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**Technology and Infrastructure in Regional Development
Policies and the Evolution of Regional Disparities: The Case of
New Brunswick 1986-1996**

by

François Marier

A thesis
presented to the University of Ottawa
in partial fulfilment of the requirements for the degree of
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in
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Abstract

Regional development has long been an important function of governments. Throughout the years, Canada has followed many different policy directions aimed at reducing or eliminating regional disparities. In 1988, the Liberals under Frank McKenna were elected in New Brunswick and introduced regional development policies based on technology provision and infrastructure which was installed in all of the province's regions. This technology-based infrastructure was an important in direction for a province that relied heavily on the primary and manufacturing sectors. Furthermore, it promised economic growth in both the north and south of the province.

This thesis analyses the growth in industrial sectors, the socio-economic changes, and the effects on regional disparities between 1986 and 1996 in New Brunswick's fifteen counties. The widespread use of technology and the attempts to transform the province's labour force to compete in the knowledge-based economy prompted numerous changes in the industrial structure of the counties. The concentration of economic growth in the southern counties and in the services sector was a direct result of the north's dependence on primary and secondary industries. This resulted in investments in New Brunswick were mainly in the highly urbanised and economically diversified south. The province's economic situation during this time period is a good example of core-periphery relationship between the south and the north, as the later remains dependent on the former.

A number of different indicators, analysed in chapter three, were considered when determining the rate and degree of change in the province's regional disparities. Furthermore, the shift-share analysis examines the changes in the industrial sectors of the counties to determine why the changes in the economic indicators occurred.

Résumé

Le développement régional a depuis longtemps été une fonction importante des gouvernements. Au cours des dernières années, les politiques du Canada visant à réduire ou éliminer les disparités régionales ont subi différents changements. Au Nouveau-Brunswick, en 1988, les libéraux de Frank McKenna ont introduit des politiques de

développement régional basées sur l'accès à la technologie. Des infrastructures pour faciliter l'accès à la technologie ont été installées dans toutes les régions de la province. Ces infrastructures basées sur la technologie étaient un changement important de direction pour une province dont l'économie était dépendante des secteurs primaire et secondaire. De plus, ces infrastructures assuraient une croissance économique dans le nord et le sud de la province.

Cette thèse analyse la croissance dans les secteurs industriels, les changements socio-économiques et les effets sur les disparités régionales entre 1986 et 1996 dans les quinze comtés du Nouveau-Brunswick. L'utilisation répandue de la technologie et les efforts pour transformer la force ouvrière de la province afin d'être compétitif dans une économie basée sur le savoir, a nécessité plusieurs changements dans la structure industrielle des comtés. La concentration de la croissance économique dans les comtés du sud et dans le secteur des services était un résultat direct de la dépendance du nord sur les industries primaires et secondaires. Conséquemment, la plupart des investissements au Nouveau-Brunswick se sont concentrés dans le sud urbain et diversifiés économiquement. La situation économique de la province pendant cette période est un bon exemple d'une relation centre-périphérie entre le sud et le nord, car ce dernier demeure dépendant du premier.

Par ailleurs, un nombre d'indicateurs différents ont été considérés en déterminant le taux et le degré de changement dans les disparités régionales de la province. Ces indicateurs sont analysés dans le troisième chapitre de la thèse. De plus, l'analyse « shift-share » examine les changements dans les secteurs industriels des comtés pour déterminer pourquoi les changements dans les indicateurs économiques ont eu lieu.

Chapter 1: Context and Background

1.1 Introduction

Regional disparity analysis has been at the heart of economic development policy-making for many years. Governments, policy analysts, and economic geographers have continuously struggled to understand why some regions experience high levels of growth while others remain economically depressed. The relationship between core and periphery regions is the foundation for regional development policy. Today, the knowledge-based economy is changing the industrial structures and characteristics of the labour force affecting this relationship, and changing the focus of regional development.

This thesis is an analysis a new type of regional development policy-making in Canada. New Brunswick was one of the first provinces to turn to a technology-based infrastructure in an effort to reduce disparities among its different regions. As will be explained, the counties in the north of the province have weaker economic characteristics than those in the south. This economic division has prompted both the provincial and federal governments to employ a number of different regional development strategies over the years. The election of a new provincial government in 1988, however, departed from these traditional methods, choosing instead to use a telecommunications infrastructure to stimulate economic growth in all parts of the province. It was hoped that this shift would help to create jobs and attract investment into New Brunswick.

The New Brunswick case is interesting, as the government attempted to restructure a mainly resource and manufacturing economy into one that could compete in the knowledge-based economy. As will be evident, however, economic change is never equal across time and space, and cannot be the only approach for addressing disparities. Equal access to the same technology intended to reduce the inequalities of regions competing for jobs and capital, however, regions with largely low skilled rural populations cannot compete at the same level as the richer urban populations in core regions. The issue of equity then, leads to the central research questions:

- 1) What have been the changes to the regional disparities in New Brunswick under the regional development policies of the McKenna government?**

2) What are the changes to the economic growth and industrial structure of the province's regions?

This thesis itself is divided into five main chapters, the first of which contains a literature review of the New Brunswick context and provides the theoretical framework within which the central research questions will be examined. In this chapter, the relevant concepts of regional development theory and the knowledge-based economy will be defined.

The second chapter contains the methodology used in analysing the data that supports the context and will analyse the economic changes in New Brunswick's counties. The time frame and geographic scale being studied, the identification of the relevant variables, and a discussion of the use of the Shift-Share statistical analysis will be discussed in this section.

Chapter three contains the description of the socio-economic changes that have taken place in New Brunswick's counties during the time period of study. These changes are described in an analysis of the important variables of: industrial sector composition, unemployment and labour force participation, income disparities, and migration.

Chapter four uses shift-share analysis to determine why the changes described in the previous chapter have taken place. In this chapter, the employment and industrial structures of the province's counties are analysed and compared to one another to measure the degree of change in the economic structures of New Brunswick's counties.

The final chapter of this thesis contains the conclusions drawn from the data analysis and the context. In examining the northern and southern regions of New Brunswick, this chapter results in answering the central research questions. In the conclusion, it will be determined if regional disparities have been reduced. Furthermore, the shifts among the socio-economic indicators will be identified.

This section of the thesis will provide the context and present the key issues as they pertain to the central research question. The theories and concepts presented in this chapter, in addition to the policy directions undertaken in New Brunswick between 1986 and 1996, form the basis of the quantitative analysis that will be examined in the latter part of this thesis.

The research in this chapter frames the issues confronting the central research question within a regional development framework. As such, the context and background section has been divided into different subsections for a more detailed analysis.

1.2 Regional Development

The field of regional development can be complex in its concepts and its analysis. While a number of different theories and models exist, many are outdated or have limited applicability to the research questions that are put forth in the final sections of this chapter. The following literature review explores those aspects of regional development that are relevant to the central research question.

1.2.1 Theories and Concepts

At the heart of regional development is a much-contested debate over the relevant measures through which to gauge the success or failure of development initiatives. Experts in the field of Canadian regional development, such as Donald Savoie, Ralph Matthews, André Raynauld, and Richard Lipsey, agree that there is no universally accepted criterion to measure regional disparities. The lack of consensus on an accepted set of methods stems from the fact that there is no one all-encompassing approach to regional development theory. For example, the Economic Council of Canada (1977) and Donald Savoie (1986) alone have put forth fifteen different theories that may be used to approach the problem of regional disparities. The following paragraphs outline the main approaches that provide the theoretical foundation for this thesis.

- 1) The *Neo-classical* model is a purely economic approach to regional development. In this model, emphasis is placed on the flexibility of prices and wages, the mobility of labour and capital, and the capital market as prescriptions for regional disparities (Courchesne 1978). The model further advocates that governments should not intervene in correcting the natural outcome of market forces. The pure economic nature of the model fails to take into account the issue of equity among regions and the complete absence of spatial analysis are the main shortcomings of this method.
- 2) Rather than relying on market forces, the *Keynesian* model promotes full employment and is supportive of government intervention in the management of prices, wages and demand (Mandel 1975). This approach is valuable and speaks to a certain level of government intervention, but the realities of the Canadian market economy make

some of the goals advocated by this theory difficult to achieve. While this approach integrates the role of the state and the modern economy, it is devoid of spatial analysis.

- 3) ***Regional Science Theory*** is one of the only approaches that have spatial analysis as its central focus. The theory uses spatial dynamics in its analysis of the economics related to the location of firms (Economic Council of Canada 1977). It postulates that the distribution of the population in a given space may be better than another, giving that region an advantage in labour, capital, and resources. Therefore, growth does not occur evenly over space but tends to be concentrated at particular points or growth poles (Perroux 1953). This theory is significant for the primacy it accords to spatial analysis, however, it is deficient on its own because it fails to take into account many other elements of regional development analysis.
- 4) The ***Core-Periphery*** model is one of the most influential theories in regional development. Core regions are well situated to large markets, transportation routes and have a favourable physical landscape. They have a well-balanced industrial mix of secondary and tertiary industries, as well as, a highly urbanised and concentrated population. In contrast, periphery regions lack strong urban structures, economic diversity, and have a limited innovative capacity. These regions are dependent on the core for economic growth (McCann 1998).

These theories have all contributed significantly to the analysis of regional development and disparities in Canada, and illustrate the myriad of issues that must be considered by the researcher. As will be addressed in section 1.1.3, *the Canadian Experience*, many of these models have been integrated in Canadian regional development policies.

While the unit of analysis in this thesis is specific to the New Brunswick experience, the overarching analytical framework is composed of three main elements:

1. The role of the state in formulating policy and providing infrastructure;
2. A spatial analysis of the changes in the economies of different regions; and,
3. The shift to the knowledge-based economy and its effects on industrial structure.

The following paragraphs will examine each element and will discuss the inter-linkages between all three.

Many scholars have argued that globalisation and the modern capitalist economy have limited the state's ability to formulate economic policy (Schott 1984; Caporaso and Levine 1992). Economic geographers have been reluctant to integrate the state into their

analyses, illustrating how neo-classicism has pervaded regional development study. In neo-classical analysis, the state's primary function is to "alleviate some of the shortcomings and undesirable consequences of the accumulation process, but...not [to] decisively influence the forms of economic organisation and co-ordination of economic activities" (Martin and Sunley 1997). In contrast to the neo-classical model, observations on the macro level show that both the provincial, and to a lesser extent, the federal government, have been proactive and influential in restructuring the industrial mix in the regions to reduce disparities, redefining the economy of New Brunswick

The theories mentioned above offer differing opinions as to the role of the state in regional development, and the appropriateness and level of intervention that should be employed. While many may advocate that the state is no longer an effective and appropriate agent of regulation and co-ordination, regional development policy *implies* a government presence is required for the resolution of disparities that continue to exist because of the inequity of market forces. In the post-war Keynesian welfare state, the national economic space is the essential geographical unit of economic organisation, accumulation and regulation over which the state is sovereign actor (Martin and Sunley 1997). As Radice (1984) notes:

"The national economy is privileged in Keynesian theory for the purely practical reason that the nation-state system defines geopolitical space with the necessary features convenient for the theory: a common currency, common laws, and shared institutions" (Radice 1984).

Globalisation is now de-centring national economic space, thereby undermining one of the fundamental principles of Keynesian interventionism and of all the mainstream schools of political economy (Martin and Sunley 1997). The state's ability to control and influence trends such as investment, employment and the location of firms has been significantly reduced. Nonetheless, nation-states continue to exert a profound influence on their space-economies, and the scale of the state intervention and regulation is fundamental to its future economic role (Martin and Sunley 1997). Thus, the state and the space economy are undoubtedly interrelated in the case of regional development in Canada.

The relationship between economic development policies and the spatial makeup of the economy is very strong. Although, the new knowledge-based economy has forced the state to restructure itself and to limit its participation, the state is directly involved in changing the industrial structure of the regions (Martin and Sunley 1997). Periphery regions are at a disadvantage as they generally lack economic diversity, a strong labour force, and are geographically located at a distance to important markets. If a region is to experience economic growth, it must first have the tools to do so. It is governments, and not market forces, that provide the tools to promote economic growth and development.

Together, the Keynesian and Regional Science theories combine the role of the state with spatial and economic analysis. As was stated earlier, regional development has used a number of different indicators, none of which are universally accepted by all researchers. In a similar vein, the amount of approaches to define economic restructuring and economic growth are numerous. In any capitalist economy it is important that all regions of a country are productive and experience economic growth. Economic growth has a multiplier effect, in that, it can be redistributive from the core to the periphery. Redistribution promotes employment, increases labour force participation, raises the standard of living, and increases consumer confidence, which in turn stimulates government revenues. In regional economics, there exists a definition that ties the concept of economic growth to a spatial setting. Fik (1997) captures the essence of this definition stating that:

“...regional economics theory suggests that economic growth is an outcome of a process of efficient capital accumulation (capital in this case referring to production not dollars). As regional economies mature and accumulate capital over time, the more output they are able to produce with a given set of production inputs; a situation that promotes surplus production (assuming there is an outlet or demand for what is produced). With capital accumulation also comes increasing productivity of the labour force. Increasing productivity improves a region's ability to compete with other regions for a share of the demand in markets external to their own. Hence, economic growth occurs as region's produce, compete, accumulate capital, and export surplus to deficit-producing regions or to regions they can “out-compete”.” (Fik, 1997)

Thus, the spatial interactions of economic growth become more important as regions compete with each other and within the context of a global economy. Regional

development is a mechanism through which Canada is diversifying its economy and attempting to establish itself in this new global economy.

The positioning of countries in the global economy beg the question of what place the regions within Canada have in this new economy. When considering the above definition of regional economic growth, those core regions have an advantage, as their capital accumulation has steadily increased throughout the years. Population and industry are not scattered evenly through space but rather are concentrated at specific locations (Economic Council of Canada 1977). Periphery regions have become increasingly dependent on the core regions for their economic growth as demand for products and services in the core regions increase. This core-periphery relationship creates political power trends that are generally unequal, and the exchange between core regions that have large urban centres and the mainly rural periphery reflect a dominant and persistent pattern of a non-reciprocal exchange relationship (Friedmann 1973).

There is a perception that restructuring an economy would create a better relationship between the core and the periphery and ultimately lead to greater economic growth overall. This concept has gained significant attention at times when certain regions in Canada experienced serious economic decline. This economic decline is mainly attributed to the dependency of periphery regions on natural resources as the source of employment and economic growth. In New Brunswick, this can be seen in the northern and coastal regions where dependency on natural resources has been long established. To stimulate greater economic growth in the periphery region then, economic diversification is required so these areas are no longer dependent on single commodities.

The significance of regional disparities stimulates the need to formulate regional development theories and policies. Overcoming inequity among regions in Canada continue to be an obstacle for governments who hope to raise the level of economic equality, productivity, and growth between the core and periphery regions, thus facilitating participation in the new global economic structure.

1.2.2 The Issue of Regional Disparities

The inequities of economic growth and development brought about by disparities in core and periphery regions are of great concern to all levels of governments. Indeed, regional development policies and initiatives have been created in response to the impacts that regional disparities have on the socio-economic development of a specific geographic area. The recent realities of the Canadian economy make the issue even more complex. Industrial structure, income levels and a skilled labour force have now replaced resources and transportation as the major determinants of regional disparities. The New Brunswick experience placed emphasis on technology as a means to reduce disparities, and in doing so, set a new direction for regional development policy in Canada.

Disparities are a politically sensitive issue for governments. Canadians living in under-developed regions want jobs available where they live (Economic Council of Canada 1977). The failure of the private sector to provide employment in these regions necessarily translates into government intervention. In helping to reduce regional disparities and promote economic growth, this is one of many issues affecting under-development that policy-makers must take into account.

According to Stager (1988), there are six main factors that explain regional variations:

- a) Age Composition of the Population: the size of the labour force relative to the total population.
- b) Labour Force Participation Rate: *the percentage of the population aged 15 and over that are employed or actively seeking work.*
- c) Unemployment Rate: *the persons in the labour force not currently engaged in paid labour.* Stager notes that a high unemployment rate works with low participation rates to affect per capita incomes.
- d) Level of Education Attainment: *the levels of schooling and training attained by the population.* Variations in productivity are often associated with the skill levels of a region's labour force.
- e) Capital Stock: *the quantity of capital (plant and equipment) associated with a worker that affects the output per worker ratio.*

- f) *Industrial Composition: the mix of primary, secondary and tertiary industries that make up the economic base of a region.* This influences the level of income, gender participation, and the region's overall socio-economic health.

The factors outlined by Stager are reflective of traditional regional development theory, offering a somewhat simplified view of the complexities of regional disparity analysis. For example, despite the fact that there are several ways to measure disparities, analysts use per capita incomes the most often. Although this measure captures the rates of pay, migration, employment rates, and proportion of the population in the labour force as they pertain to the analysis, they do not in and of themselves, provide a comprehensive analysis of the disparities that exist among regions (Economic Council of Canada 1977). The literature indicates that the industrial structure of a region has the greatest impact on the levels of income. Coffey and Polèse (1987) further claim that taxation levels, size of family units, and the cost of living differ among regions, and accentuate the level of disparities.

In a similar vein, analysts place a great deal of emphasis on the education and skill levels of a region as indicators of productivity and wealth (both per capita and overall). Post-war economic analyses of Canada have repeatedly shown the Atlantic provinces to be the least productive in the country. Lesser (1987) notes that provinces with low productivity rates generally have lower education levels and adopt technology at a slower rate (Lesser 1987). New Brunswick fits within this definition, as it is considered to be a periphery province with economic growth and development below the national average. For example, the primary sector jobs in the periphery, generally require a less skilled workforce than those in the manufacturing or service sectors of the core regions. Thus, the argument put forth by regional science theory that growth occurs in certain regions before others creating poles that attract investment and workers, holds true in the New Brunswick context. As will be discussed at a later point in this thesis, the core-periphery relationship between New Brunswick and the wealthier parts of the country are mirrored within the province as well.

As illustrated above, core-periphery relationships exist as development occurs in some regions at the expense of others. The state intervenes with regional development

policies, some of which include targeted investment, to help boost the productivity and growth outputs in the regions with larger disparities. This type of policy focuses on the capital stock and industrial composition, as industrial investment tends to boost regional capital accumulation, creating jobs and economic growth.

In the neo-classical model, it is assumed that investment is mobile and equally available to all regions. If this were in fact the case, regional disparities would not exist, and investment would be shared equitably. In fact, capital tends to concentrate itself in larger centres or agglomerations (Bougrine 1992). The more profitable industries locate their firms in regions with well-developed infrastructure (Richardson 1974). This includes both the physical (roads, schools, etc.) and the socio-economic (consumerism, diverse workforce, etc.) infrastructure. As the larger centres grow more rapidly and people migrate from the poorer regions to find employment, regional disparities increase (Coffey and Polèse 1987). The poorer regions make up the periphery that continuously supply materials and resources to the core. Attempting to reduce regional disparities means addressing problems of capital formation, infrastructure, and industrial composition.

The industrial structure of a region affects all of the other factors used to measure regional disparities. The key challenge to governments is how to reconcile the need to be competitive in the knowledge-based economy with the existing skill levels of a region's labour force (Economic Council of Canada 1977, Macdonald Royal Commission 1985). In regions where the primary sector is still dominant or plays an important role in the overall share of sectoral employment, workers tend to be older males and have lower levels of education. This has resulted in certain industries, such as agriculture, having lower productivity and income levels than are experienced in other sectors. This is generally not the case in the larger urban centres where the economic base and labour force is more diversified among males and females with various levels of education and skills.

Up until this point, references to regional development and disparities have been explained in broad terms. The following section integrates the theories and measures discussed here into an examination of regional development policy-making in Canada.

1.2.3 The Canadian Experience

“The struggle for economic development in Canada has been difficult. The lure of urban centres, the advent of the new knowledge-based economy, and rapid technological change in agriculture have all contributed to the decline of Canada’s rural areas. Their economic decline and consequent depopulation began some time ago and the first economic adjustment programs ever introduced in Canada were designed to assist these areas.” (Savoie 1986)

Given Canada’s traditional natural resource economy and vast geographic area, regional development has always been on the policy-making agenda of governments. Throughout the years, practitioners have chosen to employ two major strategies. The first is a strategy of direct investment into a region through various agencies and programs. The second type of strategy involves the development of infrastructure and services to attract investment and employment.

During the late 1960s, regional development emerged as a “new” field of study. Prior to this re-birth, regional development was an implicit part of other policy areas such as transportation, trade, and immigration. Throughout the 1970s and 1980s, “regional development” has become a buzzword in the policy community. During this period, two publications emerged which have come to be the handbooks on regional development in Canada for practitioners and theorists alike. These publications are The Economic Council of Canada’s, *Living Together: A Study of Regional Disparities* (1977), and *Still Living Together: Recent Trends and Future Directions in Canadian Regional Development* by Coffey and Polèse (1987). Regional economic development policy is created to counter disparities between richer urban areas and their poor rural counterparts. These two guides presented a unique outlook of regional development by applying different theories to the Canadian context.

One element explored in both works is Canada’s unique economic structure, which was built on the extraction and exploitation of natural resources. Until very recently, natural resources still made up the bulk of the economy in the Atlantic provinces. The shift to the knowledge-based economy has meant that growth in employment is no longer tied to the exploration of natural resources. In addition, the production processes in secondary industries have become more capital-intensive, and thus require less labour

than in the past (Economic Council of Canada 1977). As the Canadian landscape has changed, development initiatives have had to adapt to new environments.

Canada's first "official" venture in the regional development field was the creation of the Department of Regional Economic Expansion (DREE) in 1968. DREE was responsible for all regional development funding and programmes across the country. The Atlantic provinces with their smaller populations, higher unemployment, lower productivity, and limited resources, had less opportunity to diversify their economies than the other provinces. The majority of DREE's annual budget supported efforts to reverse these trends that were taking form in the Atlantic and help them to build a sustaining economy.

In 1982, DREE was given a new mandate and was renamed the Department of Regional Industrial Expansion (DRIE). Abandoning the Atlantic provinces to some extent, the new department concentrated its funding and assistance to central Canada (Savoie 1986). But the DRIE initiative was not long-lived. When the Conservative government of Brian Mulroney was elected in 1984, DRIE was disbanded, and in 1987 a successor was named to serve the Atlantic provinces exclusively. Based in Moncton, the Atlantic Canada Opportunities Agency (ACOA) is responsible for administering existing regional development programmes such as the federal-provincial Economic and Regional Development Agreements (ERDAs). ACOA also promotes the interests of the Atlantic provinces in a co-ordinating development initiatives between the federal government and the private sector. Through the years the agency has financially supported a great number of small- and medium-sized businesses in their establishment, expansion, modernisation, and innovation. New Brunswick is one of the provinces receiving funding for regional development from ACOA, and has a cost-share agreement with the federal government.

Despite federally assisted development programmes, declining federal spending over the years have forced provincial governments to expand their own policy-making capacity. In addition, many provinces have traditionally felt that the federal solution to regional development was limited in ability to make real change. The provincial government of Frank McKenna, elected in New Brunswick in 1988, promised to

restructure the province's economy as the solution to the persisting problem of regional disparities.

