropolisation has continued. The growth of rural areas in proximity to larger urban areas has also continued. This metropolitan growth is fuelled by inter *and* intra-provincial migration from peripheral to more central areas.

Thus, although the period focussed upon in this report is 1971 to 1996, with more recent data when possible, the 2001 census confirms – and indeed reinforces – the general conclusions which we have drawn. Our report deals principally with the *economic* dynamics underlying the trends observed in peripheral regions: in the light of these population results for 2001, it is extremely unlikely that these dynamics have fundamentally altered.

REFERENCE

Statistics Canada (2002), *Un profil de la population canadienne : où vivons nous ?* Ottawa, Statistics Canada, Catalogue 96F0030XIF010012002.

APPENDIX 5

Listing of Persons Consulted

This list only identifies persons met by the principal authors, and is thus incomplete. The authors apologize to any persons they might have forgotten, and also to persons whose names are misspelled or have been incorrectly identified.

ABITIBI-TÉMISCAMINGUE

Amos

Bédard, Jocelyne, Société d'aide au développement des collectivités

Blanchet, Donald, Groupe conseil Aiguebelle

Bourgeois, Guy, CTICAT

Clément, Louise C., Collège de l'Abitibi-Témiscamingue

Noël, Léopold, Commission scolaire Harricana

La Sarre

Gadoury, Gaston, Opération Vitalité

Lachaîne, Dominic, Centre local d'emploi

Lessard, Horace, Ville de La Sarre

Marquis, Guillaume, Métal Marquis

Petit, Sylvain, PRBF Technologies

Théberge, Donald, consultant

Rouyn-Noranda

Arsenault, Roger, Carrefour de la nouvelle économie

Arsenaut, Jules, Université du Québec en Abitibi-Témiscamingue

Bélanger, Pierre-André, Université du Québec en Abitibi-Témiscamingue

Blanchette, Luc, Développement des Ressources Humaines Canada

Bouchard, Julie, Chambre de commerce et d'industrie du Rouyn-Noranda régional

Brunet, André, Observatoire

Champoux, Diane, Association touristique régionale de l'Abitibi-Témiscamingue

Claux, Roger, Université du Québec en Abitibi-Témiscamingue

Demers, François, Club Défi

Giroux, Marcia, Société d'aide au développement des collectivités

Jalbert, René, Jalbert Technologie

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Farram, Mustapha, DEC Val-d'Or

Fecteau, Jean-Marie, Mine Laboratoire CANMET, Val-d'Or

Fournier, Alain, P.L.C. inc., Senneterre

Frenette, Yvon, Ville de Val-d'Or

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Isabelle, Donald, Son'Image, Val-d'Or

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Laflamme, Norman, DEC Val-d'Or

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Levasseur, Pierre, Abitibi Consolidated secteur Quévillon, Lebel-sur-Quévillon

Martel, Serge, Centre local de développement, Val-d'Or

Martel, Sylvain, Consultant, Val-d'Or

Massé, Marcel, Municipalité de Barraute, Barraute

Matte, Jean-Maurice, Corporation de développement économique, Senneterre

Millier, Linda, DEC Val-d'Or

Naud, Jacques, Banque Nationale du Canada, Val-d'Or

Roy, Fernand, Commission scolaire de l'Or-et-des-Bois, Val-d'Or

Talbot, Jacques, Chambre de commerce, Val-d'Or

Thibert, Michel, Inno-Centre, Val-d'Or

Ville-Marie

Barrette, Christian, Fromagerie Ferme au village, Lorrainville

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Rivard, Pierre, Groupe Stavibel, Ville-Marie

Tremblay, Fanny, Société de développement du Témiscamingue, Ville-Marie

Trépanier, Johane, La forêt bleue, Guérin

LOWER ST. LAWRENCE

Asselin, Michel, Geodata System

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Blier, Pierre, ISMER-UQAR

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Cléments, Denis

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Dechamplain, Gilles, COPIC

Deschênes, Claudie, Environnement SCN

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Pelletier, Marthe, DRHC

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Barabé, Sophie, SADC Manicouagan

Bélanger, Gaston, Groupement des chefs d'entreprises du Québec

Berthelot, Éric, Corpex

Caron, Réginald, Emploi Québec

Ferero, Patrick, Chambre de commerce de Baie-Comeau

Forest,Yvan, MDR

Ouellet, Gaston, Portes et fenêtres Ouellet

Blanc-Sablon

Cormier, Antonio, maire, Municipalité de Blanc-Sablon

Driscoll, Vicki, CEDEC

Dumas, Réjean, CLD Basse-Côte-Nord, Lourdes-de-Blanc-Sablon

Joncas, Armand, président, Chambre de commerce Basse-Côte-Nord secteur est

Joncas, Cliff

Joncas, Jarvin, CLD

Jones, Roger, président, Corporation Développement, région de Blanc-Sablon

Leroux, Guy, CLD

GASPÉSIE

Beaulieu, Clermont, Pêcheries Marinard, Rivière-aux-Renard

Bernatchez, Bruno, Corporation portuaire de Gaspé inc.

Blais, Lorraine, Emploi Québec

Bourdages, Évangéliste, Groupe Oméga

Boyer, Julie, MAPAQ

Doucet, Aurèle, SMMGIM (Orpex)

Gagnon, Karina, DEC

Gauvin, François, DRHC

Lafrance, Sylvain, Société de développement Maricol

Landry, Éric, Fonds régional de solidarité Gaspésie/Les Îles

Leblanc, Donald, Centre spécialisé de pêches, Grande-Rivière

Lelièvre, Gaétan, directeur général, Ville de Gaspé

Loiselle, Richard, Centre spécialisé de pêches, Grande-Rivière

Poirier, Lucien, MAPAQ

Potvin, Luc, TCAG (Table agroalimentaire)

Samuel, Alain, MAPAQ, Centre de technologie des produits aquatiques, Gaspé

St-Pierre, Michel, Ville de Chandler

ÎLES-DE-LA MADELEINE (teleconference)

Bourque, Joël, directeur intérimaire, CLD des Îles-de-la-Madeleine

Fournier, Michel, propriétaire, Moules des cultures des Îles

Gagnon, Jeannot, directeur général, MRC

Gaudet, Daniel, analyste financier, SADC des Îles-de-la-Madeleine

Miousse, Arthur, animateur communautaire, CLSC des Îles-de-la-Madeleine

Niang, Aziz, directeur régional du MAPAQ

Picard, Marcel, ministère des Pêches et des Océans, IDM

PRINCE-EDWARD ISLAND

Arsenault, Alfred, Executive Director, Evangeline Credit Union, Wellington

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Bernard, Marcel, Acadian Development Officer, Evangeline Region Services Centre, Department of Development, Wellington

Foley, Brandy, Business Development Officer, Resources West Inc., Bloomfield

Gallant, Shawn, Director, CIFTA, Société de développement de la Baie acadienne, Wellington

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Howard, Brian, Director of Finance and Administration, Slemon Park Corporation, Summerside

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MacDonald, Stanley, Vice-president, Resources West Inc., Bloomfield

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