When taken together, the theories, measurements and policy history that have been presented thus far, provide a number of techniques that have been used to encourage growth in economically depressed regions in Canada. The New Brunswick government, having experienced a countless number of regional development initiatives, developed a new approach to an old problem. For the provincial government, globalisation and the knowledge-based economy led to the building of a technological infrastructure that held the promise of economic transformation for the province of New Brunswick.

1.2.4 The Regions and Policies of New Brunswick

As previously stated, the economies of the Atlantic provinces have traditionally been resource-based. In New Brunswick, the most important resource-based industry was forestry, which accounted for over half of the province's economy a century ago (Wynn 1998). The fishing and textiles industries have also made a significant contribution to the province's economy. It was not until the late 1980's, that the province's economy began to develop a substantial tertiary sector. Prior to this, the service sector was primarily composed of government workers and small retail operations that supported the primary and secondary industries.

Two studies published by the Institute for Research on Regional Development on the economic regions in southeast and northeast New Brunswick and Milne's (1996) *The McKenna Miracle: Myth or Miracle?* constitute the bulk of the recent literature available for the study of the New Brunswick experience. These studies are comprehensive in their approach as they analyse the demographic and economic trends of the regions. All three studies group counties into economic regions as the unit of analysis. While these studies are an important source of information, they do not examine the links between regional development policies, the industrial structure of the counties, and the emergence of the knowledge-based economy and infrastructure in their analysis. This thesis concentrates on the census division or county level to allow for more detailed analysis of the economic structures and trends in the province.

In 1988, the people of New Brunswick elected a new Liberal government and Frank McKenna became the Premier of the province. The new government had promised a comprehensive agenda to deal with the large disparities between the provinces different regions and the chronically high unemployment rates. McKenna opted to devote greater resources and funds to helping the province's regions and to supporting economic diversification initiatives and programmes. They created the Ministry of Economic Development and Tourism as well as the Regional Development Corporation as a means to this end. In this way the provincial government started playing a greater and more visible role as federal dollars began to decrease.

In the wake of the election, *Toward 2000: An Economic Development Strategy for New Brunswick* (1989) emerged as the policy document that set out the framework for regional development policy in New Brunswick. This document outlined the government's strategy for economic restructuring and infrastructure provision. *Towards 2000* (1989), outlined initiatives in the areas of education, natural resources, the environment, infrastructure, regional development, small business, entrepreneurship, and the promotion of investment in New Brunswick. The document further contained seven key elements necessary for success. These elements included: training and retraining of the workforce, private-public partnerships, expansion of the services industry, competitiveness, strategic investments in certain areas, infrastructure development, and the promotion of New Brunswick goods, services, and an ideal business climate. While the government delivered on its promises, it was the development of the technological infrastructure that enabled them to do so.

The provincial government was mindful that infrastructure was needed to fulfil its regional development policies. From the outset, *Towards 2000* (1989), outlined key initiatives of physical infrastructure projects. Aside from the technological upgrading these key projects included:

- The NBElectric Power Commission and its plans to expand the energy supply by constructing new generating stations.
- The rebuilding of the province's roads and highway system. This initiative concentrated on arterial roads, the Trans-Canada highway, and the fixed link with

Prince Edward Island, and brought together federal, provincial and the private sector efforts.

- The highway between Fredericton and Moncton, which continued to the Nova Scotia border, was widened (New Brunswick Ministry of Transportation 1998). This major project caused significant controversy, as it was intended to be a toll highway with major private sector interests and involvement.

Upon examination of the Ministry of Transportation's Annual Reports, most road and highway projects were concentrated in the southern counties of the province. Although this region has larger populations and greater demands on roads for commercial purposes, investment was not equitable between the north and the south as promised.

The most significant project for the purposes of this thesis was the building of a technological infrastructure. Through the use of technology, the McKenna government saw opportunities for attracting new investments and businesses to New Brunswick, in addition to expanding its role in the new economy. The hope was that investment into a new tertiary sector would create jobs in a province with chronically high unemployment.

Through its partnership strategy, the government relied on the private sector for construction and installation. The corporation charged with the task of providing this technological infrastructure was Bruncor Incorporated. As the only telecommunications firm in the province, the government sought its leadership in providing "...local and long-distance telephone services, wireless, Internet, advanced network, multimedia and information technology services." (Bruncor Inc. 1999). Bruncor's investment capacity, with holdings of NBTel, ImagicTV, Tele-Direct Atlantic, Datacor/ISM Atlantic and MITI Information Technology, made it a valuable partner.

During the 1980's, Bruncor developed a capital investment plan to expand its telecommunications network in an effort to increase traffic while simultaneously increasing its revenues. It was during this period that Bruncor acquired some of the aforementioned companies and expanded their research and development capabilities. The telecommunications sector experienced a major boom, and innovation led to new uses for its products and services. Some of Bruncor's installations included broadband networks, local area networks (LAN's), wide area networks (WAN's), and fibre optic

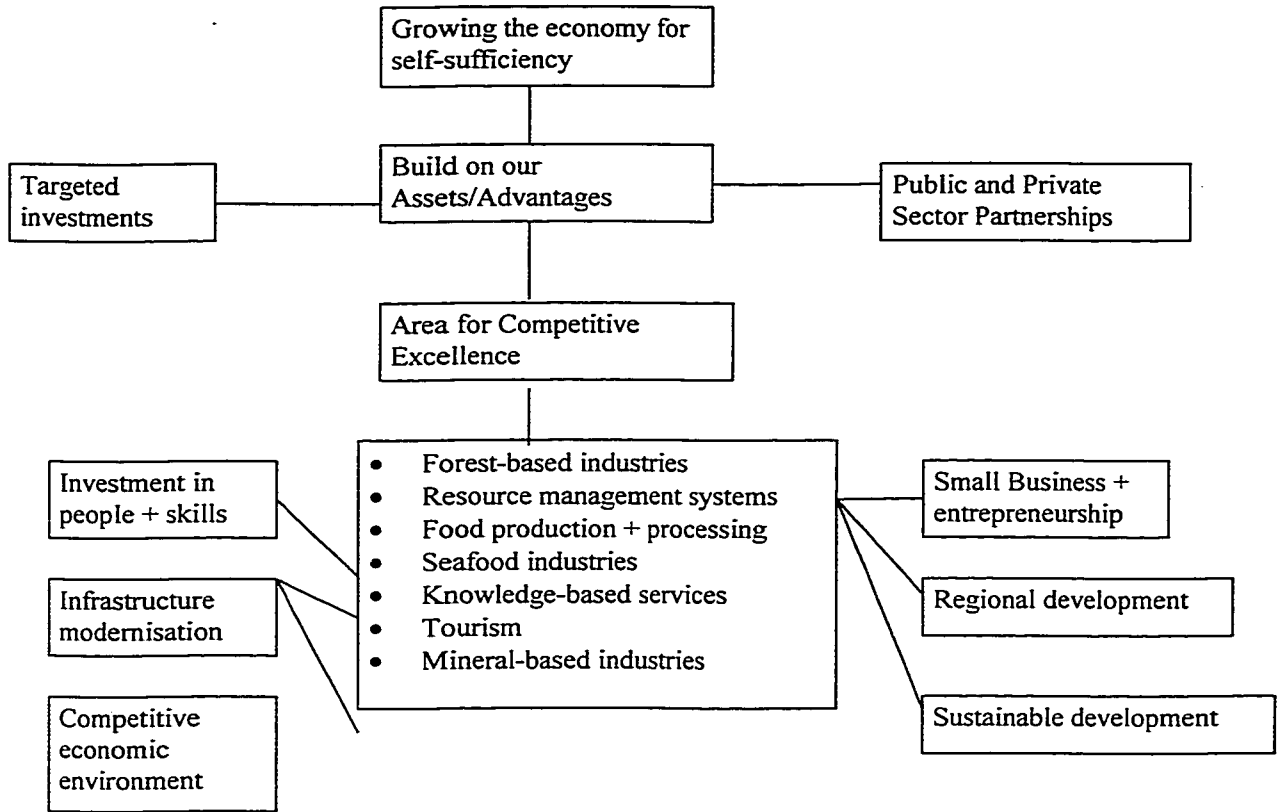
cables in many parts of the province. It upgraded all of its systems with the latest technology and made it available to whole of the province. (Bruncor interview 1999). Companies of all sizes and trades flocked to the Internet, wireless communications and customer service centres. The government took this opportunity to promote New Brunswick as a province at the forefront of the technological revolution.

One of the ways in which the provincial government promoted its new technological infrastructure was through the development of a major call centre initiative, hoping to attract companies set up customer service centres in the province. As of 1998, there were over 50 call or contact centres in New Brunswick that created over 7000 new jobs (Bruncor Inc. 1998). Through reduced tax rates, and in some cases, large subsidies, the government encouraged these companies to invest their capital in the province. This policy was met with some criticism, as some questioned the use of public funds to assist large corporations to set up call centres. Other investment opportunities emerged in the fields of GIS and Remote Sensing, distance education, and health services. The largely bilingual workforce was a secondary, but attractive characteristic in drawing large corporations to New Brunswick.

The call centre initiative was the central focus of the province's bid to attract new investments and to create badly needed jobs. According to a list from the New Brunswick Department of Economic Development, 78 major call centres have been set up in the province. Of the 78 call centres, 60 located in the southern counties (28 in Westmorland alone) and only 18 in the northern counties. Half of those that located in the north, were either provincial or federal government-run (Business New Brunswick 2000). Therefore, it is clear that private companies chose counties with large urban centres and labour forces over more rural and less-developed counties (see annex 7.1).

In 1993, the McKenna government released a second policy document to coincide with a new mandate and the election of the Liberals at the federal level. *Toward Self-Sufficiency: Strategy for Economic Development* (1993) measured the province's progress since 1989, and renewed commitment to alleviating regional disparities. The following table has been extracted from the 1993 document, and provides a summation of the government's regional development plan.

Strategy Framework of the Government of New Brunswick 1993



This framework indicates the areas where economic restructuring and infrastructure provision had been concentrated since the beginning of the 1990's. In the "Areas for Competitive Excellence", it is evident that only a few traditional primary sector industries were included in the government's new strategy. This framework also highlights resource management and knowledge-based services as two new areas important to New Brunswick's economic development. A significant portion of the provincial workforce has since concentrated in these areas (Statistics Canada 1996). The following sections expand on this economic trend, which has guided regional development policy in New Brunswick since 1988.

1.3 Technology and the Knowledge-Based Economy

Economic development research and analysis has had to adapt its theories and methodologies to reflect the characteristics of the knowledge-based economy. In the past two decades, both governments and the private sector have grappled with technology as it changes economic structures and the nature of work in Canada. Regional development policies have been greatly affected by the new labour and capital requirements needed to compete in this new economy. The following sections address some of these changes in regional development in light of these realities.

1.3.1 Issues for Economic Development, Industrial Restructuring and Employment

“Long-term growth is driven by technological change – that is, by changes in the goods and services that we produce, and changes in the way we produce them” (Lipsey 5-6).

The technological revolution promotes sustainable economies in a number of ways. According to neo-classical theory, once the infrastructure to support the technological sector has been constructed, vast transportation networks and geographical location become less important. Unlike primary and secondary industries, technologically-driven industries do not require large investments in the land and labour components of the production function (Lipsey 1996). Thus, the economy can continuously renew itself, as long as capital continues to be invested.

A more intense debate has developed over the use and availability of new technologies. Core-periphery theory states that economic development is not an equal process and growth poles influence the diffusion of technology to core regions before those in the periphery. As the following paragraphs illustrate, the explosion of tertiary industries has not only affected the capital flows of investment, but has made a significant impact on regional disparities as well.

Regional development does not solely rely on concepts that promote growth, but also those that inhibit it. This includes measures of the standard of living, demographic changes (size and composition of population), and the quantity and quality of local jobs (Malecki, 1991). Technology is seen as one factor that forces change throughout the entire economy, affecting goods and services, jobs, and the industrial structure. In changing the

industrial structure of a region, technology influences growth. Technology and regional development have thus become inextricably linked to one another.

Recent regional development studies identify technology as the means through which disparities can be reduced. While interesting, these studies have tended to limit themselves to a case analysis of one or two regions. An example of the limited application of these studies can be found in a recent publications on technology by the Organization for Economic Co-operation and Development (OECD). In their study, the OECD tracked which countries and industries produce, purchase, and use new technology, as being indicative of that country's level of technological development (OECD, 1996). Despite the limitations of these studies, however, a number of important observations have been made.

Technology requires large investments of capital. For this reason, regions where economic power is centred are in a more favourable position to benefit than the poor periphery regions (Malecki, 1991). Throughout the regional development literature, it is stated that strong economic bases and urban structures influence the geographical distribution of investment and technology. Regions must not only attract new industries, but engage those with the technological capabilities to create jobs that require a "high-knowledge" (highly skilled) capacity. The OECD considers knowledge to be the new commodity to promote long-term economic growth, and states that:

"Intangible investment is growing more rapidly than physical investment. Individuals with more knowledge get better paid jobs, firms with more knowledge are winners on markets and nations endowed with more knowledge are more productive" (OECD, 1998).

Regions with traditional industrial structures rooted in the primary and secondary sectors, do not have a labour force with a high level of knowledge. Since the knowledge levels of a region's labour force influence the diffusion of technology, the periphery is at a disadvantage. Gibbs and Edwards (1983) note that the adoption of new technologies in periphery regions must be equal to the national average to avoid an increase in regional disparities. One of the purposes of regional development policies is to assist under-developed regions to access new technologies and expand their infrastructure.

1.3.2 The Use of Technology in Infrastructure

Governments have grown to be dependent on technology in regional development policy-making. The telecommunications revolution presented new opportunities for reducing regional disparities, and traditional physical infrastructure is being replaced by technology as regions compete for domestic and international investment.

Gera, Lee-Sing and Newton (1998) note that the development and acquisition of knowledge in the knowledge-based economy must be supported by a strong technological infrastructure. Domestic and foreign investment concentrates in regions where there is a skilled labour force present to encourage innovation and technological change. This technology-based infrastructure, in turn raises the demand for workers with the skills and expertise to participate in the new economy. Older unskilled workers and industries are replaced, as they can no longer compete for investment (OECD 1996).

Industries that promote the development and exchange of knowledge are those that benefit most from a technology-based infrastructure (DeBresson and Barker 1998). The educational and business services, health, and high-tech research and development sectors are those that create “high knowledge” employment. Thus, improvements in human capital formation and investment in these industrial sectors continuously drive the development of this type of infrastructure. Regions with large portions of their labour force employed in these sectors experience long-term economic growth.

Traditionally, the state has provided the infrastructure required for economic development. Regions that do not have a strong economic base of high-knowledge industries are mainly rural and require higher levels of government assistance to develop their infrastructure. The government’s involvement is motivated by the economies of scale in the delivery of public goods (as in roads), and the minimisation of external effects (especially in water and sewerage services) that are to be had from infrastructure provision (Mody 1996). In industrialised countries, there has been a recent and definite shift away from the public sector in the delivery of infrastructure. The World Bank (1998) has observed that in modern capitalist economies, the state has begun to restrict their role as the provider of infrastructure, leaving investment to the private sector. In cases where high technology is required for regional development, they have found this to be especially true.

The New Brunswick government has patterned their regional development initiatives along these same lines. In this instance, there was a heavy reliance on the private sector to construct and maintain the telecommunications infrastructure. As is evident, the knowledge-based economy has placed great emphasis on technology for infrastructure to promote economic growth.

1.3.3 Effects of Technology and the Knowledge-Based Economy on Regional Development in Canada

It would appear that traditional methods of regional development policy-making in Canada are becoming irrelevant. New directions are being sought by governments in an attempt to reduce regional disparities in a new economy. As previously stated, disparities in Canada are accentuated in regions that depend on traditional industries that operate outside of technology-based infrastructure. Lamarche (1990) notes that:

“In large countries such as Canada, regional disparities are linked to such factors as distance-related costs, inadequate industrial structure, poor regional, social, and physical infrastructures, and a heavy dependency on the primary sector. Expansion of the primary sector does not guarantee the build up of a sophisticated urban network, a factor which further weakens a peripheral region’s capacity to promote its economic and social development” (Lamarche, 1990).

The knowledge-based economy evolves at a rapid pace, further accentuating regional disparities as periphery regions continue to lag behind those in the core. A paper released by Nadeau of Industry Canada in 1999, found that the majority of high-knowledge activity in Canada was concentrated in the province of Ontario, and that the manufacturing and business services sectors were the largest contributors. The services sector as a whole was found to have the largest share of knowledge workers but employment in these industries was largely restricted to urban centres. While every province is increasingly gaining a skilled and educated labour force, research and development, technology adoption, inventiveness, and formal training in the workplace remains heavily concentrated in Central Canada. Despite improvements, research and innovation in the Atlantic provinces remains lower than in the rest of the country.

When those sectors most important in the knowledge-based economy increase their share of employment in a region, changes to the industrial structure occur naturally

fuelling overall economic growth. In their analysis of Canada's industrial structure between 1971 and 1991, Gera and Mang (1997) found that:

- Traditional sectors (primary, manufacturing, construction) are losing their importance to the services sector;
- Growth in the Canadian economy was led by the high tech, computing, telecommunications, and services sectors (business and personal services);
- The Canadian industrial structure was becoming increasingly knowledge-based and technology-intensive, with competitive advantage being rooted in innovation and ideas;
- Structural change was evident at both the aggregate, and detailed industrial level;
- Seven out of the top ten growth industries belonged to the knowledge-intensive ("high-knowledge") category over the 1986 to 1991 period.
- The Canadian business sector is still largely comprised of medium- and low-knowledge industries.
- The manufacturing sector was becoming more innovative through the use of high technology and more advanced labour skills. Structural change in this sector occurred in conjunction with changes in technological and skill intensity of output, and in wage levels.
- The service sector underwent much of the same evolution as in the manufacturing sector. As the knowledge intensity grew, high-technology industries outpaced the growth of the service sector as a whole and of the overall business sector.
- Trade became a much more important sector for responding to the domestic demand for manufacturing but not necessarily for services.
- While the natural resources sector seemed to be in general decline, a closer examination of industry-level data revealed that the several industries in this sector have an above-average performance (fishing, trapping, metal and non-metal mining, mineral fuels).

Gera and Mang's observations illustrate the extent and pace of structural change of the Canadian economy, and the key factors driving it. In following these trends, regional development policy in Canada has become more directed towards investing in industrial sectors that exhibited high growth rates, rather than those found mainly in periphery economies. The next section will illustrate how New Brunswick has situated itself in this new regional development policy environment.

1.3.4 Regional Disparities in the Atlantic Provinces and Technology-Based Infrastructure

Atlantic Canada has historically been an economically repressed region in Canada. As have-not provinces, the hardship they have experienced in poor economic growth has been mirrored within their provincial borders, and among their own regions. Although this thesis is specifically focused on the regional disparities within New Brunswick, it is important to note that all of the Atlantic provinces have attempted to use the technological revolution as a lever to stimulate economic growth and reduce regional disparities. This section will focus on the counter-arguments presented in the literature on the use of technology as the main variable on which regional development policy is based.

In studying the impact of the knowledge-based economy on the Atlantic Canada, Lamarche (1993) concentrated on the effects that telecommunications and computer innovations had on regional development from 1971 to 1986. Lamarche found that the knowledge-based economy, “developed out of a demand for more sophisticated goods and services in industrial countries and a concurrent need to increase the overall performance of the economy to fill the demand” (Lamarche 1990). The study further analysed the industrial structure, income levels, gender participation, and employment levels in the economic regions and urban centres in the Atlantic provinces. The study noted that, despite the new infrastructure, very few regions had adjusted their economies to benefit from the knowledge-based economy. Lamarche argued that the importance of the primary sector to the periphery regions remained a disadvantage, and that the urban centres remained largely detached from the rest of the national urban system. Thus, because the basic industrial composition had not restructured to reflect and maximise the existence of the new infrastructure, global competition would outpace any efforts made in the provinces.

Lesser and Hall (1987) mirror Lamarche’s doubts that the telecommunications infrastructure will be the saviour of regional development policy in Atlantic Canada. They argue that this infrastructure will not significantly benefit less-developed regions because there is no competitive advantage to be had, as similar infrastructures are found

in most regions of Canada. A second point made by the authors is that the inadequacy of “complementary technologies”, such as computer technologies and support services, will cripple the Atlantic provinces ability develop their economic base further, as research, development and innovation in high tech will have to be imported and not home grown.

In the case of New Brunswick, the government encouraged the rapid growth of the telecommunications industry. The government’s underlying rationale was that technology could become a means to achieving a wide range of social and economic goals, such as those found in the areas of healthcare and education. They reasoned that this growth would not only be driven by market forces, but that the market would initiate change in the types of services provided, types of users served, pricing, and control of access to the new technologies (Saunders, Warford and Wellenius 1994).

In other words, the government was aware that the chosen approach to stimulate growth in the technology and telecommunications sectors left some groups in the province behind. Economically depressed regions have fewer highly educated workers with the skills to use this new technology and lack the economic base to support jobs in the sectors best served by this technological infrastructure. The knowledge-based economy benefits most those regions that have the ability to adapt quicker and with greater ease to technology and to the skill levels required. The characteristics of their industrial structure and labour force make the adoption of technology a difficult process in Atlantic Canada.

The benefits of a telecommunications and technology driven infrastructure can be constrained when there is a lack of adequate human resources and capital (Saunders, Warford and Wellenius 1994). In the case of New Brunswick, the capital was available through Bruncor Incorporated, but the labour force had yet to develop the skills necessary to participate in the knowledge-based economy. The placement of call centres in the province filled this void by employing people in service sector jobs that did not require high levels of technical skills.

A study by Milne (1996) examining the policies of the McKenna government, concluded that the advances made were primarily in the core regions of the province. He further stated that traditional regional disparities continued to plague the periphery

regions, and thus advances made in the core regions alone were not sufficient for New Brunswick to compete globally and nationally.

1.4 Summation

The context of this thesis serves to identify the variables that will be analysed in later chapters, and frames the discussion within which the central research question is posed.

The review of the theories and concepts in regional development along with the policy directions of the Canadian and New Brunswick governments have allowed for a deeper understanding of what regional disparities are, and what actions have been taken to reduce them. The literature review has further illustrated that the traditional means of regional development are evolving to keep pace with economic change.

The knowledge-based economy has put new pressures on the economic structures and labour forces in the regions in New Brunswick. A number of policies were developed with a new focus on technology and global competitiveness. As a result, the government sought to develop the core and periphery regions through the development of infrastructure for telecommunications and the service industries. The next section of this thesis contains the methodology used in analysing the data as it is relevant to the study of regional development in New Brunswick.

Chapter 2: Methodology

This chapter of the thesis is a description of the variables and measures used in analysing the changes in the regions of New Brunswick. First, the time frame and geographic scale of the analysis are defined. Secondly, variables that describe the regions studied are identified. Thirdly, a number of secondary research questions have been asked to allow for clear objectives to be met before the central research question is addressed. Finally, this chapter contains a description and discussion of the shift-share analysis that has been applied to the data to explain why the regions of New Brunswick experienced changes in their socio-economic composition.

2.1 Time Frame and Geographic Scale

The time frame selected for this thesis is from 1986 to 1996. The data analysed during this ten year period has been extracted from the 1986, 1991, and 1996 census. As previously determined, the changes to regional development policy in New Brunswick began with the election of the McKenna government in 1988. The census of 1986 is important because it describes the province's regional economies prior to the onset of new regional development initiative. The 1991 census serves as mid-point in the analysis and is also important because it coincides with an economic recession that had profound impacts on the whole of Canada. The most recent census measure in 1996 census, was selected because the recession had ended and the results of the McKenna revolution had begun to taken effect.

The geographic scale used in the analysis is at the county or census division level. There are fifteen counties in New Brunswick that can be divided into main regions (see Table 1). The first is composed of the southern counties that are generally smaller in geographic area but have larger populations. The three major urban centres of the province (Moncton, Fredericton, St. John) are also located in the south. The second region includes the northern counties, which are larger in geographic area and have small, mainly rural populations.

Table 1 Regional Division in New Brunswick	
Southern Counties	St. John, Charlotte, Sunbury, York, Queens, Kings, Westmorland, Albert
Northern Counties	Carleton, Victoria, Madawaska, Restigouche, Gloucester, Northumberland, Kent

The following analyses will thus respect the division of the province into two regions in comparing measures of economic growth. To view the geographic location of each county, see Figure 1.1 at the end of this chapter.

2.2 Identification of Variables and Research Questions

Four variables have been identified as important descriptors of regional disparities in New Brunswick. The following paragraphs will provide definitions of the variables, the tools used to analyse the data, and the secondary research questions that will be further explored in chapter three.

2.2.1 Industrial Sector Composition

For the purposes of this thesis, the most important variable that describes the regional disparities of New Brunswick is industrial sector composition. In analysing this variable, changes in the industrial structure of the province's fifteen regions become apparent. Malecki (1991) states that, its importance is that structural change in a region's economy affects its ability to use new technologies and compete in an increasingly global economy. Employment patterns in the various sectors of a region, serve as an indicator as to the influence an industry has on a local economy, as well as, the adaptability of the region to the knowledge-based economy. Determining the industrial composition of the province's regions thus allows comparisons to be made between the core and the periphery.

The data used in the analysis of this variable was extrapolated from the 1986, 1991, and 1996 census. For the purposes of data comparability, eight industrial sectors

were identified based on the 1980 Standard Industrial Classification. The calculations included:

- Changes and number of jobs in sectoral employment between each census year;
- The percentage change in total sectoral employment for each industry in each county;

Given the scope of this thesis, comparisons were made between the northern and the southern regions for industries with a share in total sectoral employment over 10%. An exception was made for the Financial Services sector in which shares in total sectoral employment were below 10% in every county.

The analysis of the industrial sector composition in New Brunswick explains the regional differences in the changes to total sectoral employment and the number of jobs by industrial sector.

2.2.2 Unemployment and Labour Force Participation

Unemployment and participation rates are commonly used to measure the availability of employment in a particular region. High unemployment rates are an indication that there is a lack of jobs for those seeking work or that those seeking work do not have the skills suitable for the available jobs. Low participation rates indicate that a large number of people are not active in the labour force. Regions that have strong economic growth generally have an abundance of jobs and therefore are less likely to have high unemployment rates and low labour force participation. From the 1986, 1991, and 1996 census data, six variables were analysed:

- Total unemployment rates
- Male unemployment rates
- Female unemployment rates
- Total Participation Rates
- Male Participation Rates
- Female Participation Rates

The analysis of the total unemployment and participation rates describe the overall situation of the total labour force in each region. When examined along gender lines, the unemployment and participation rates further indicate which of the sexes benefited most from the changes to the industrial structure. The data was manipulated in three ways to examine:

- The overall changes in the counties between 1986 and 1996;
- The changes between each of the census years;
- The averages for the three census years are calculated to compare each county.

The analysis of these two variables explain the differences between counties with respect to how the overall and gender-differentiated unemployment and participation rates changed throughout the period.

2.2.3 Income Disparities

In order to fully understand the disparities between the south and the north, three variables must be considered. First, the average household incomes show the overall wealth of the county's residents. Secondly, the average male and female incomes show the changes in the earnings of both men and women and allow an analysis of the gender gap.

Income data was taken from the three census years selected for analysis, and the main calculations included:

- Changes in overall average household incomes between each of the census years;
- Changes in overall average male and female incomes for each county;
- Average incomes for all three census years were calculated for comparability of income levels across counties.

The analysis of these variables illustrate the differences in household incomes in each county and between the north and south regions of the province. In addition, the data reveals important information on the income disparity that exists between men and women in these counties.

2.2.4 Migration

Out-migration has been a problem in the Atlantic provinces for decades. The lack of employment opportunities (especially for skilled workers), and weaker economic structures have forced many from this region. For many years, New Brunswick has had negative migration flows which are accentuated at the county levels. The periphery regions in the province have had great difficulty in attracting and retaining industries and

workers. Many people are attracted to the larger urban centres of the south because of better opportunities for employment.

For this analysis, data was extracted from the CANSIM database. This set of time series data was published yearly between 1987 and 1998, and include:

- Emigrants by Census Division, Population, New Brunswick (Labels C356865-C356879)
- Immigrants by Census Division, Population, New Brunswick (Labels C356565-C356579)
- Inter-provincial In-Migrants by Census Division, Population, New Brunswick (Labels C357165-C357179)
- Inter-provincial Out-Migrants by Census Division, Population, New Brunswick (Labels C357465-C357479)
- Intra-provincial In-Migrants by Census Division, Population, New Brunswick (Labels C357765-C357779)
- Intra-provincial Out-Migrants by Census Division, Population, New Brunswick (Labels C358065-C358079)

This data set was chosen because the census did not contain the number of out-migrants, making the calculations of net flows impossible. Manipulations of the data include:

- Calculation of annual net flows which facilitate the net flows for entire time period to be calculated.

Although this analysis identifies the types of migrants to and from a county, it does not specify place of origin and destination. Thus, only the differences in net population flows between the counties can be determined.

2.3 Shift-Share Analysis

Shift-share analysis is a statistical method used to measure growth of a region's industrial sectors. This tool explains the causal relationships that exist between the variables discussed above. The following section discusses this method and applies it to the context of New Brunswick's regions.

2.3.1 Discussion of Shift-Share Analysis

According to Tate (1981) there are three basic theoretical concepts that underlie shift-share analysis. He states these as being:

“...the importance of a region’s export base, the development of a region’s industrial sector as regional development progresses, and the idea that regional economies share in national development and are subject to national forces, while at the same time having distinctive regional characteristics.” (Tate 5)

He also asserts that national and regional characteristics form the basis of shift-share analysis. Finally, Tate states that the growth of a certain regional industry is due to its interaction with the national share of that industry (Tate 1981).

Shift-share analysis measures the *shift in*, as well as, the *share of* production in an industrial sector. According to Richardson (1978), when the shift-share technique is applied to the analysis of regional industrial data (employment, output or income), it measures the total changes in a region’s industrial performance relative to the national average over a specified time period. The change in a region’s local industries can be of two different types: proportional and/or differential shifts. Proportional shifts measure the influence of industrial mix on the region, while differential shifts measure the degree to which regional industries grow compared to the average (Richardson 1978).

Although this technique is widely used by regional economists, there are those who are critical. Dunn (1960) claims that a major weakness of this method is that its components are based on values in the initial time period. Therefore, the longer the time period studied, the greater likelihood of results distorted from changes in the spatial distribution of industry. Houston’s (1967) main criticism of the model was that it assigns a desired growth rate based on the national average, thus setting a benchmark that may or may not be realistic. In reply, Ashby (1968) claimed that regional-national comparisons are useful as common reference standards. The analysis in this thesis focuses on the benchmarks set out for the counties set out by the provincial average.

According to Lamarche (1999), traditional shift-share (Jones Method) has two components that explains growth that exceeds the national average.

- Regional share measures if a region has experienced a growth rate above or below the national average. If the growth rate is above the national average, it must possess certain comparative advantages. Such advantages include better physical, economical, and political infrastructures.
- Industrial mix measures the impact of a region's industrial structure. If its industrial sectors are better than the average, they account for some of the above average growth that occurred in the region. If a region has more "good" industries, (those above the average), it has a successful industrial mix.

These measures are most applicable in analysing the high growth rates of the service sector industries.

Shift-share analysis is used to determine if industries at the local level are competitive in relation to the overall average. McKay and Burroughs (1987) lists the following reasons to explain a loss in an industry's regional share:

- Population increases or decreases affecting demand
- Technology improvements
- Changes in markets due to imports
- Changes in market preferences for goods and services
- Transportation costs
- Labour costs
- Profit margins prohibiting or allowing capital reinvestment
- Lack or abundance of public facilities and services

As stated in the previous chapter, this thesis focuses on government regional development policies and its interaction with a technology-based infrastructure. These are the two main factors that will be used to explain a gain or loss in a region's share of an industry.

Given the strengths and weaknesses of this method as described in the literature, a hybrid model patterned after McKay and Burroughs (1987) and Lamarche (1999) will be used to analyse the variables selected. The model uses the following statistical formula:

- 1) Observed Growth = employment growth in a sector between the base and final year
- 2) Growth Rate = (provincial % change in total employment) X (base year local employment in sector)
- 3) Systemic Rate = observed growth – shift

- 4) Shift (difference) = systemic rate – observed growth
- 5) Regional share = (local % change in sector – provincial % change in sector) X (base year local employment in sector). This compares a local industry’s ranking with that of similar industries in the other parts of the province. The results can be either positive or negative showing the local industry’s competitive share.
- 6) Industry Mix = local shift in sector – local regional share in sector
The result can be either positive or negative as one indicates a faster growing industry and the other a slower growing one that the average of all provincial industries.
- 7) Total Shift = (provincial growth + industry mix + regional share) = (final year local employment in sector – base year local employment in sector)
This is an indicator that compares the local industry mix to the total provincial mix of industries and determines if a region is increasing or decreasing its share of the industry.

The next section will show the model applied to the data gathered for New Brunswick’s counties.

2.3.2) Application of Shift-Share Analysis on New Brunswick’s Counties

An initial analysis of the 1986-1996 data indicates that the largest growth in New Brunswick, and the only sector to be above the total employment growth is the category “Other Services” sector (see Table 2).

Total Employment	Primary	Manufacturing	Construction	Transp. & Comm.	Trade	Financial Services	Government Services	Other Services
11.19	1.42	-1.18	10.19	7.43	6.9	10.46	-8.48	30.07

While the 1986 census data cannot be disaggregated to determine which of the service sectors were responsible for the high growth rate, the 1991 and 1996 census data distributes sectoral employment into eighteen categories, thus allowing for a more detailed analysis. For 1991 and 1996, Statistics Canada (1996) divided the 1980 Standard Industrial Classification used in the 1986 census into the following sectors:

- Primary: divided into 4 sectors (Agriculture and related services; Fishing and Trapping; Logging and Forestry; Mining (including milling), Quarrying and Oil Well

- Manufacturing
- Construction
- Transportation, Communications & Other Utilities: divided into 2 sectors (Transportation and Storage; Communications & other Utilities)
- Trade: divided into 2 sectors (Wholesale Trade; Retail Trade)
- Financial Services, Insurance & Real Estate: divided into 2 sectors (Finance and Insurance; Real Estate Operator & Insurance Agent)
- Government Services
- Other Services: divided into 5 sectors (Business Services; Educational Services; Health and Social Services; Accommodation, Food & Beverage Services; Other Services)

Therefore, the shift-share analysis will focus on the five-year period between 1991 and 1996 which reflects the time when most of the major changes in New Brunswick were taking place. Since the McKenna government was elected in 1988, the base year of the analysis (1991) is only three after the election and two years after the release of their first regional development policy framework. This is also an important year as the effects of the world economic recession should be reflected in the numbers. The year 1996 was chosen as the final year of the analysis for three main reasons; it is the last census available, it is the first year of the government's last mandate, and the economy was recovering from the recession.

While the data for each industrial sector was analysed, only those with significant growth or declines, and those that show a pattern of regional distribution between the northern and southern counties have been extracted for a more detailed examination. The shift-share analysis of New Brunswick's counties in chapter four is divided into three sections:

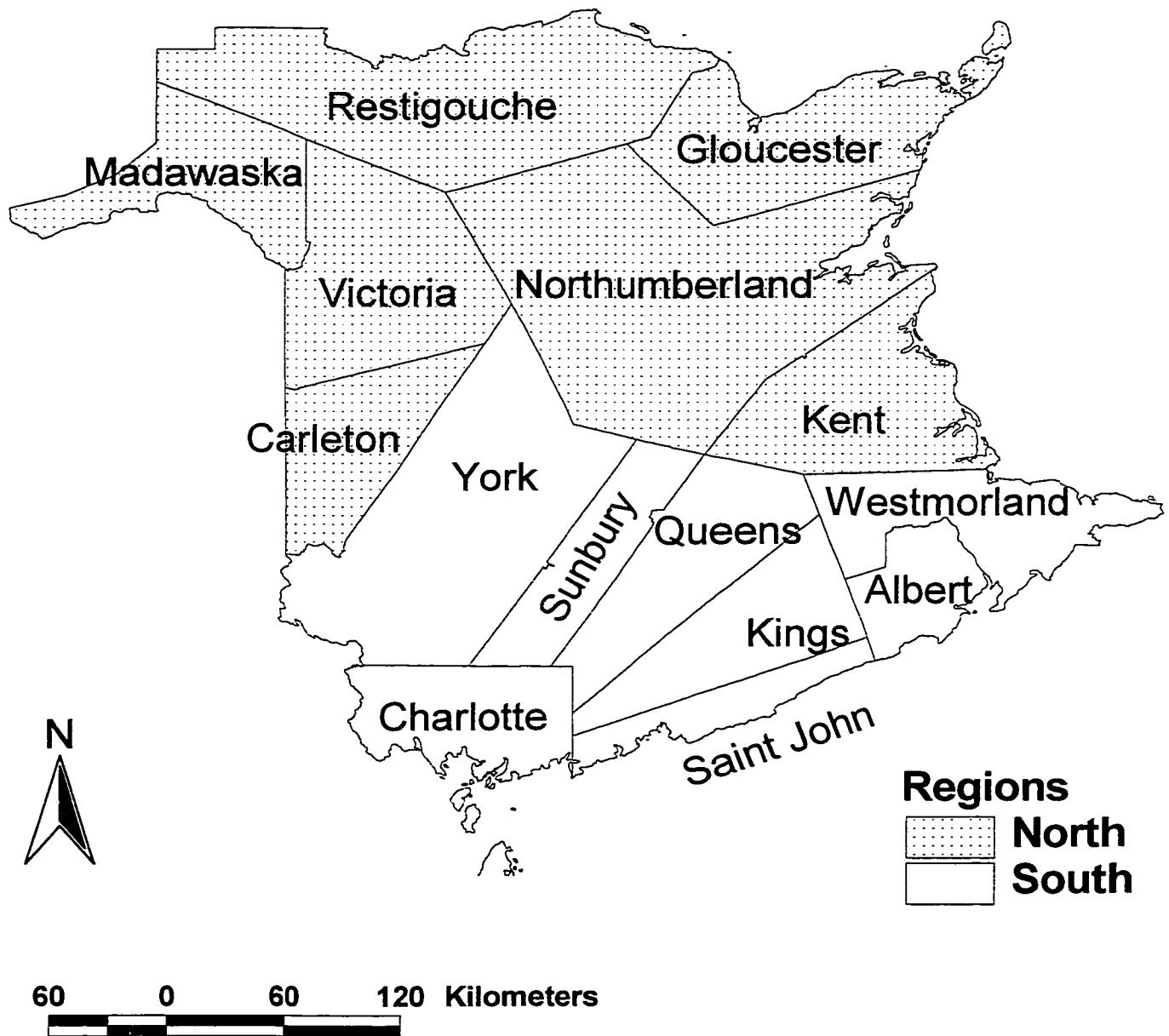
- 1) *An analysis of the total shift of total employment.* This section examines the overall growth rate in employment between 1991 and 1996 in all of New Brunswick's counties. The first step is to calculate the provincial growth rate in each county to determine if it was equivalent to the provincial average of 1.46% during that time period. The second step is to measure the total shift of employment in each county by adding the provincial rate with the regional share and the industry mix. The result indicates whether total employment in each county is above or below the provincial growth rate using the competitiveness and industrial structure of all sectors.

- 2) *An analysis of the total shift of each industrial sector.* This section uses the same method described in the previous point to determine the levels of growth between 1991 and 1996 in each of the eighteen industrial sectors. The result is to determine which sectors are growing, stable, or in decline and in which counties they are located.
- 3) *An analysis of the regional share of each industrial sector.* This section measures the regional share the total employment and each industrial sector in the counties. The result identifies what counties experienced the highest and lowest growth due to their competitive advantages and their distribution between the north and the south.

2.4 Summation

The analysis of the four sets of variables identified as important descriptors of the socio-economic changes taking place in New Brunswick and the shift-share analysis of the province's industrial sectors provide the answer to the central research question posed in the introduction. The statistical analysis in the next two chapters will identify the extent of the regional disparities in New Brunswick and the effects of the provincial government's regional development policies and the use of a technology-based infrastructure.

Figure 1.1: Division of Counties in New Brunswick



Chapter 3: Statistical Analysis and Description of Changes to Regional Disparities in New Brunswick

This chapter provides an analysis of the available data that describes the changes in the counties of New Brunswick between the years 1986 and 1996. The techniques employed are those that were specified in the previous methodology chapter. The analysis has been divided into the following four sections: industrial sector composition, unemployment and labour force participation, income disparities, and migration.

3.1 Industrial Sector Composition

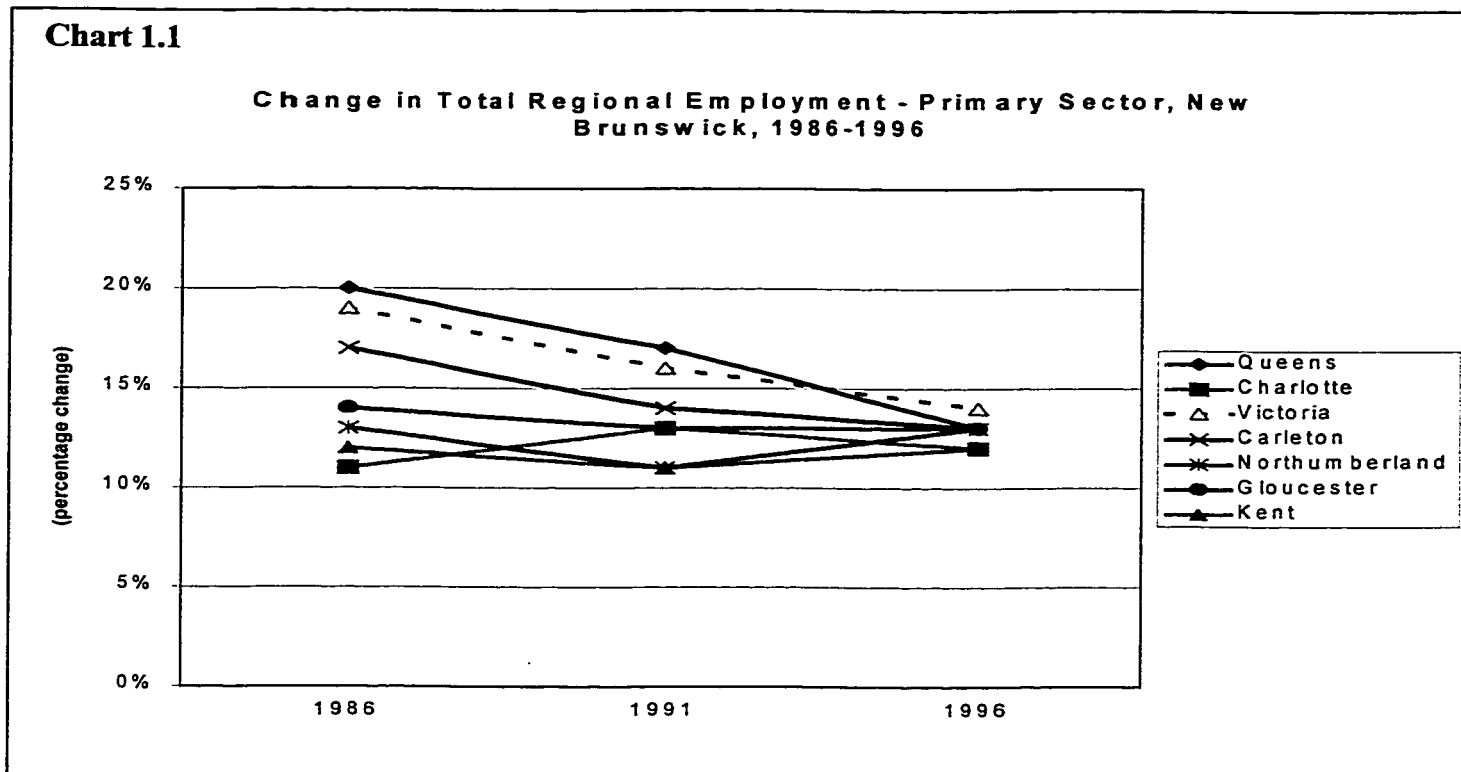
The industrial sector composition of New Brunswick's counties was determined to be an important variable to understand the changes in the industrial structure between 1986 and 1996. As indicated in the previous methodology chapter, three research questions will be answered following the description of the changes to employment in the eight major industrial sectors.

3.1.1 Primary Sector

Employment in the traditional primary sector has been in constant decline throughout Canada. For the most part, the southern counties of New Brunswick do not have important primary sectors. The exceptions are the counties of Queens, where it is the second largest employer, and Charlotte. In the north, primary sector industries are a much more significant part of the local economies. Like all primary sector industries in Canada, growth has stagnated over the past fifteen years. In Victoria, where the primary sector was the second largest employer in 1986 and 1991, it fell to fourth place by 1996.

The census data indicates that there has been an overall stagnation in both employment and economic significance of primary industries in New Brunswick. Between 1986 and 1996, the number of people employed in this sector decreased in only two of the southern counties (Queens and Sunbury), while the rest remained relatively unchanged (see Annex 1.1a). In the northern counties, however, only three of the seven had increases in the number of people employed in this sector (Northumberland, Kent, and Restigouche), while the other four counties experienced a decline in employment. The percentage share of total employment this sector also

decreased in four counties (Victoria, Carleton, Gloucester, and Madawaska), and has remained unchanged in the other three (see Annex 1.1b).

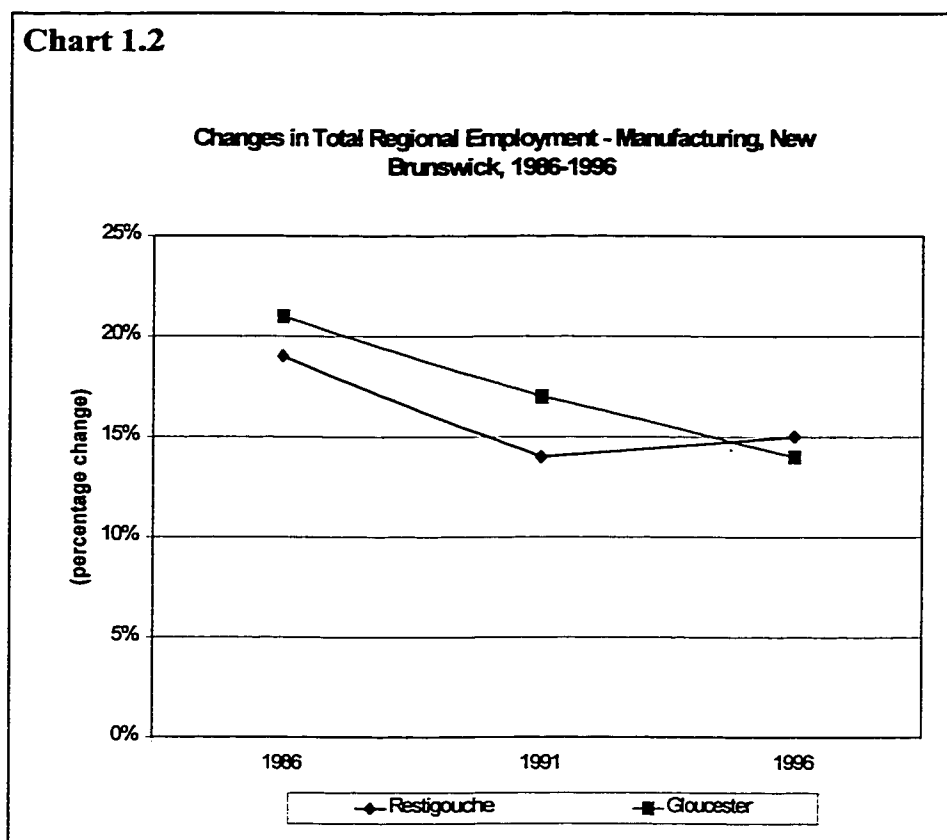


As is evident from the Chart 1.1, counties where primary industries such as fishing, forestry, mining, and agriculture have traditionally had a strong presence, have been unable to increase their share of total employment. Interestingly, there was a convergence in 1996 within three percentage points, despite the county share of total employment in 1986. The three counties at the top (Queens, Victoria and Carleton) all experienced consecutive declines in all three census years. In comparison, the three at the bottom returned to their 1986 levels by 1996, although they experienced some movement up or down throughout the period.

3.1.2 Manufacturing Sector

The manufacturing sector in New Brunswick bears a resemblance to the primary sector, in that it has been unable to increase their share of sectoral employment in the counties where they operate. Nonetheless, this sector remains an important part of the northern economy and is the largest employer in four counties (Kent, Madawaska, Restigouche, and Carleton). The southern counties also employ large numbers of people in this sector. In Charlotte, for example, it is the second largest employer.

The counties of Restigouche and Gloucester experienced a much more significant decline in employment in the manufacturing sector than did all the other counties in the province. In Gloucester, the share of sectoral employment in manufacturing declined by 7%, and resulted in the loss of 2,315 jobs. (see Annex 1.2b)



Between 1986 and 1996, the number of jobs increased significantly in three of the southern counties (Charlotte, Kings, Westmorland), while the county of St. John lost almost 1000 jobs over the same period (see Annex 1.2a). For twelve of the fifteen counties, the industrial share of total employment changed by 0% to -2% over this period. Only the county of Northumberland experienced growth (2%).

While most of the manufacturing sector's share in total employment remained unchanged or declined slightly between 1986 and 1996, many suffered a dramatic loss in the number of jobs in the industry. By the end of the period there were 455 less jobs in the province.

3.1.3 Construction Sector

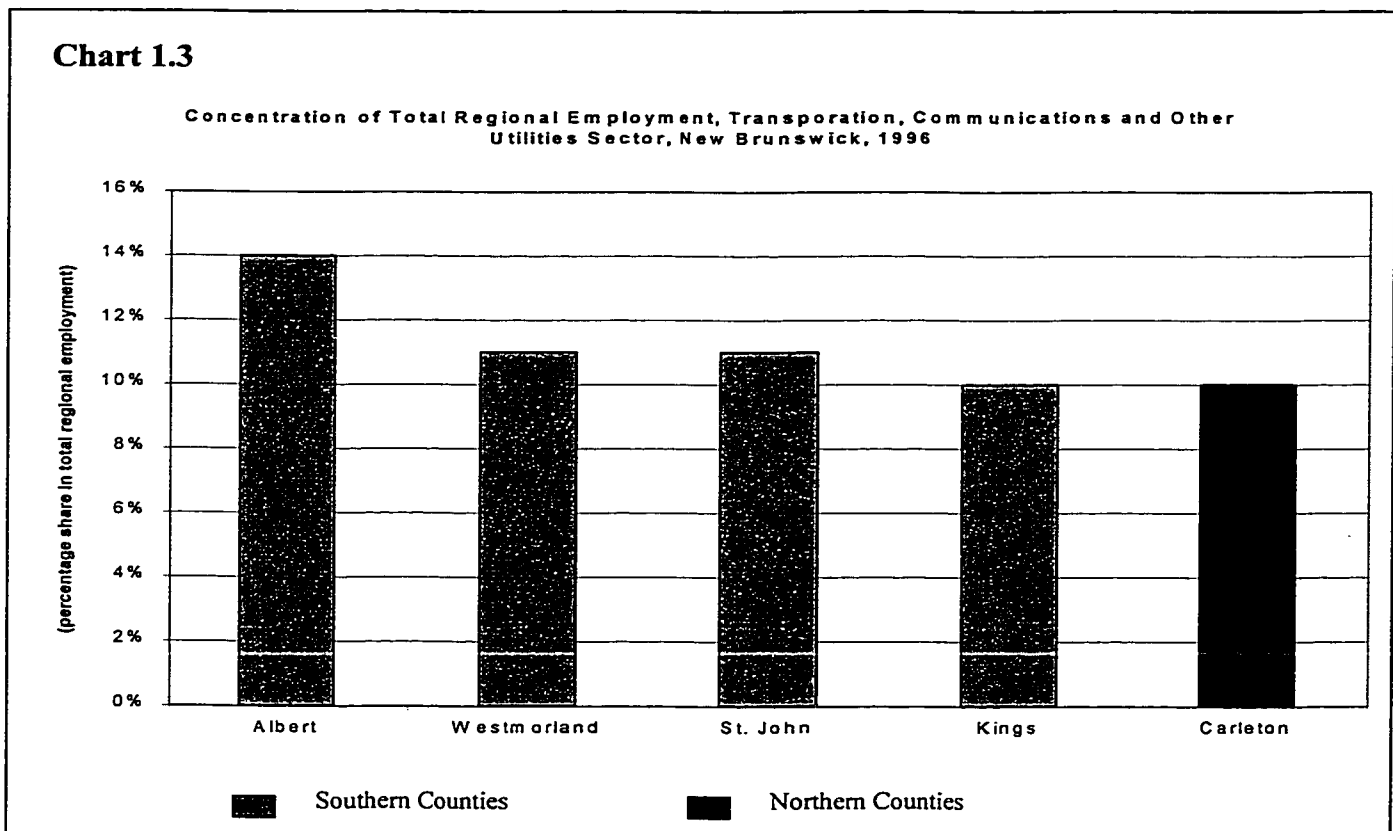
Growth in the construction sector often follows increases in consumer spending, growth in employment and other major economic trends. Of all of the fifteen counties in New Brunswick, Kent is the only one where the construction industry represents over 10% of total employment in the county. In contrast, Sunbury has a construction sector with the lowest share of only 4% of total employment.

The two southern counties of Kings and Charlotte had a reduction in sectoral employment by 1%. Albert county, on the other hand, increased by 2%, and the remaining three counties in the south remained unchanged. In the north, the percentage of total sectoral employment increased in Glouster and Carleton. Northumberland county was the only to experience a reduction (1%), while the other four northern counties remained unchanged.

Despite the recessions of the early 1990s, employment in the construction industries have remained relatively stable in both the southern and northern counties of New Brunswick.

3.1.4 Transportation, Communications and Other Utilities

The transportation, communications, and other utilities sector have always been important, as the province is a distribution and transportation centre for the Atlantic provinces and the New England states. This sector is also significant because the telecommunications infrastructure installed by Bruncor had the potential to create jobs in this field throughout the decade.



In the southern counties, employment in this sector has increased in all but St. John and Queens. The largest growth occurred in Sunbury, where total sectoral employment increased by 2%. In the northern counties, Kent and Madawaska experienced reductions of 1% and 2% respectively. Carleton and Gloucester increased their share by 1% during this period as well.

With their transportation networks and strong urban centres, the southern counties are able to attract telecommunication industries and retain them there. In contrast, the north is at a serious disadvantage because of its more rural population and distance from the market. While the provincial government expected the telecommunications infrastructure to expand this sector of the economy, growth has been rather modest. As will be discussed in section 3.1.8, the services sector has been the primary beneficiary of this infrastructure.

3.1.5 Trade Sector

This sector is an important part of New Brunswick's overall economy. In every county, trade accounts for over 10% of total sectoral employment. By 1996, this sector was the second largest employer in nine of the fifteen counties, and was evenly distributed between the north and the south.

Between 1986 and 1996, the number of jobs created in this industry increased in all but two southern counties (St. John and Charlotte) (see Annex 1.5a). In the case of St. John, 675 jobs were lost during this same period. Although the absolute number of workers in this industry has increased, the share of total sectoral employment declined in five southern counties. The northern counties fared slightly better than the south, as three of the seven counties increased their share in total sectoral employment by 1996 (Gloucester, Northumberland, Victoria). The number of people employed in this sector has increased in all counties except for Restigouche (see Annex 1.5b).

In all parts of the province, most of the growth in this sector was concentrated between 1986 and 1991. Between 1991 and 1996, the number of jobs decreased in ten of the fifteen counties, and eight experienced a reduction of their share in total sectoral employment.

3.1.6 Financial Services, Insurance and Real Estate

The financial services, insurance, and real estate sector is the smallest of all the sectors in all counties, both in the north and the south.

In virtually all of the counties in New Brunswick with the exception of St. John, the number of jobs and the share in total sectoral employment has remained relatively stable during the 1986 to 1996 period (see Annexes 1.6a and 1.6b). In contrast, St. John lost 450 jobs, and its share in total employment declined by 1%.

Although the financial services sector is small relative to the rest of the economy, the small increases reflect a greater importance of this sector, as more people require financial products, insurance and real estate agents.

3.1.7 Government Services Sector

The government services sector has declined throughout much of the time period studied, reflecting the reduction of the public service as a cost-cutting measure at all three levels of government. This has greatly affected certain counties, such as York, Sunbury, Queens, and Westmorland in the south, all of which have important government services sectors.

- York has most of the provincial government workers in the capital of Fredericton.
- Sunbury, where government services is the largest employer, has a number of service centres in the city of Oromocto.
- Queens is the location of the military base, CFB Gagetown.
- Westmorland has a large number of people employed in this sector because Moncton is the largest city in the province and the headquarters of the federal regional development agency ACOA.

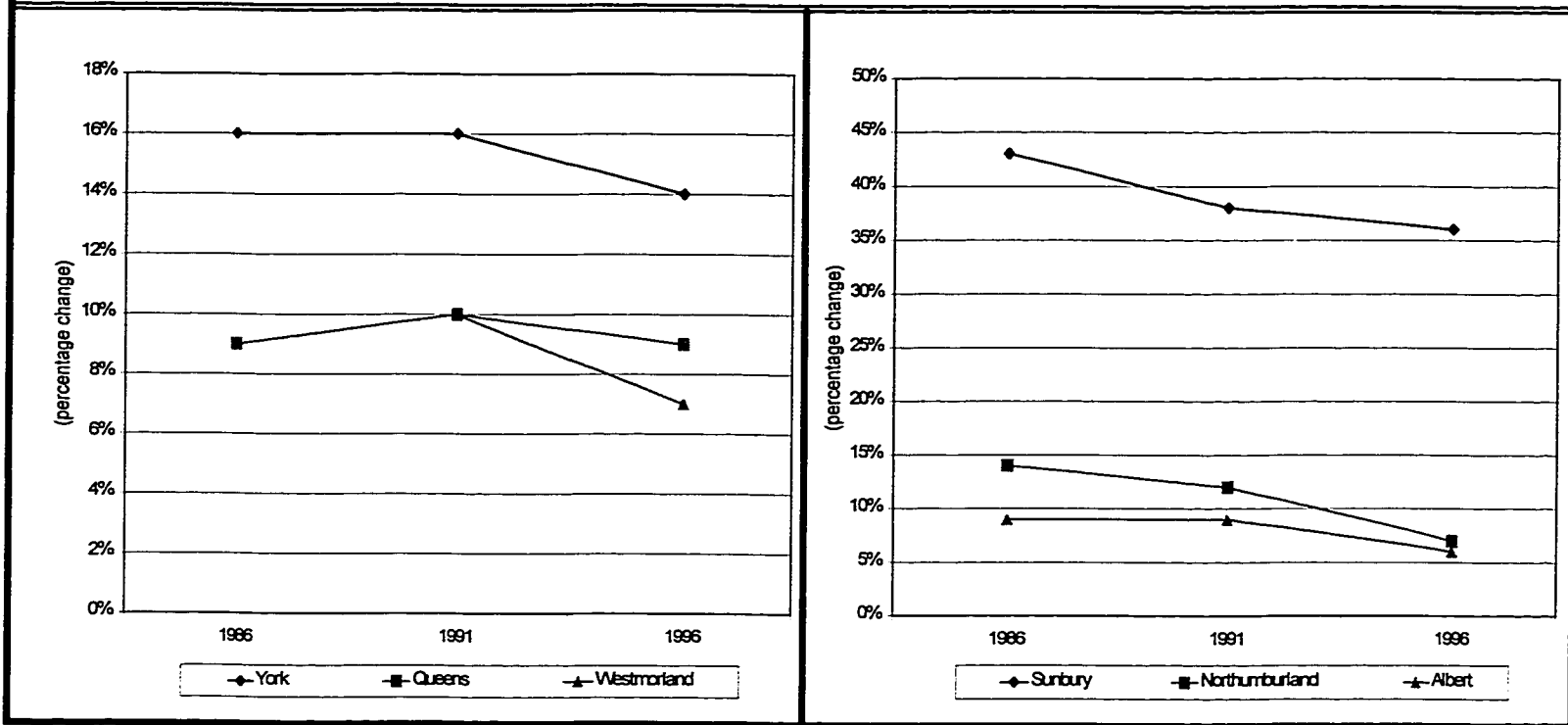
In the northern counties government jobs take the form of municipal workers or front-line service delivery workers.

The number of people employed in this sector increased in only four of the fifteen counties. The share in total sectoral employment decreased in all of the remaining counties except in Kent and Queens where it remained unchanged (see annex 1.7a and 1.7b).

The first graph below shows the three counties where government services are a major employer (York, Queens, and Westmorland), and the second graph illustrates the three counties that had the largest loss in total sectoral employment. With the exception of Sunbury, all of the counties saw the largest decline in their share of total sectoral employment between 1991 and 1996. Sunbury county, which employs the largest number of government workers, experienced a

5% reduction between 1986 and 1991, and a further 2% drop in total sectoral employment between 1991 and 1996.

Chart 1.4 Changes in Total Sectoral Employment – Government Services, New Brunswick, 1986 to 1996



3.1.8 Other Services Sector

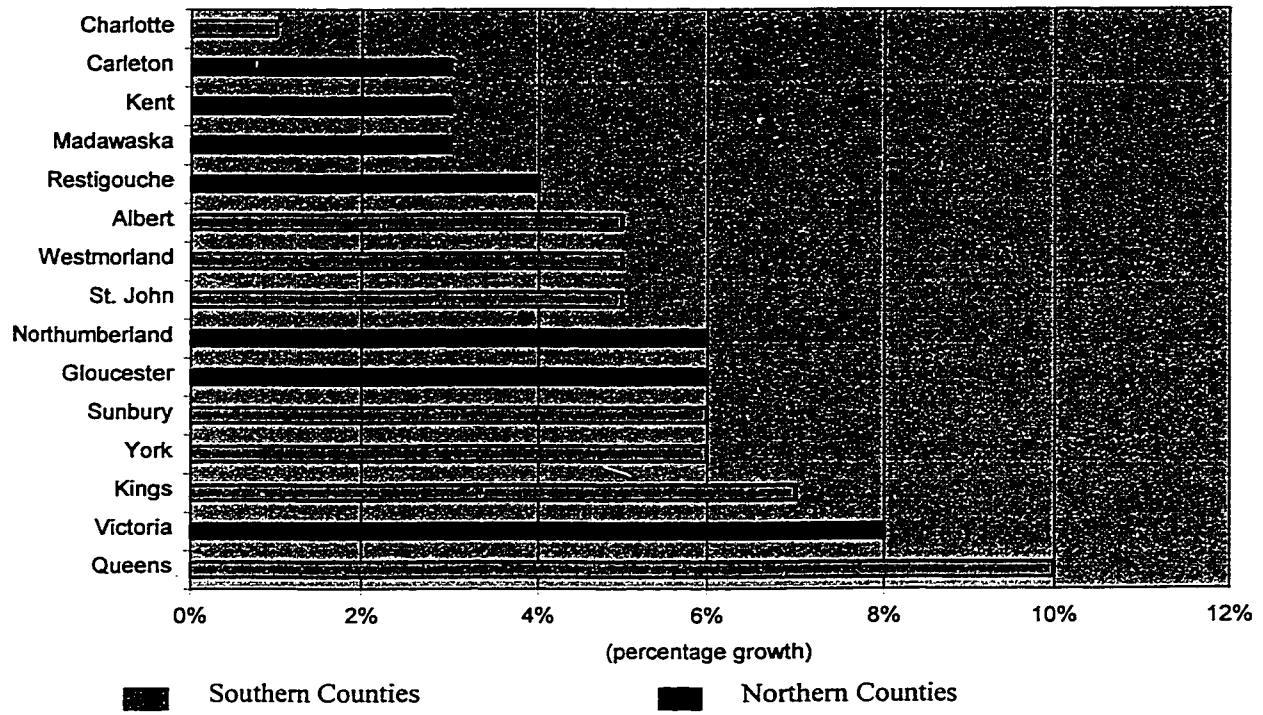
As was previously mentioned, the other services sector has benefited the most in its ability to increase its share of sectoral employment in New Brunswick. By 1996, it became the largest employer in every county except Sunbury, where it is the second largest after government services.

As shown in the chart below, the southern counties had more pronounced growth than their northern counterparts. In fact, three (York, St. John, Westmorland) of the four counties with then highest percentage of employment in this sector are those with the largest urban centres (see annex 1.8a and 1.8b).

In examining this trend in the context of the central research question, it is evident that employment growth did not occur evenly across New Brunswick's regions.

Chart 1.5

**Change in Total Sectoral Employment - Other Services,
New Brunswick, 1986-1996**



3.1.9 Results

The southern counties traditionally have had stronger, more diversified economies than their northern counterparts. Three major trends are apparent in the analysis of the previous data. Firstly, the northern counties appear to have a more traditional industrial structure, with larger concentrations of employment in the primary and manufacturing sectors than in the south. The second trend indicates that most of the growth occurred in the services sector. Finally, the data shows that in most cases, the majority of the growth in employment was between 1986 and 1991 and slowed during the five-year period following.

3.2 Unemployment and Labour Force Participation

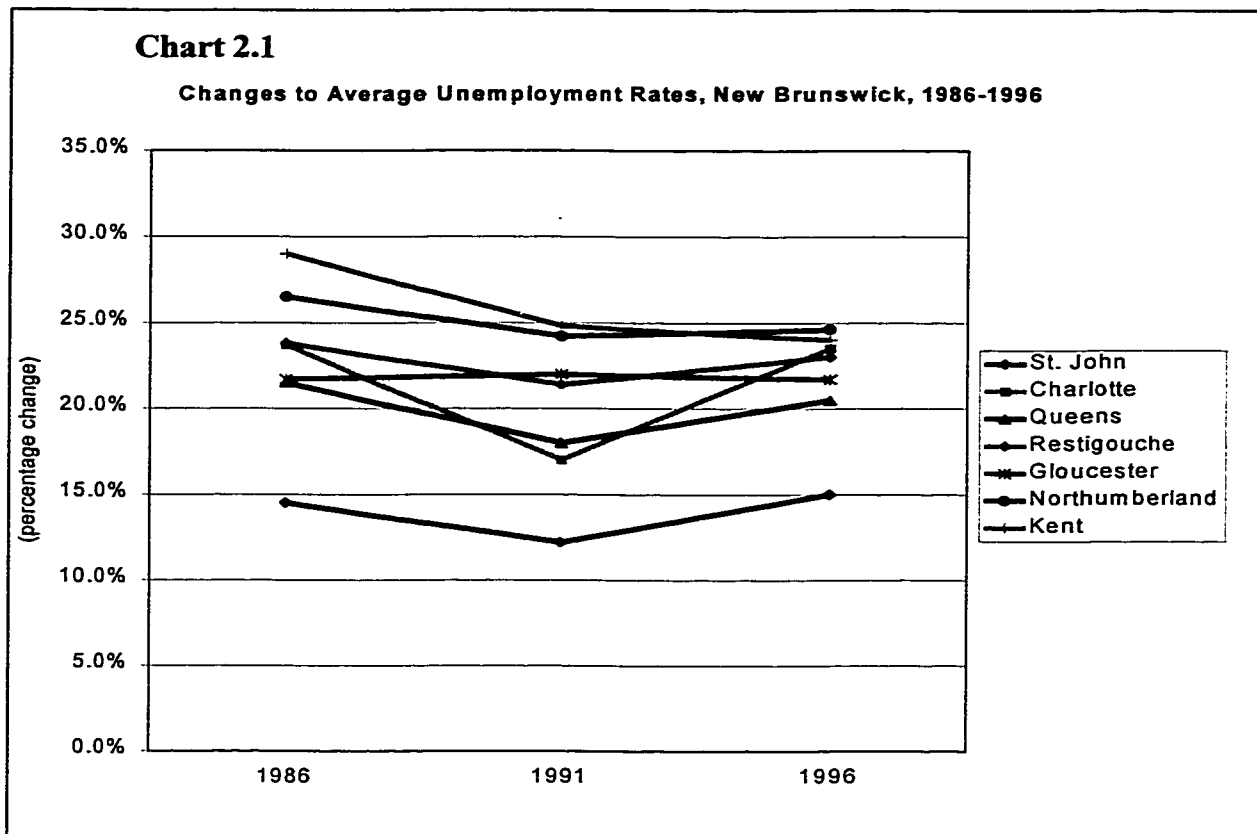
This section will examine the changes in the unemployment and participation rates of the southern and northern counties in New Brunswick. These two variables are important measures in understanding the employment patterns of the different counties, and in the context of this

thesis, are used to compare the availability of jobs for the labour force between them. Another important aspect in the analysis of this data is the differences the economic restructuring has had on males and females. The analysis of unemployment and participation rates between males and females is an indicator of how the changes to the industrial structure have affected employment among the sexes in the province. As will be discussed, the rise of the services sector and the decline in traditional sectors such as primary industries, manufacturing, and government services had a direct effect on the composition of the labour force in the province's counties.

3.2.1 Unemployment Rates

Unemployment rates are one of the measures that illustrate the disparities between the counties in the north and the south. Four of the southern counties (Sunbury, York, Kings, and Albert), and only one in the north (Carleton) have average rates of less than 12%. In contrast, two southern counties (Queens and Charlotte) and four in the north (Restigouche, Gloucester, Northumberland, Kent) have average rates of more than 20%. Therefore, the higher unemployment rates in the northern counties illustrate the fact that there are more people in the southern labour force that are employed.

Between 1986 and 1996, all counties in New Brunswick experienced a reduction in their unemployment rates. The exception was St. John, where the unemployment rates had increased by 0.5% (see annex 2.1a and 2.1b). The chart below shows the seven counties with the highest unemployment in the province. For most of these counties, unemployment rates decreased between 1986 and 1991, but increased in the five year period following. The two counties that did not share this same trend (Kent and Gloucester) experienced minimal changes between 1991 and 1996.



3.2.2 Labour Force Participation

The labour force participation rates in most of the southern counties averaged between 64% and 70%. Three counties (Queens, St. John, and Charlotte) were lower than average, with rates between 54% and 62%. For all of the northern counties, the labour force participation rates were lower than those in the south. By 1996, four counties (Madawaska, Restigouche, Gloucester, and Northumberland) have participation rates below of 60%, while Queens was the only southern county with such a low rate.

Over the 1986 to 1996 period, labour force participation improved in twelve of the fifteen counties. For St. John, Gloucester and Restigouche, however, there were small decreases of less than 2% (see annex 2.2a and 2.2b).

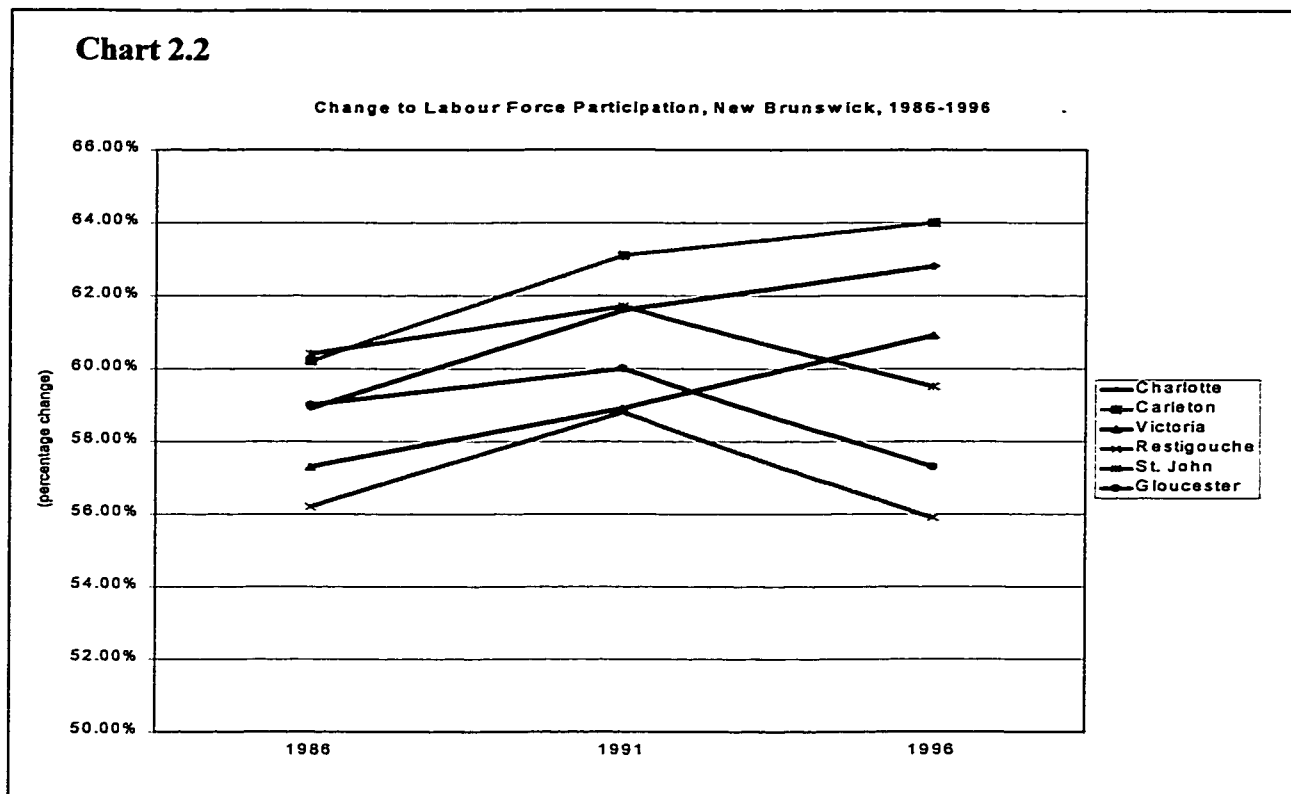


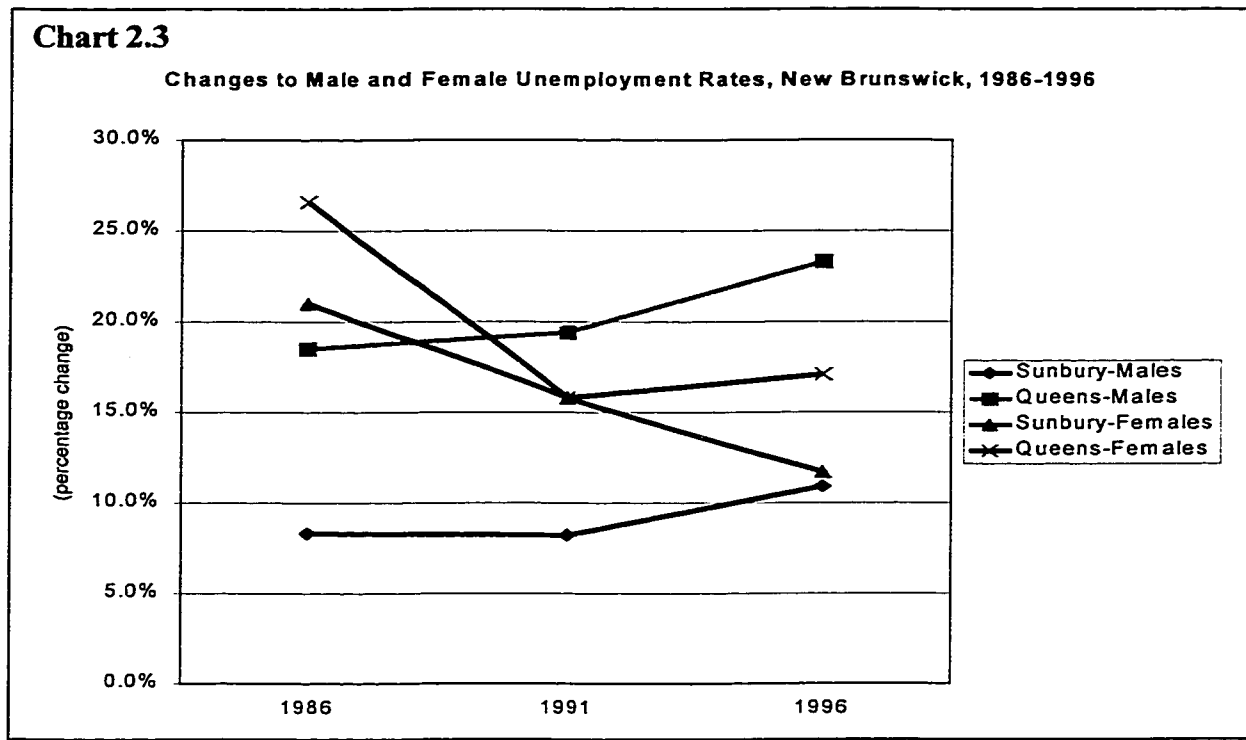
Chart 2.2 shows that the counties, where labour force participation rates increased by the highest percentages, had done so during the full ten-year period between 1986 and 1996. In contrast, those three counties which had an overall decrease in the labour force participation rates increased between 1986 and 1991, and then declined from 1991 and 1996.

3.2.3 Gender Differences

The differences between the number of males and females in the labour force are dependent on the industrial structure of the region studied. The type of work prevalent in a particular region often influences the gender mix in a county's labour force. Female workers, for example, are mainly employed in the government services and other services sectors. Males, on the other hand, make up the majority of the workforce in the primary, manufacturing, and transportation and communications sectors.

The unemployment data of males and females shows some very different trends in both parts of the province. In the south, the average unemployment rates between 1986 and 1996 for males tended to be generally lower than that of the females. On the hand, the average unemployment rates for males in the north are higher than those of females. What is most

interesting is that the male unemployment rates have increased in twelve of the fifteen counties, while the female unemployment rates have decreased in all counties during the same time period (see annex 2.3a, 2.3b, 2.3c, 2.3d).



The chart above shows the differences in both male and female unemployment in the two counties of Sunbury and Queens. As is evident, both of these counties had the largest increase in male unemployment and the largest decrease in female unemployment in the province. This trend occurred in all of New Brunswick's counties except in Madawaska where the male rate fell slightly more than the female rate.

Unemployment rates alone do not adequately illustrate the differences between the sexes. Labour force participation is another indicator of which gender group benefited most from the changes to the region's industrial structure.

The male and female participation rates in both parts of the province indicate a trend similar to the unemployment rates. The average male participation rates are much higher than that of females in all of the fifteen counties. The gap between male and female labour force participation rates is as high as 20% in some counties. Overall, however, participation rates in the southern counties are higher than in the north.

While male participation rates have decreased in thirteen of the fifteen counties, this decrease is more pronounced in the northern counties. In contrast, female participation rates have increased in all fifteen of the counties. In fact, ten counties experienced growth in the female participation rates of more than 5% (see annex 2.4a, 2.4b, 2.4c, and 2.4d).

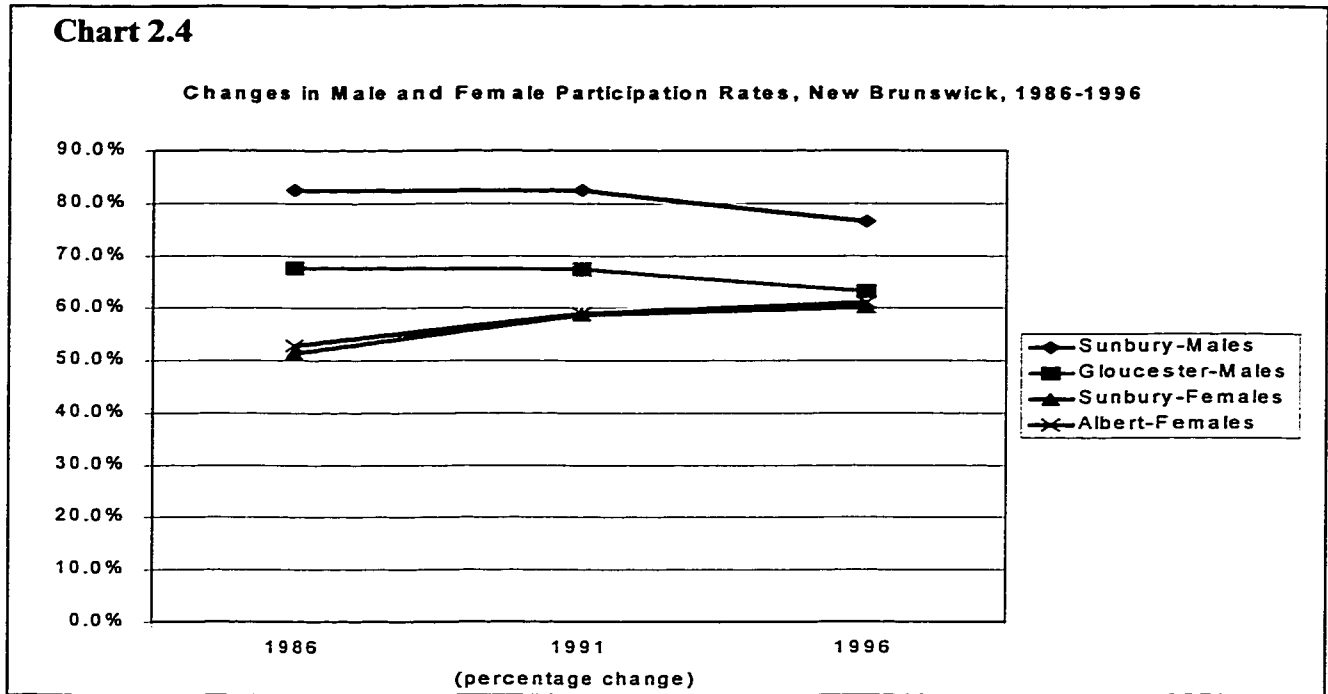


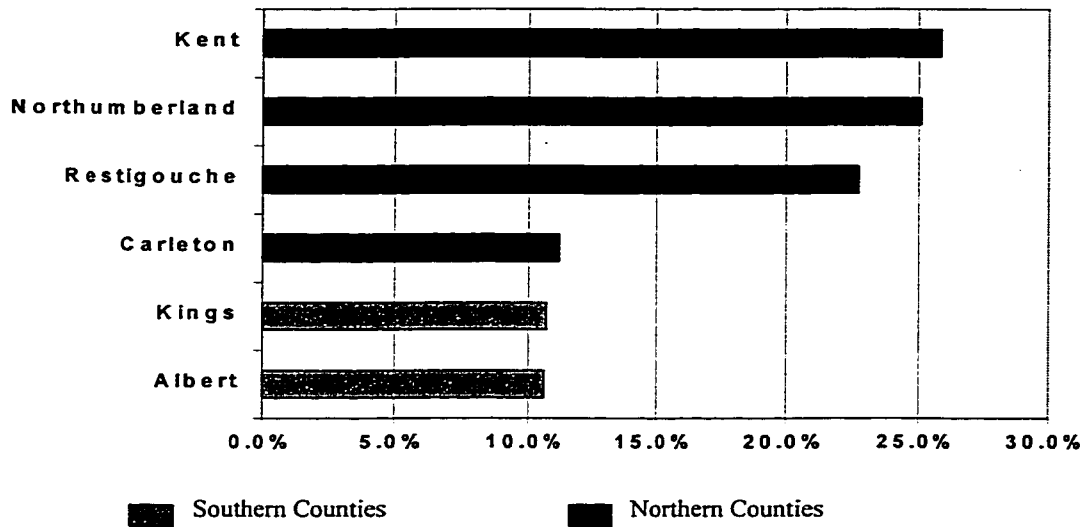
Chart 2.4 depicts the two counties with the largest decreases in the male participation rate and the two with the largest increases in the female rate. As stated, the female participation rates had increased throughout all three census years, while the male rates had very small changes between 1986 and 1991, and then a significant decrease between 1991 and 1996.

3.2.4 Results

A number of important trends have developed in the unemployment and participation rates of New Brunswick's regions. Between 1986 and 1991, the unemployment rates had decreased and the participation rates had increased, showing signs of growth in the labour market. This trend reversed between 1991 and 1996 with many counties losing the gains they had made in the previous five years.

Chart 2.5

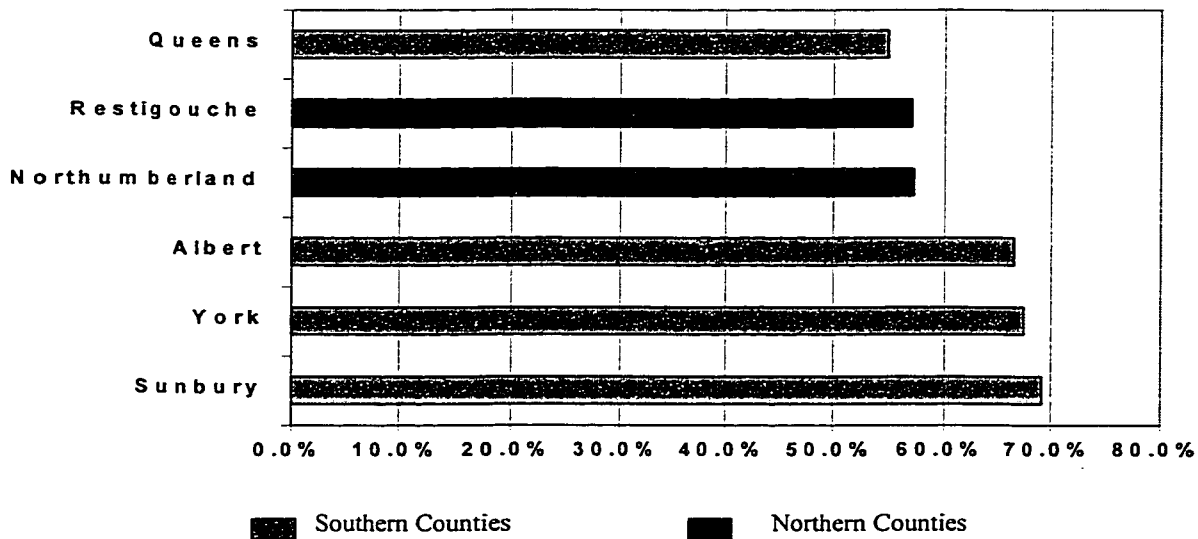
Average Unemployment Rates, New Brunswick, 1986-1996



The counties in the south have lower unemployment rates than those in the north. The chart above shows the three counties with the lowest average unemployment and the three with the highest between 1986 and 1996. The only northern county to have an unemployment rate of less than 15% is Carleton, while six of the eight southern counties are below this percentage.

Chart 2.6

Average Participation Rates, New Brunswick, 1986-1996



The trend can also be seen in labour force participation rates. Chart 2.6 compares the three counties with the highest average participation rates between 1986 and 1996 with the three lowest. Only two of the seven northern counties had an average participation rate above 60% between 1986 and 1996. In the south, five of the southern counties are above this percentage.

The gender differences among the unemployment and participation rates in the province indicate that women have benefited most from the changes to the industrial structures. As stated, the unemployment rates for females decreased and their participation rates increased. The reverse trend was found in the male rates. Women have thus been able to enter the labour force in greater numbers as more service jobs became available, while the jobs in male-dominated sectors, such as primary and manufacturing became more scarce. It is evident then that women have adapted more quickly than men to the knowledge-based economy promoted by the provincial government during this time period.

3.3 Income Disparities

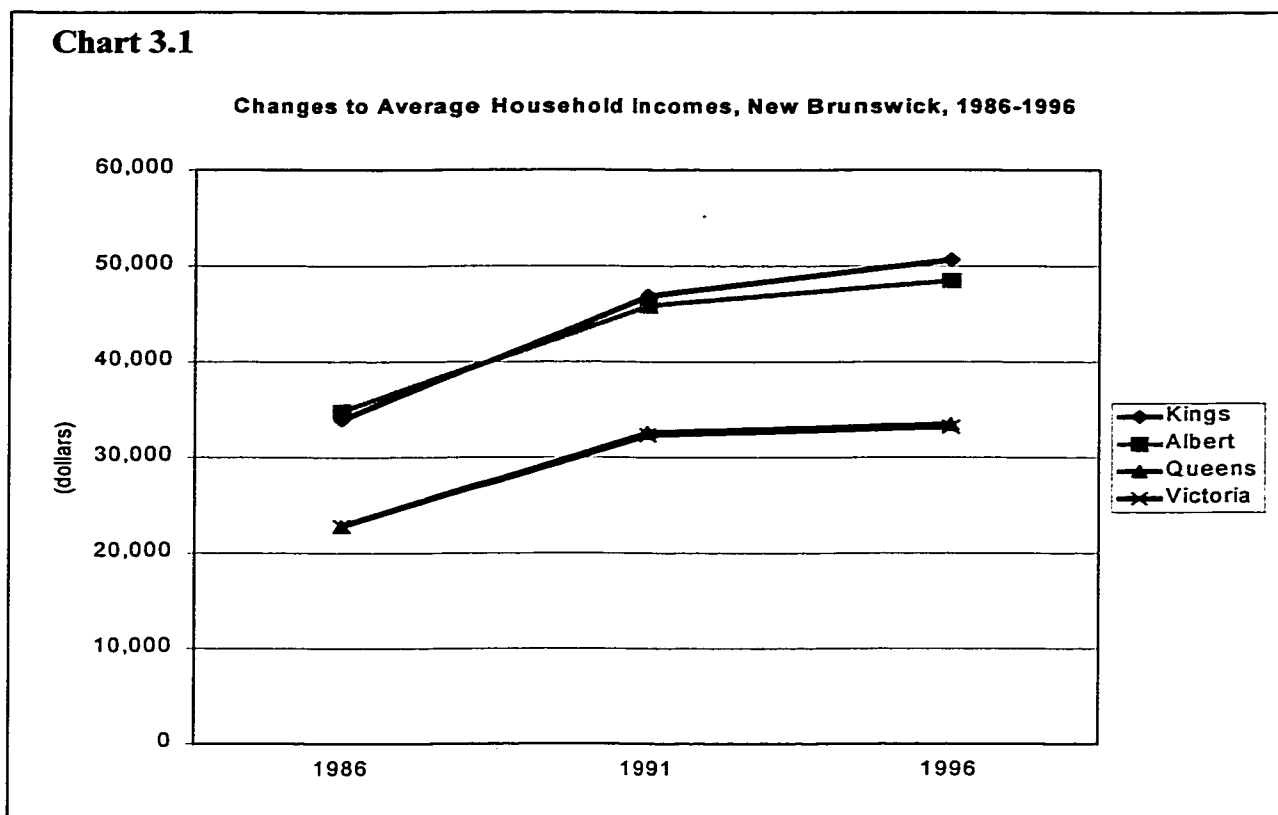
Income data has long been used as a measure of regional disparities. The differences between what people earn in one region compared to another have a multiplier effect on job growth, industrial structure, spending and savings, and ultimately, the level of economic development of a region. This section will focus on the differences in incomes between the southern and the northern regions of New Brunswick. The main set of variables to be analysed are the average household, male and female incomes. The three research questions identified in the previous methodology chapter will be addressed in this analysis.

3.3.1 Household Incomes

Average household incomes show the level of disparities that exist between the northern and southern counties of New Brunswick. The three counties of Kings, Albert, and York have average incomes over \$40,000 between 1986 and 1996. In the northern counties, the highest average income for the same time period is of \$33,860 (Northumberland). Only two southern counties (Queens and Charlotte) have average incomes lower than that of Northumberland in the north (see annex 3.1a and 3.1b).

Household incomes grew in all counties between 1986 and 1996. Growth has been strongest in the counties of Kings, York, Albert, Northumberland, and Charlotte. The following

chart shows the growth in the two counties with the highest average household incomes and the two counties with the lowest average incomes was much stronger between 1986 and 1991 than the following five years.



All of New Brunswick's counties experienced the same growth pattern in average incomes. In most cases the growth in income was about \$10,000 between 1986 and 1991, however, between 1991 and 1996, the growth was but a fraction of the previous five years. This trend is similar to the one previously seen in unemployment and participation rates.

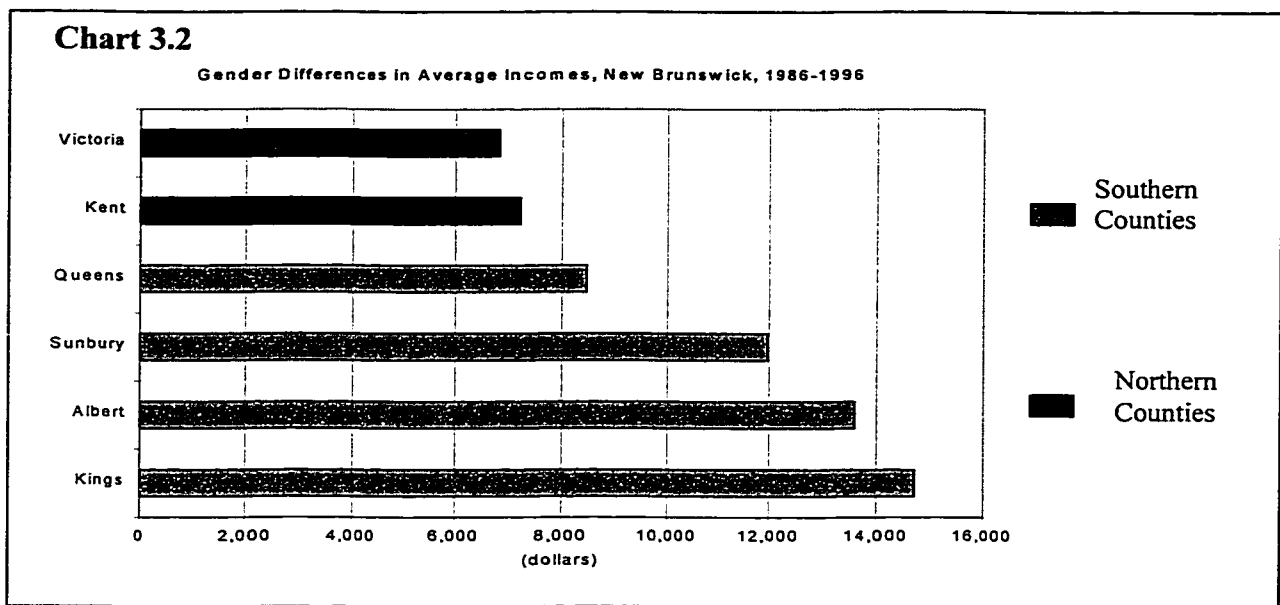
3.3.2 Gender Differences

To further understand the changes that occurred in income levels in the province, an analysis of the gender differences would indicate that better employment opportunities existed for both men and women. There are, however, significant differences between the average income of men and women. In Canada, male average incomes are generally higher than that of women. This is due to the type of work generally performed by women, and that more females must work in part-time, rather than in full-time jobs.

The regional differences seen in the previous analysis of average household incomes are also reflected in the individual incomes of men and women. On the whole, the southern counties generally have higher average incomes between 1986 and 1996 than in the north. Only two southern counties have lower average male incomes than the northern county with the highest average level. For average female incomes during the same time period, three southern counties are lower than the highest county in the north.

The strongest growth for both male and female incomes was between 1986 and 1991, however, the growth between 1991 and 1996 was minimal at best. In fact, there was a decline in male average incomes in Sunbury and Victoria, and in Charlotte in female average incomes decreased. The same counties of York, Albert, Westmorland, and Kings consistently show the highest levels of income along with the largest growth in both males and females (see annex 3.2a, 3.2b, 3.2c, 3.2d).

The following graph shows the counties with the largest and smallest income gaps between the sexes.



Those counties with the lowest average incomes also have the smallest gender gaps. Due to the differences in average incomes between the regions, the differences between genders may not be as pronounced as those shown on the chart. These regions have very different industrial structures and suggest that part of the difference between genders may be attributed to lower paying traditional employment in New Brunswick's rural areas.

3.3.3 Results

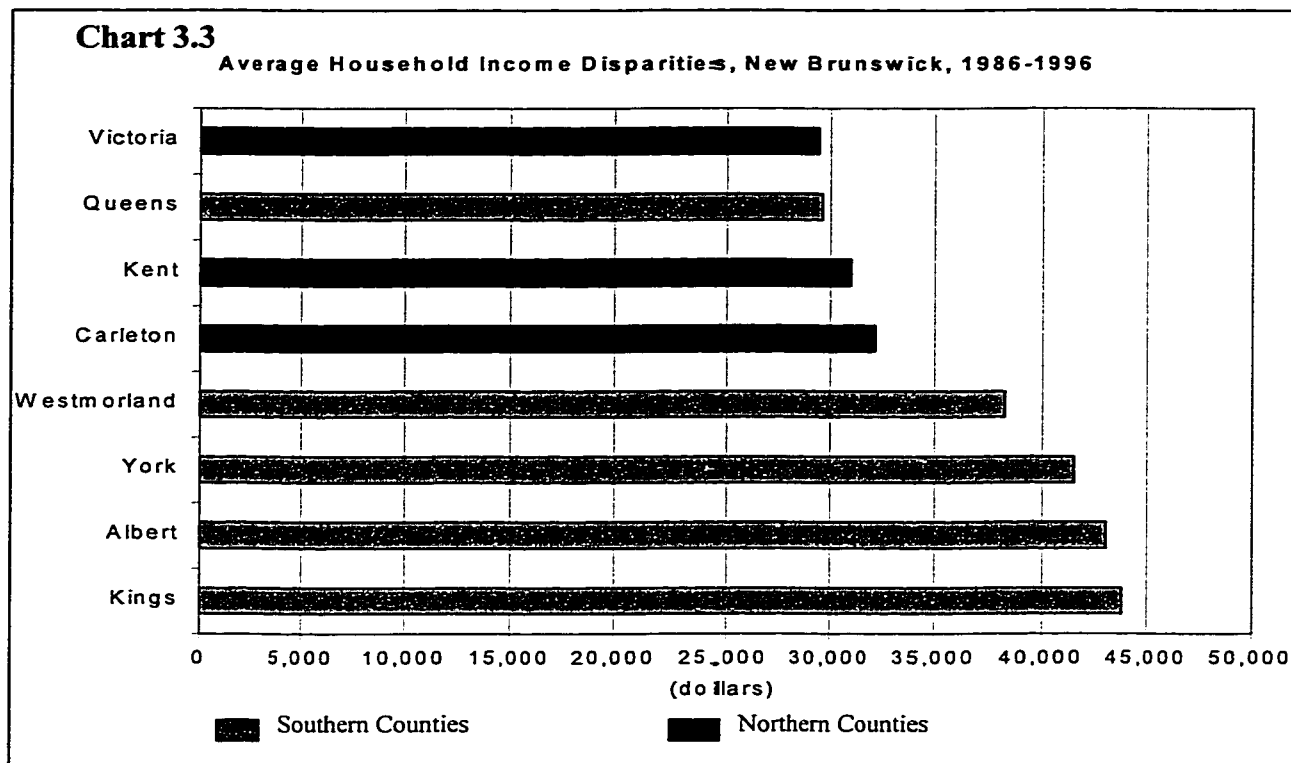
The first major trend observed in the analysis of the incomes levels of New Brunswick's is that the three variables show similar patterns as the growth mainly occurs between the 1986 and 1991 census years. The growth then slows between 1991 and 1996, and some counties even have small decreases. The table below shows the changes to the average incomes calculated for households, males, and females.

	Households- South	Households- North	Males-South	Males- North	Females- South	Females- North
1986-91 Average	10,779	9,210	6,733	5,807	3,816	3,444
1986-91 Median	10,465	8,391	6,818	4,925	3,926	3,341
1991-96 Average	2,151	1,907	459	812	1,232	959
1991-96 Median	2,534	2,180	617	645	1,475	606
Total Average	12,930	11,117	7,191	6,619	5,148	4,407
Total Median	12,816	10,571	6,821	6,703	5,161	4,437

This table indicates that in many cases, the differences between the average and median income growth remained essentially the same regardless of the method. Only in certain cases, a significant difference between the two measures appears. One such difference is the total growth in male average incomes. The total average shows a difference in income of almost \$600 between the south and north. On the other hand, the total median shows a difference of only \$100, indicating that at least 50% of males in both the north and south had relatively the same growth in incomes. When considering the growth in incomes between 1986 and 1991, the median measure showed that at least 50% of the population's incomes were about \$900 below the stated average growth. In the 1991 to 1996 period, the median measure depicts equitable growth between the southern and northern regions. The average growth in this period, however, is stronger in the north by an increase of \$400 in average incomes. A second difference between the two measures is that the median female income growth was \$500 higher than the average between 1991 and 1996. For at least 50% of females in the province, then, higher than average growth in incomes occurred. Thus, the income changes in the census divisions of New Brunswick experienced the same trends whether comparing males to females or south to north.

The following graph shows the counties that have the greatest disparities among the counties of New Brunswick using average household incomes from 1986 to 1996. The southern

counties have higher average household incomes than the north. The same southern counties (Kings, York, Albert, and Westmorland) had stronger income levels compared to those with the lowest incomes in the province (Victoria, Queens, Kent, and Carleton).



The counties with the lowest average incomes all have primary and manufacturing sectors that account for more than 10% of the total employment. The transportation, communications and other utilities sector is relatively small as are government services. The other services sector has a share of total employment that ranges between 29% and 35%. In comparison, the counties with the highest average incomes have services sectors between 34% and 41% of total employment. In addition, the counties with the lowest average incomes also have higher unemployment rates that range from 17% to 24% while those with the highest average incomes range from 9% to 11%.

To understand the regional disparities in New Brunswick, the inclusion of male and female income levels complete the analysis showing the gender specific reactions to the changes in the industrial structure of the counties. The growth of employment in certain sectors have benefited females overall. Despite the fact that more women may be participating in the labour

force, their income levels may not reflect this, as there are still more women working in a part-time capacity. In addition, the types of employment available in the services sector are not as highly paid as jobs in the trade, communications, or manufacturing sectors, because a lower skill level is often sufficient.

3.4 Migration

Migration flows are important variables to consider when analysing the changes to the economies of different regions. The nature of the new knowledge-based economy has increased the mobility of the labour force, allowing people to transport their skills and expertise to almost anywhere in the world. Historically, high out-migration and low in-migration have plagued New Brunswick. The great majority of immigrants to Canada settle in the larger urban centres of Toronto, Montreal, and Vancouver. In contrast, the Atlantic provinces had the smallest share of immigrants to Canada. The problem, however, is not limited to external migrants.

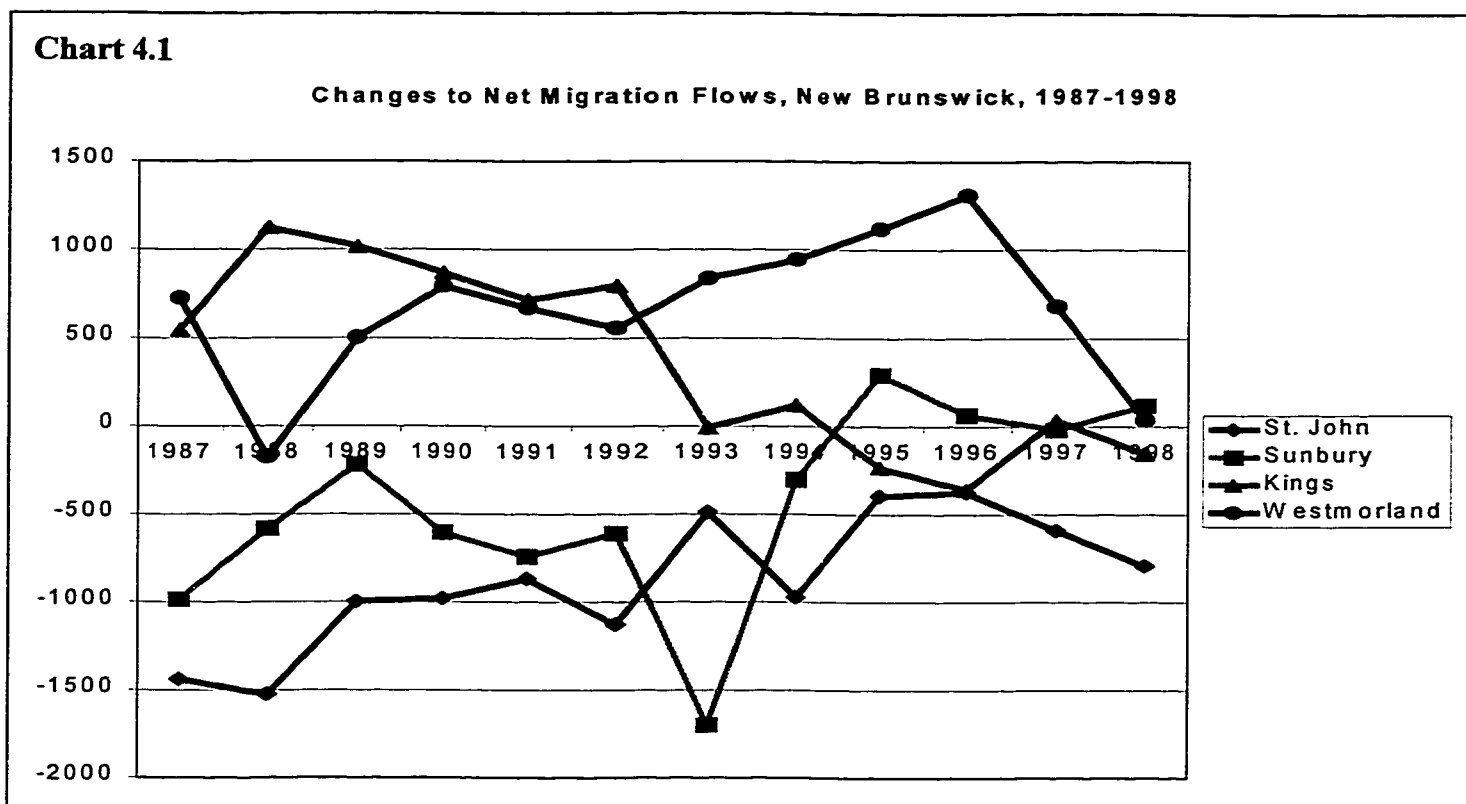
Interprovincial migration is also consistently negative in New Brunswick as more people move out of the province than into it. Intraprovincial migration flows are also important variables. The southern counties act as magnets for those unable or unsatisfied with their employment prospects in the northern counties. This section analyses the migration data of New Brunswick's regions and determines the net population flows.

3.4.1 Net Migration Flows

Intraprovincial migration favours those counties with strong industrial structures, large urban centres and available jobs. In the southern counties, only two had negative intraprovincial migration rates, while in the north Carleton had a rate of 0 and the other six counties are negative. The numbers are even less positive for interprovincial migrants. In this instance, five southern counties and six of the seven counties in the north had negative rates. The third factor, external migration, had less significant numbers. In this instance, only three counties in the province have positive immigration rates.

The changes from 1987 to 1998 show some very interesting trends developing. The chart below illustrates the changes in the two counties with the highest overall positive migration rates and the two with the lowest overall rates. At the beginning of the time period studied, the four counties are very much apart from one another. By the mid-1990's, the net migration flows

begin to grow closer together. The county of Sunbury, for example, which had consistently negative migration rates, exceeded those of both Kings and Westmorland.



Therefore, the stabilizing of out-migration in New Brunswick is reflected in its regions, which historically had very different rates.

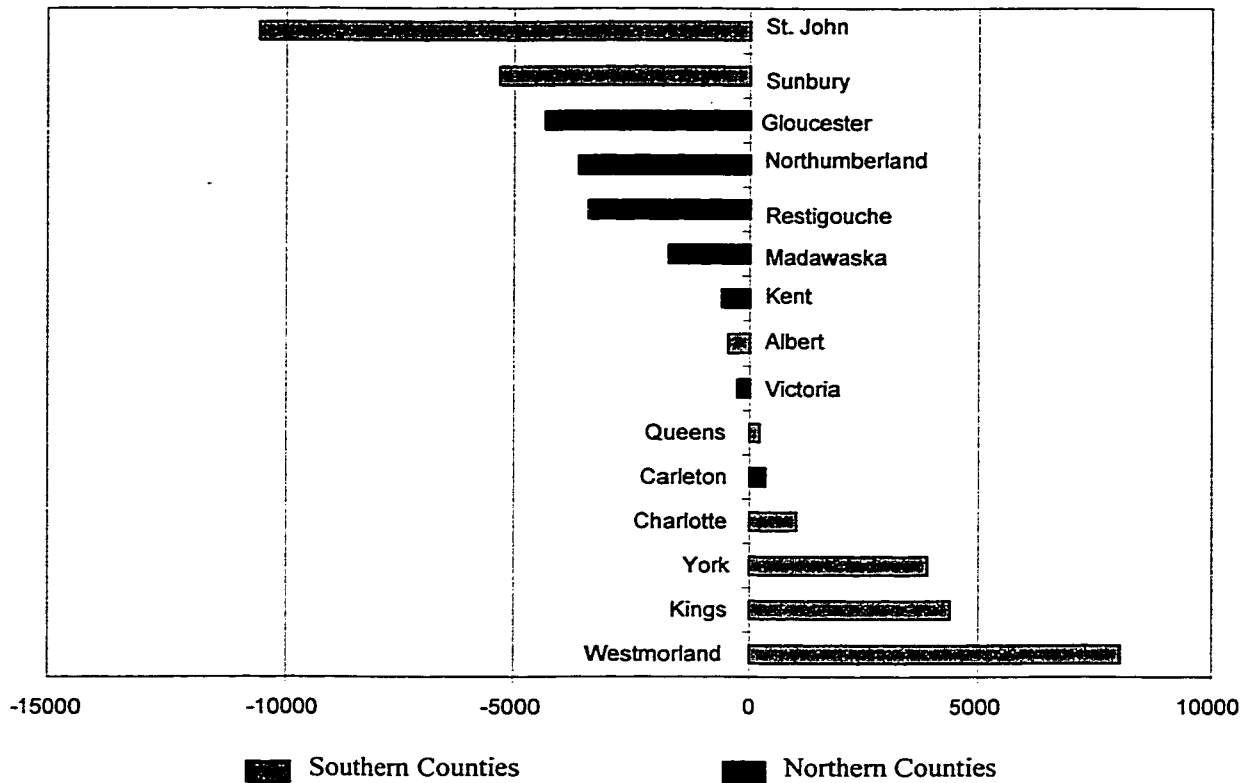
3.4.2 Results

It is apparent that most of the counties in New Brunswick have higher out-migration than in-migration. The southern counties are those which receive the largest numbers of migrants while the northern counties have a reversed trend.

The chart below ranks the counties in their net population flows after calculating the total in and out intraprovincial, interprovincial, and external migrants. Although five of the six counties that have positive migration flows are in the south, the two counties of Sunbury and St. John had the highest negative flows.

Chart 4.2

Net Population Flows - New Brunswick 1987-1998



Both Sunbury and St. John had weaker industrial structures than those with positive migration rates. Sunbury's largest employer is government services, which is a sector that lost the largest number of employees in the province. St. John county has also lost a great number of jobs in the manufacturing, transportation and trade sectors. In contrast, both Westmorland and Kings have strong industrial structures with high levels of growth in the services sector.

In Chapter Four, a shift-share analysis has been applied to the employment data of the industrial structures found in the census. As explained in the Methodology chapter, a shift-share analysis allows the researcher to determine the local growth rates of each industrial sector and compares them to the overall provincial growth rate. Thus, the following chapter contains the most significant part of the analysis relevant to the New Brunswick experience, as it provides an explanation of why the changes identified in this portion of the thesis took place.

Chapter 4: Shift-Share Analysis

As explained in the Methodology chapter, two important economic changes are measured by this analysis. First, the total shift in an industry measures the provincial growth with the regional share and the industrial mix to explain if the local industry is above or below the provincial average and if it is increasing or decreasing its competitiveness. Secondly, regional share measures if a given industrial sector in a region has experienced a growth rate above or below the national or provincial average.

This chapter is divided into three sections, which analyse the shift-share data using maps of New Brunswick's counties as visual representations of the changes in the local economies. The legends on the maps are divided into three groups of counties: those with significant growth, average growth or declines, and significant declines. The first section analyses the total shift of total employment in the province. The second section examines the eighteen industrial sectors to determine the levels of growth in their total shifts. The final section looks at the regional share of the total employment in the industrial sectors to determine the competitiveness of the local economies.

4.1 Total Shift in Total Employment

The measure of the total shift to the total employment in New Brunswick's counties determines where there was overall growth or declines relative to the provincial average. New Brunswick's growth was not as high as other provinces, such as Ontario and those in Western Canada. Between 1991 and 1996, total employment in the province grew by a mere 1.46%, translating into 5065 new jobs. Among the fifteen counties, the distribution of the growth was not equal.

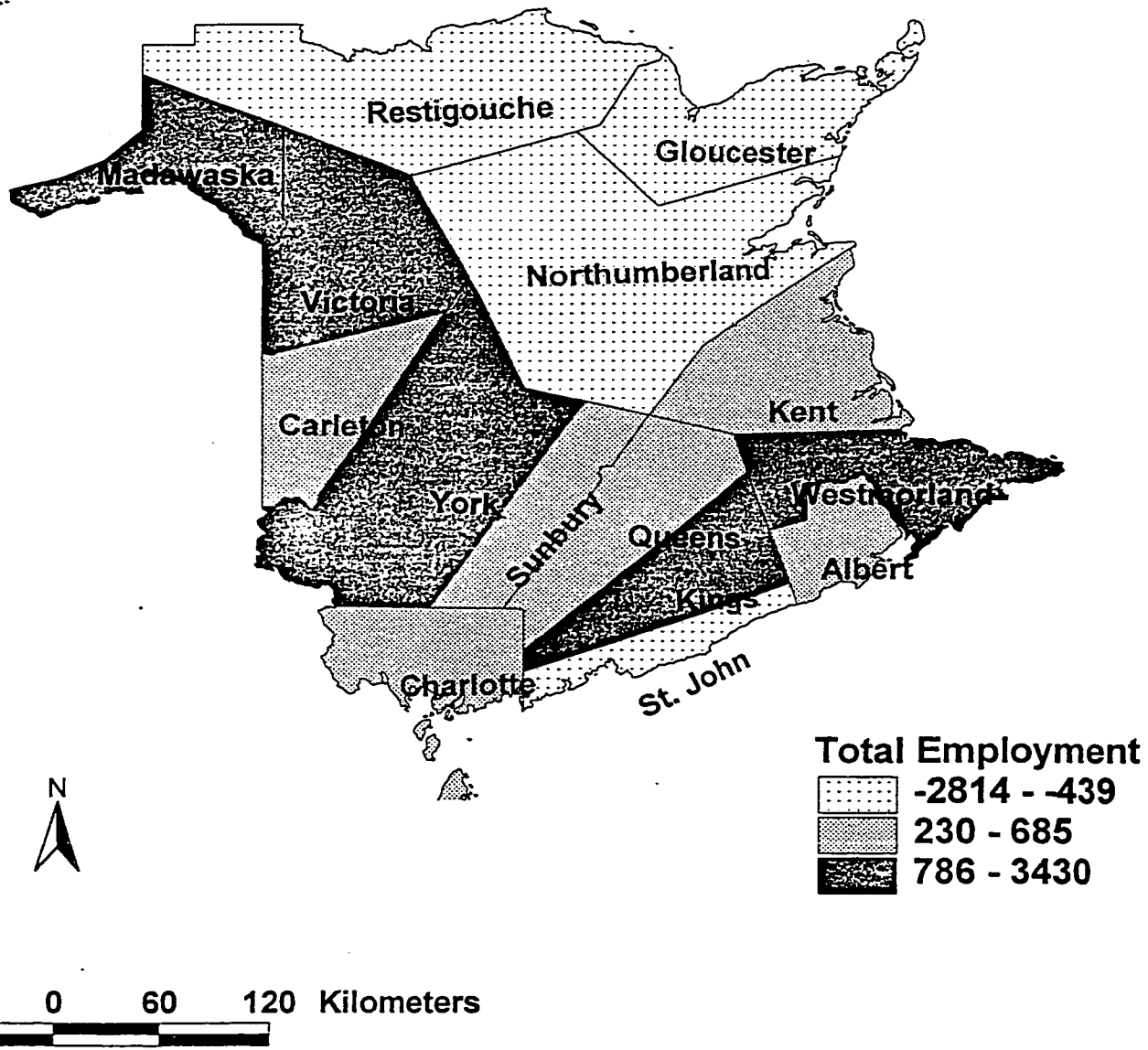
Figure 2.1 shows the distribution of the total change to total employment in New Brunswick. Westmorland and Kings had the highest increases, adding more than 1,000 jobs above and beyond the potential growth rate expected for their counties. Four counties (Northumberland, Restigouche, Gloucester and St. John) have negative shifts and an overall loss in the number of jobs available. This was mainly due to their negative regional shares and

industrial mixes, indicative of low competitiveness and a lack of appropriate infrastructure. The other counties have all shown modest growth above that of the provincial rate (see annex 6.1).

Three of the four counties with decreases are located in the northern part of the province. The fourth of these counties, St. John, had the largest decrease in total employment during this time period. In contrast, the three counties with the largest increases are all in the south. They follow the same trend described in the statistical analysis of the socio-economic descriptors of the previous chapter. These counties have large urban populations, a diversified industrial structure, low unemployment and high labour force participation, high average incomes, and high in-migration. The other counties with smaller increases or those with decreases in their total shift, do not possess all of the positive indicators described above.

This description alone does not allow for a complete analysis of all of the industrial sectors in the province. To allow for a better comprehension of the socio-economic changes described in the previous chapter, it is important to determine which industrial sector experienced growth and in what counties they were located.

Figure 2.1: Total Shift in Total Employment New Brunswick, 1991-1996



4.2 Total Shifts in Industrial Sectors

The following section analyses the total shift in employment in the eighteen industrial sectors between 1991 and 1996. Maps of each of the total shift in each of the industrial sectors were created to visually illustrate these shifts. Those sectors analysed in the following section, are those which:

- Experienced growth rates considerably higher or lower than the provincial rate
- Had total shifts higher or lower than those experienced in total employment
- Exhibited trends that show the disparities between the northern and southern counties

4.2.1 Fishing and Trapping Industries

The fishing and trapping industries do not employ as many people as forestry or agriculture, but populations living on the coast and in close proximity to important fishing grounds depend heavily on this sector for employment. Most of those who depend on fishing for employment are seasonal workers who fish mostly lobster and other shellfish. The counties that had the largest numbers of workers in this sector were Charlotte, Kent, Northumberland, and Gloucester. Although this sector is second smallest in the primary industries, it experienced the second highest growth rate in the province of 25.18% and created 1200 new jobs.

Figure 2.2 shows that those counties with the largest number of people employed in this sector also had the largest increases in their total shift. Growth was concentrated in the counties on the coast where fishing is an important part of the local economy. Nine counties experienced growth rates that were more than double the provincial rate. The county of Gloucester had a total shift that was comparable with the counties that had the highest growth in total employment. In contrast, five counties had a decrease compared to their provincial rates, including Charlotte which still had high growth but which was lower than if it had equaled the provincial rate (see annex 6.3).

The seafood industries received special attention in the government's regional development plan of 1993. Targeted investment provided assistance to seafood processors for plants and machinery. Growth in this sector also occurred because of the growing popularity of aquaculture or fish farms that do not have to depend on ocean stocks for production. For

example, the aquaculture and oyster industry in the county of Kent showed definite signs of growth as the number of farms grew, as did their size. At the same time, the demand for fur increased, thus increasing the numbers of trappers in those counties at a distance from the coast.

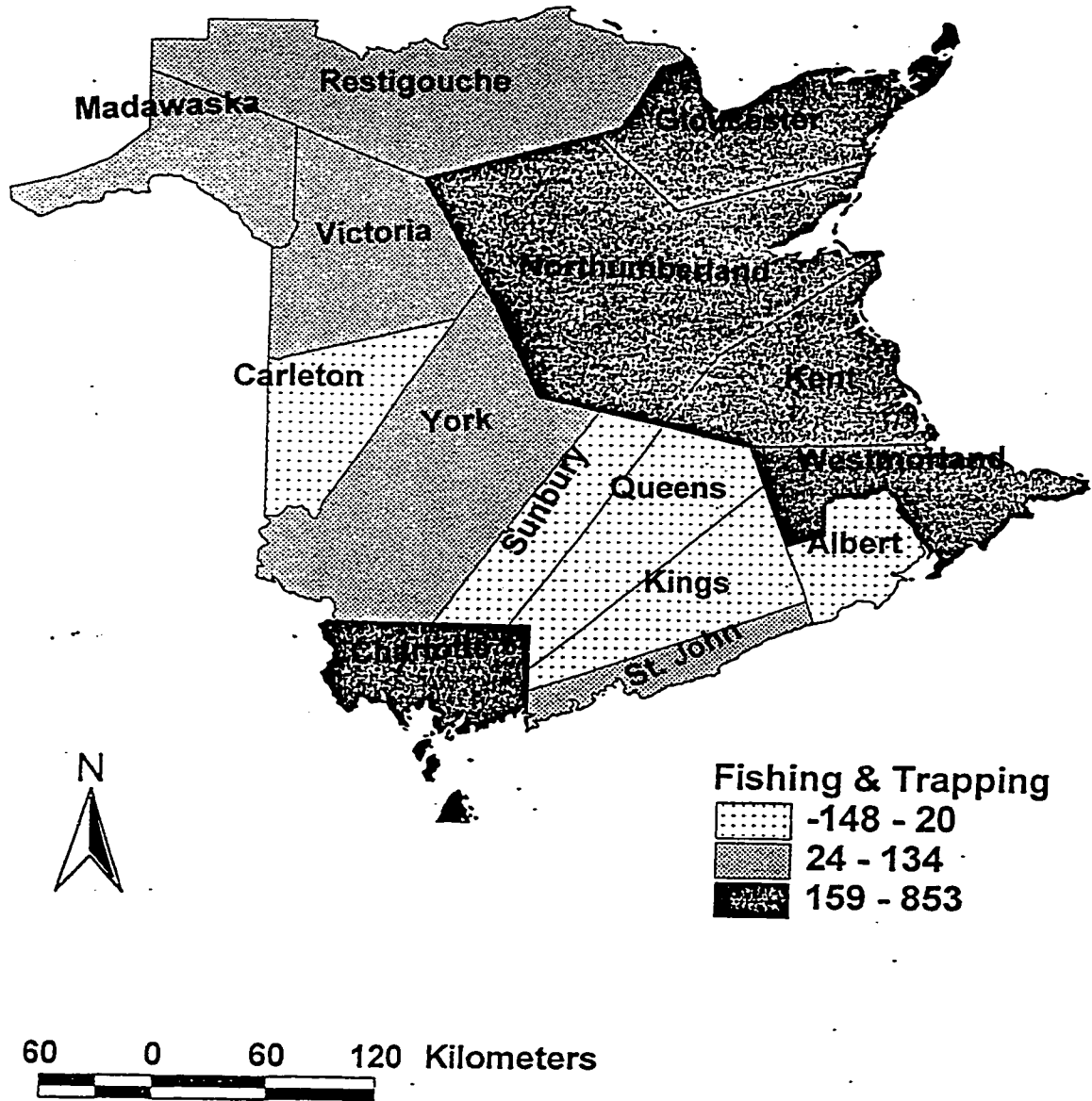
4.2.2 Logging and Forestry Industries

Forestry is the largest and most important of the primary industries in New Brunswick. At the beginning of the twentieth century, it employed the largest number of people in the province. Between 1991 and 1996, this sector experienced the second largest decrease of 10.92% and accounted for a loss of 925 jobs. Most of those employed in forestry are in the northern counties of Northumberland, Victoria, Madawaska, Gloucester, and Restigouche and in the southern county of York.

Figure 2.3 shows that five counties had increases above their provincial rates and that four of these were in the south. Kent, which borders the south, is the only northern county to have not experienced a loss as high as the others. In contrast, nine counties lost more than double their provincial rates. Those counties previously mentioned with the largest number of people employed in this sector are also those which had the most significant job loss (see annex 6.4).

The decline in the forestry industry is a trend common across Canada as commodity prices fluctuate and machinery continues to replace workers. As a result, logging operators and mills have decreased their labour costs by cutting jobs to decrease their operating costs in order to make up for lost profits and productivity. This significantly affects counties that have a greater dependency on forestry for employment. The northern counties of Madawaska, Northumberland, Restigouche, Carleton, and Kent each have two or three major pulp and paper or sawmill that employs a large percentage of the population. When commodity prices drop, operating costs and machinery increases, and revenues decline the mills are forced to eliminate jobs and therefore contribute to the ongoing trend of regional disparities.

Figure 2.2: Total Shift in Fishing & Trapping New Brunswick, 1991-1996



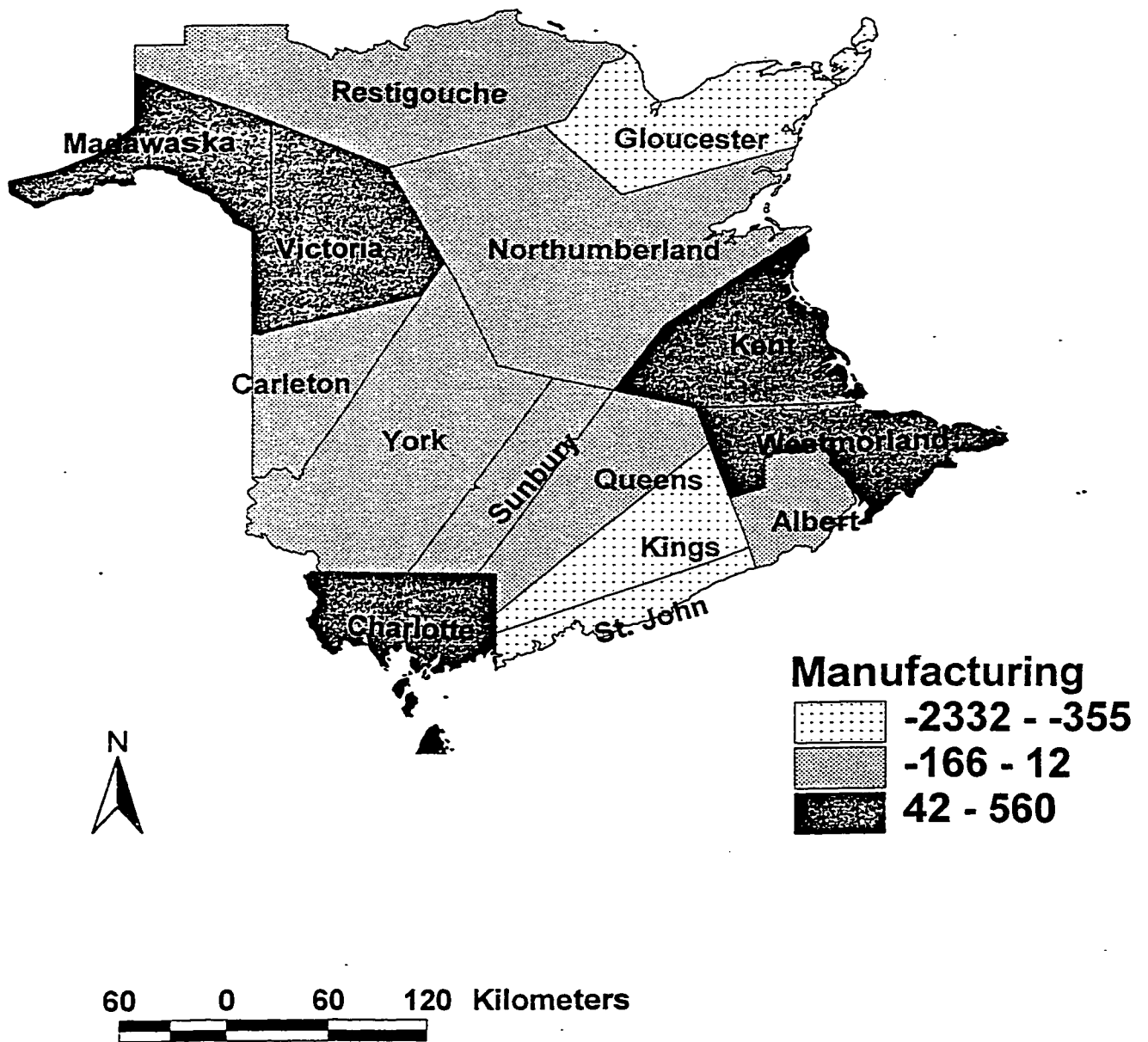
4.2.3 Manufacturing Industries

The manufacturing sector was the largest employer in New Brunswick between 1991 and 1996, but as in the forestry industry, it is also in decline. This sector experienced a decrease of 3.43% in its growth rate and a loss of 1,625 jobs province-wide. It is a major employer in all fifteen counties, particularly those in the north. As stated in the industrial sector composition analysis of the previous chapter, the northern counties have higher percentages of their labour force employed in this sector than in the south.

Figure 2.4 shows that seven of the fifteen counties experienced a higher total shift than their provincial rates. The county with the highest growth was Westmorland, which also has the largest number of people employed in manufacturing. This county has the greatest diversity of employment in this sector. On the other, the decreases experienced in the counties of St. John (which lost over 2,000 jobs) and Gloucester were much greater than those that had significant increases (see annex 6.6). In these two counties, manufacturing employs a very important percentage of the population. Factories making products such as machinery, seafood, oil refinery, ships, and even beer operate in St. John and Gloucester. Many of these have remained open but have reduced their workforce. The manufacturing sector in the other counties fabricate things as steel and metalworkings, food products (McCain), peat, textiles, shoes, and industrial equipment.

The manufacturing sector suffered greatly during the recession of the early 1990's. Many factories across Canada closed due high labour costs, low productivity, and low profitability. The global nature of the recession seriously affected those companies that export most of the products they produce. The economic recovery after the recession was not immediate and by 1996, most counties had not yet reversed the effects or increased their growth in this sector.

Figure 2.4: Total Shift in Manufacturing New Brunswick, 1991-1996



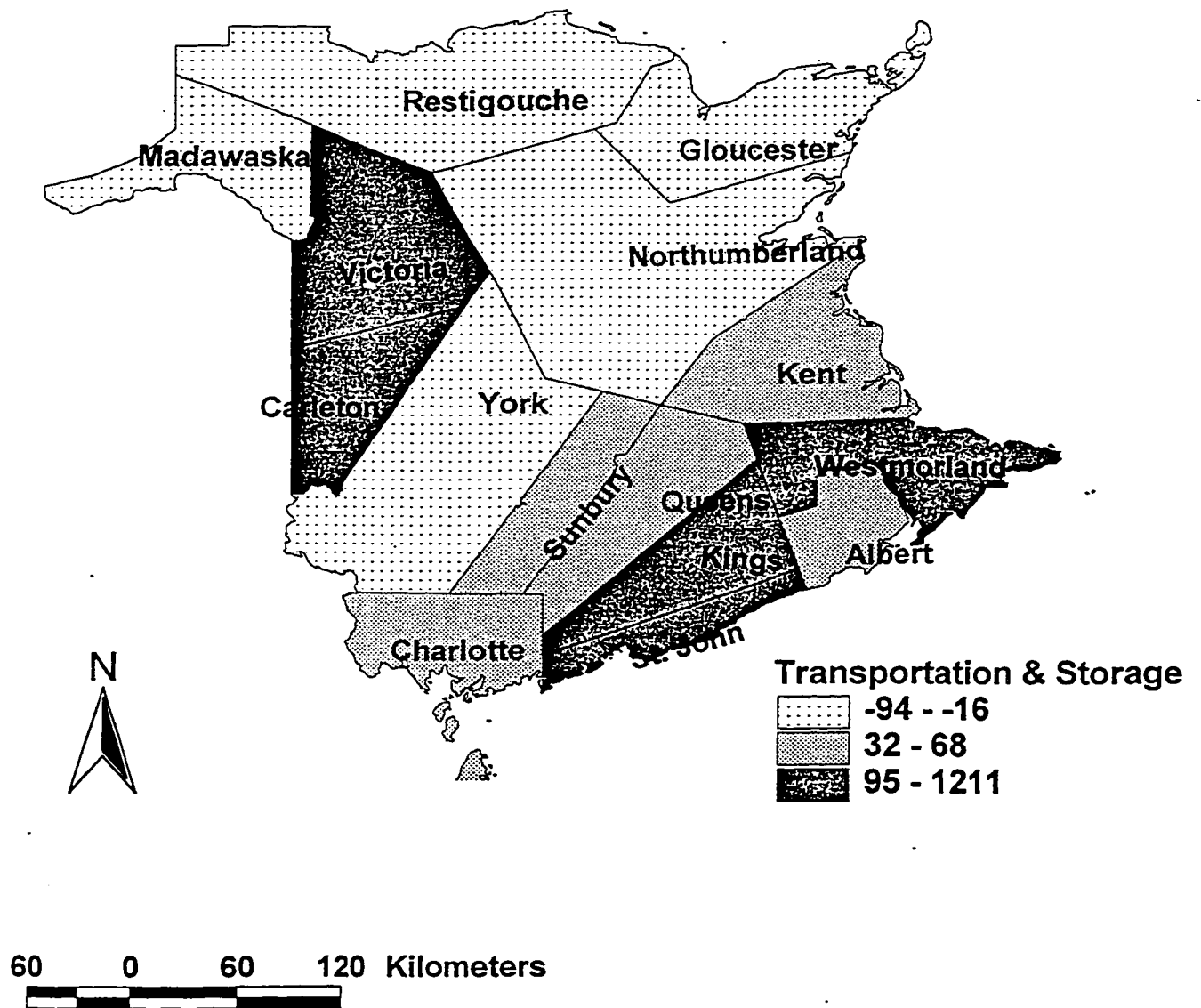
4.2.4 Transportation and Storage Industries

As shown in the previous sector, the transportation and storage sector favours the southern counties because of their proximity to the adjacent markets in New England and the other Atlantic provinces. These counties also tend to have a better transportation network than in the mainly rural north. The growth rate in New Brunswick for this sector was 3.61% and created 595 new jobs.

As figure 2.5 shows, most of the northern counties had very little growth or decreases in their transportation sectors. The counties of Carleton and Victoria are the only two northern counties that experienced significant increases in this sector along with the southern counties of Westmorland, Kings, and St. John. This last county has an important seaport that employs large numbers of people. Overall, the county of Westmorland experienced the highest total shift that was comparable to the counties that had the highest growth in total employment. In contrast, four of the five counties with decreases in their total shift were in the north (see annex 6.8).

The transportation and storage sector depends heavily on the manufacturing and primary sectors for growth in employment. When these sectors reduce their production, it affects the transportation sector and translates into a loss of jobs. In New Brunswick, the declines in these sectors were not significant enough to cause an overall decline in transportation as the province is still an important centre for the movement of goods to Atlantic Canada and New England.

Figure 2.5: Total Shift in Transportation & Storage, New Brunswick, 1991-1996



4.2.5 Communications and Other Utilities

Communications were the central focus in the provincial government's regional development policies. The government relied heavily on a high-tech telecommunications infrastructure to create new jobs, encourage investment, and reduce regional disparities in the province. The analysis of the industrial sector composition in the previous chapter showed that the communications sector did not experience high levels of growth as it was deflected to the services sector.

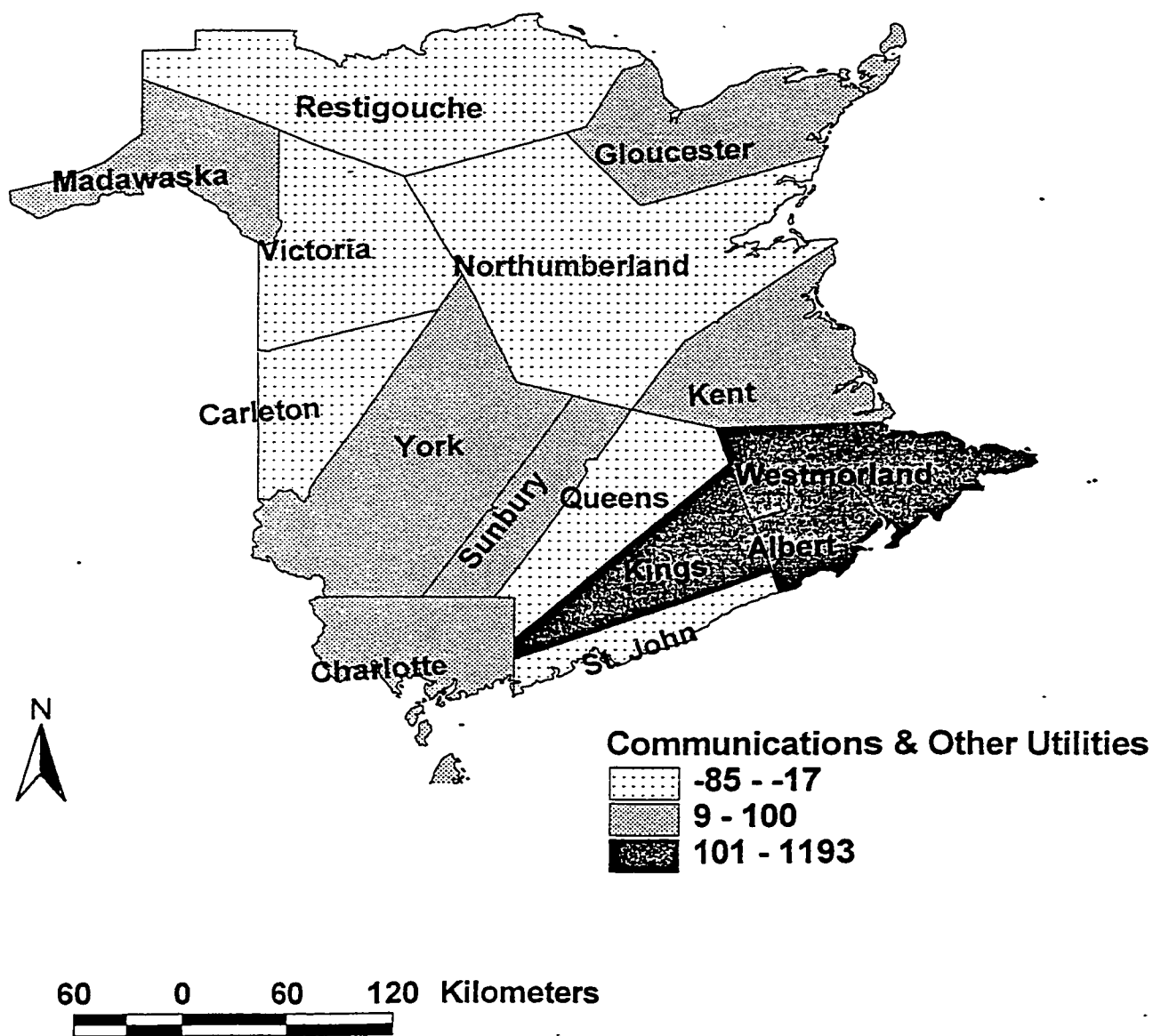
Overall growth in this sector was 8.47% which created 1010 new jobs. Figure 2.6 shows that growth in most of the province was either close to or below the provincial rate. Westmorland had the highest increase in the province and accounted for the overall growth in this sector. The total shift of 1193 jobs was higher than all of the other counties combined and as high as the counties that experienced the highest growth in total employment (see annex 6.9).

The *1980 Standard Industrial Classification* (Statistics Canada 1980), groups the following jobs in this sector:

- Telecommunication Broadcasting (radio, television, combined, cable)
- Telecommunication Carriers (telephone, satellite, telegraph)
- Postal and Courier Services (mail, post office, messenger, parcels)
- Electric Power Systems (generation, distribution, transmission)
- Gas Distribution Systems
- Water Systems (irrigation, municipal water, filtration, waterworks)

This result shows that most of the growth that occurred in the communications and utilities sector, was concentrated in and around Moncton. As the largest city in the province, it acted as a magnet for new jobs in the field of telecommunications, which are a very important part of building an industrial structure that can compete in the knowledge-based economy. Population growth in this county also fueled the further development of the infrastructure, including electricity, gas and water distribution. Clearly, the creation of jobs in this sector did not include the northern counties but was exclusive to a handful of those in the south.

Figure 2.6: Total Shift in Communications & Other Utilities, New Brunswick, 1991-1996



4.2.6 Insurance Agent and Real Estate Broker Industries

The analysis of the industrial sector composition in the previous chapter, showed that the combined financial services, insurance and real estate sector had experienced growth in most counties. The shift-share analysis shows that between 1991 and 1996, the insurance agent and real estate broker sector grew by 12.23% and created 445 new jobs. In contrast, the financial services and insurance sector experienced a negative growth rate of -5.63%. Thus, the growth exhibited in the previous chapter was not in financial services, but in an increase of insurance agents and real estate brokers.

Figure 2.7 shows that when compared to their provincial rates, most counties had either increases in their total shift or have remained relatively stable. The five counties of Gloucester, Sunbury, Charlotte, Victoria, and St. John were the only ones to have experienced a negative total shift in this sector. The negative shifts in these counties were very small and therefore do not represent a significant decline (see annex 6.13).

4.2.7 Business Service Industries

The business services sector was separated from the “Other Services” sector in use for the 1986 Census. As previously stated in the methodology chapter, the reason for using a more detailed analysis of the industrial sectors between 1991 and 1996 was to determine where the growth occurred in the aforementioned sector of miscellaneous services. The *1980 Standard Industrial Classification* (Statistics Canada 1980), divides this sector into the following groups of jobs:

- Employment Agencies and Personnel Suppliers
- Computer and Related Services (consulting, processing, programming, rental, software, systems analysis and design)
- Accounting and Bookkeeping Services
- Advertising Services (advertising agencies, media relations, etc.)
- Architectural, Engineering and Other Scientific and Technical Services
- Offices of Lawyers and Notaries
- Management Consulting Services

- Security and Investigation (armoured car, burglar protection, detectives, etc.)
- Credit Bureau Services
- Collection Agencies
- Customs Brokers
- Telephone Answering Services
- Duplicating Services
- Other Business Services (actuaries, addressing, appraising, bailiffs, collecting statistics, demonstration services, editorial, fashion designing, fundraising, graphic designing, interior designing, inventory taking, mailing services, modelling, packaging, patent agents, etc.)

Most of the groups of jobs above require training and skills which in certain cases means higher levels of post-secondary education than many unskilled jobs in the previously seen sectors. The regional distribution of growth in this sector is a very important indicator of the development of the province's economy. As a result, the shift-share analysis shows that business services experienced the highest overall level of growth in New Brunswick. This sector grew by 28.79% and created 3135 new jobs, which is the second highest number of any sector.

Figure 2.9 shows the distribution of growth in this sector across the province's fifteen counties. The largest increases compared to the provincial rates were in the southern counties of York, Westmorland, and Kings. They experienced growth that was as significant as the highest total shifts in total employment. The city of Fredericton (<http://www.city.fredericton.nb.ca>) claims to have 70% of the Information Technology (IT) industry and 40% of engineers in the province. Those with the smallest increases were the northern counties of Kent, Restigouche, and Victoria as well as the southern counties of Sunbury and Queens. The other counties all experienced increases but were closer to the rates attributed by provincial growth in this sector (see annex 6.14).

The business services sector was one of the main benefactors of the government's regional development policies and of the new technology-based infrastructure. As stated in the context chapter, the government promoted the province for its telecommunications infrastructure and encouraged corporations to set up call centres as a means to create employment. Although this infrastructure was installed in all parts of the province, the jobs created in the sector with the highest growth, were mainly in the southern counties that have large populations and strong

urban centres. The rural northern counties experienced lower levels of growth, and therefore did not fully benefit from the technology-based infrastructure. The government of New Brunswick claims to have facilitated the installation of 78 major call centres in the province (Business New Brunswick 2000). Of these 78 call centres, 60 located in the south while the remaining 18 located in the northern counties. Half of the northern call centres are for either provincial or federal government services (see annex 7.1). This is thus a clear indication that the investment by companies was not uniform across the province and tended to benefit the southern counties. The widening of regional disparities was not the goal of the province's regional development policies but that is what has occurred. Large and more developed regions benefiting from technology while rural and under-developed regions continue to experience lower economic growth.

4.2.8 Government Services

The industrial sector composition analysis in the previous chapter showed that the government services sector experienced the largest decline in total employment in New Brunswick. Between 1991 and 1996, this sector had a -17.77% growth rate and lost a total of 6365 jobs.

Figure 2.10 shows that the counties with the largest numbers of people employed in this sector are also those who had the largest decreases in their total shift. The counties of York and Westmorland had the largest decreases followed closely by Northumberland, St. John, Gloucester, and Sunbury. This last county (Sunbury), where government services is the largest employer, only lost an additional 220 jobs over the ones attributed by the provincial rate. This unexpected result means that the county that depends most on government services for employment did not experience a significant loss of jobs. The county that lost the smallest number of jobs was Queens, indicating that the military base of CFB Gagetown (which is the largest single employer in this county's government services sector) did not reduce its operations at the same rate as the provincial rate (see annex 6.15).

Figure 2.7: Total Shift in Insurance Agents & Real Estate Brokers New Brunswick, 1991-1996

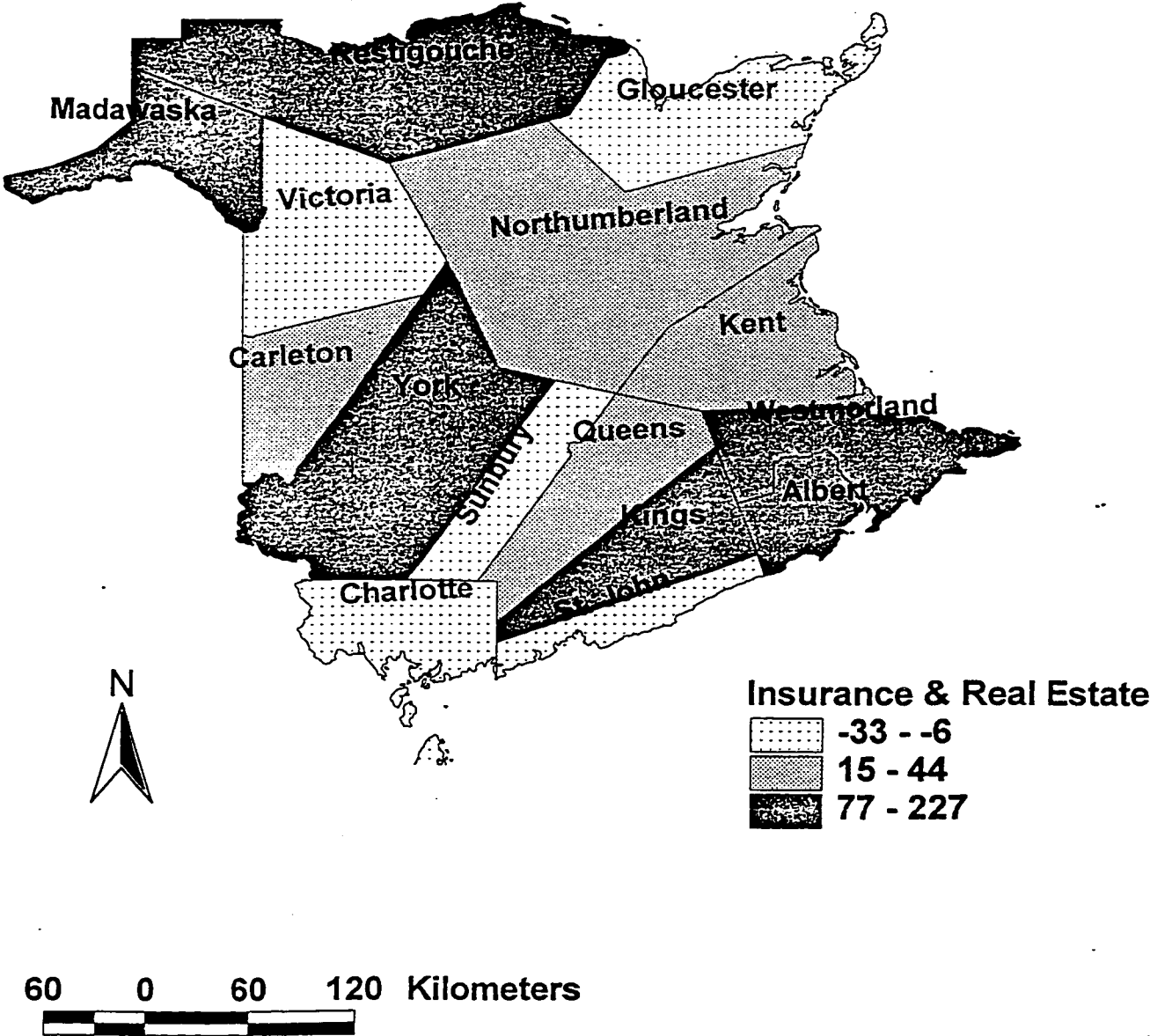


Figure 2.8: Total Shift in Business Services New Brunswick, 1991-1996

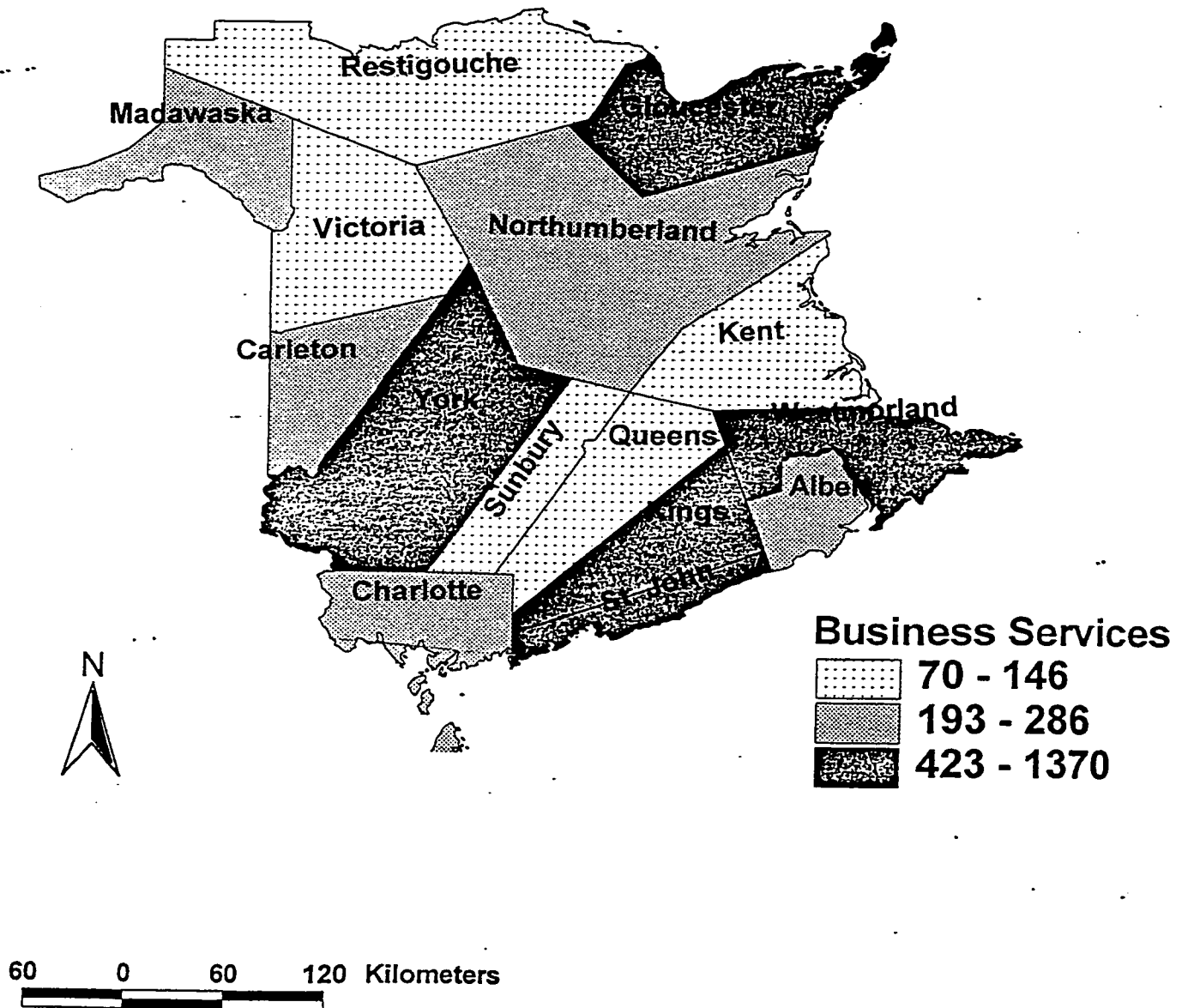
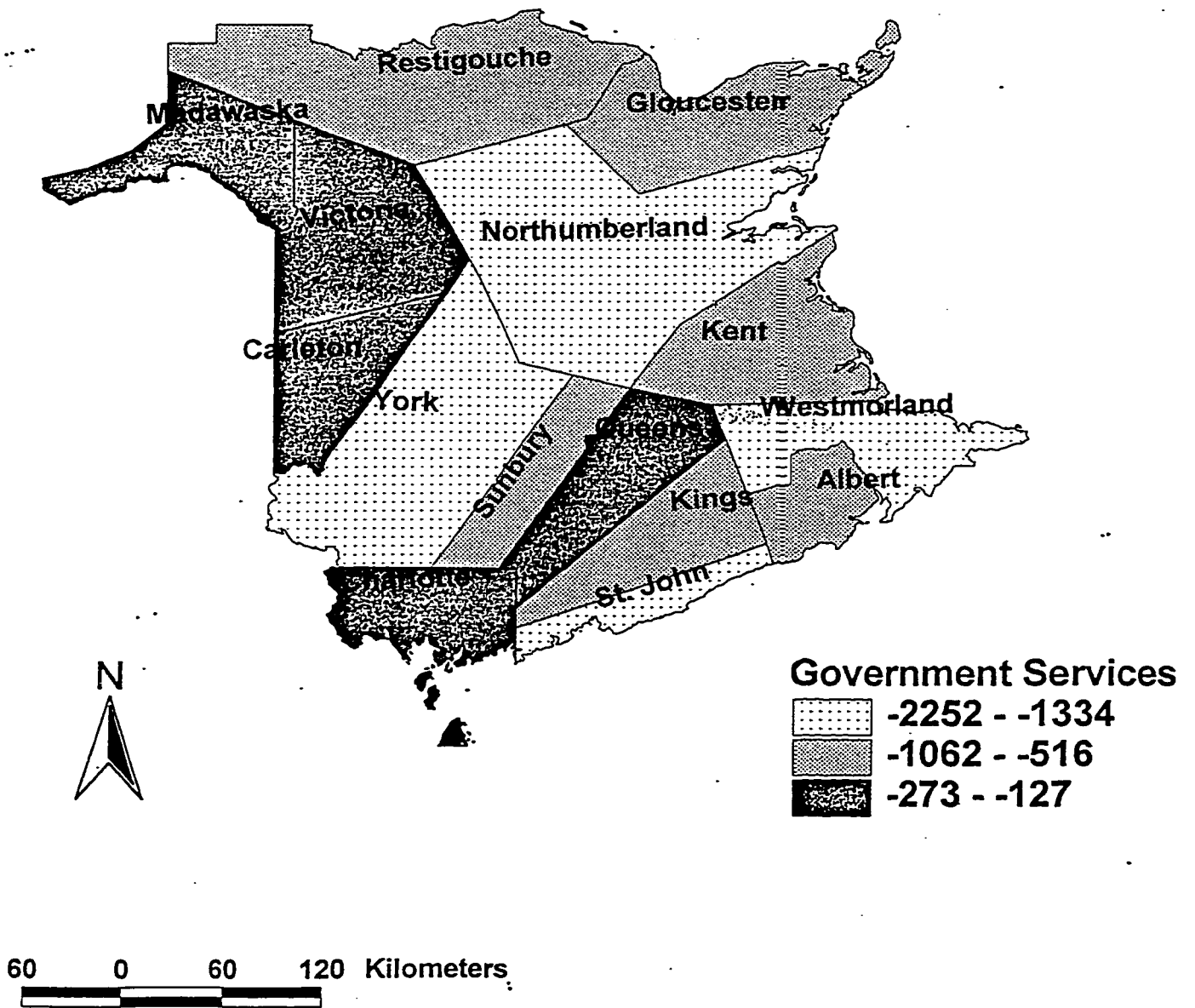


Figure 2.9: Total Shift in Government Services New Brunswick, 1991-1996



4.2.9 Health and Social Services

The health and social services sector experienced modest growth during the time period studied. Benefiting from the new infrastructure and the opportunities in distance health services, this sector grew 11.3% and created 3825 jobs, the most of any of the eighteen industrial sectors.

Figure 2.11 shows that growth in this sector was concentrated in the three southern counties of Westmorland, Kings and York, and the two northern counties of Gloucester and Northumberland. The three aforementioned southern counties had a total shift as significant as those counties with the highest total shifts in total employment. Lower levels of growth occurred in the other counties with smaller rural populations. Charlotte, Madawaska, and Restigouche are the only three counties to have experienced decreases from the number of jobs that would have been attributed to the provincial growth rate in this sector (see annex 6.17).

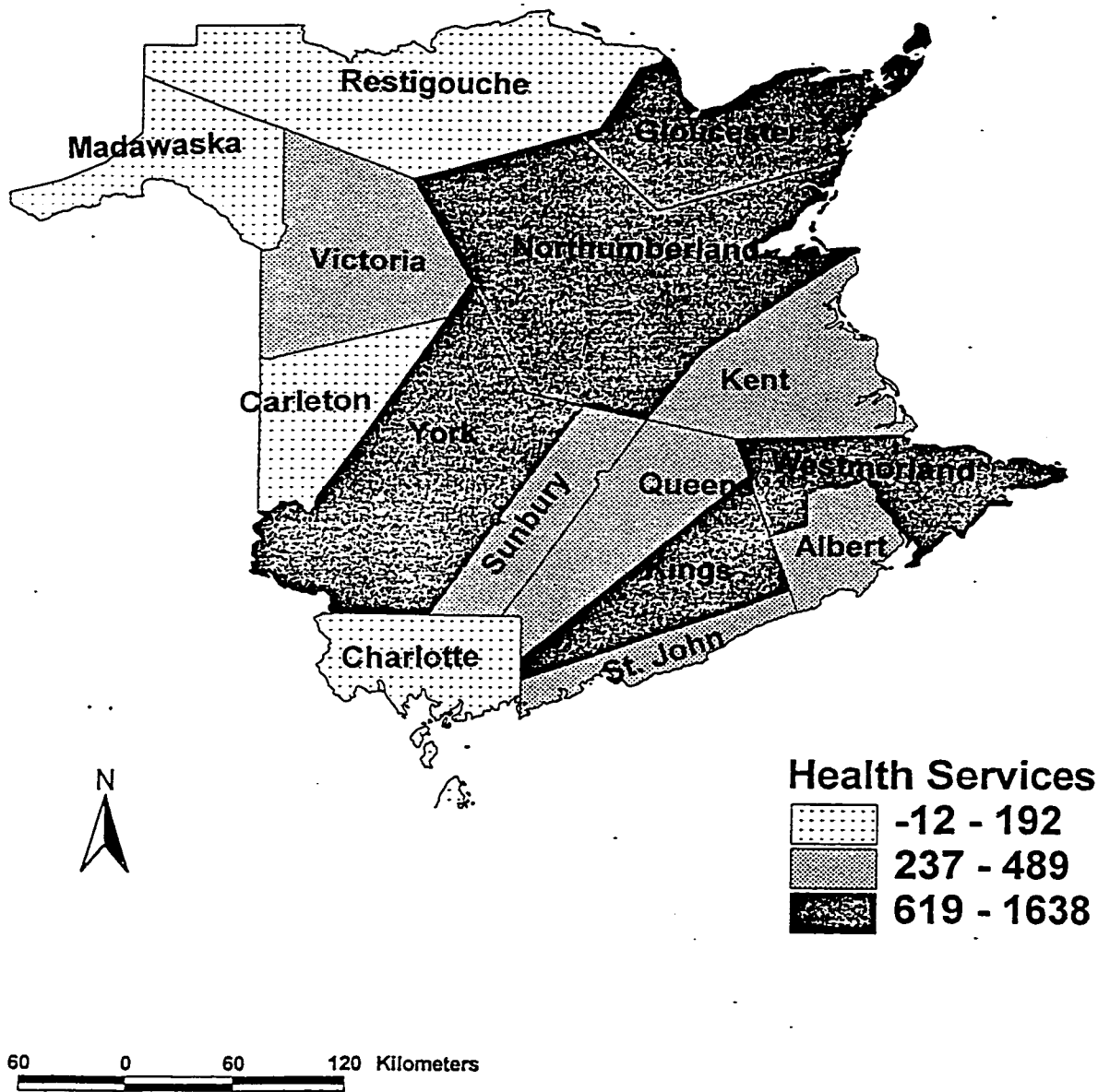
4.2.10 Accommodation, Food and Beverage Service Industries

The accommodation, food and beverage services sector experienced the same level of growth as health and social services. A major part of the provincial government's overall regional development plan was to expand the province's tourism infrastructure. This included the building of new attractions and providing assistance to operators of hotels, resorts, restaurants, etc. As a result, this sector grew by 11.33% and created a total of 2400 new jobs.

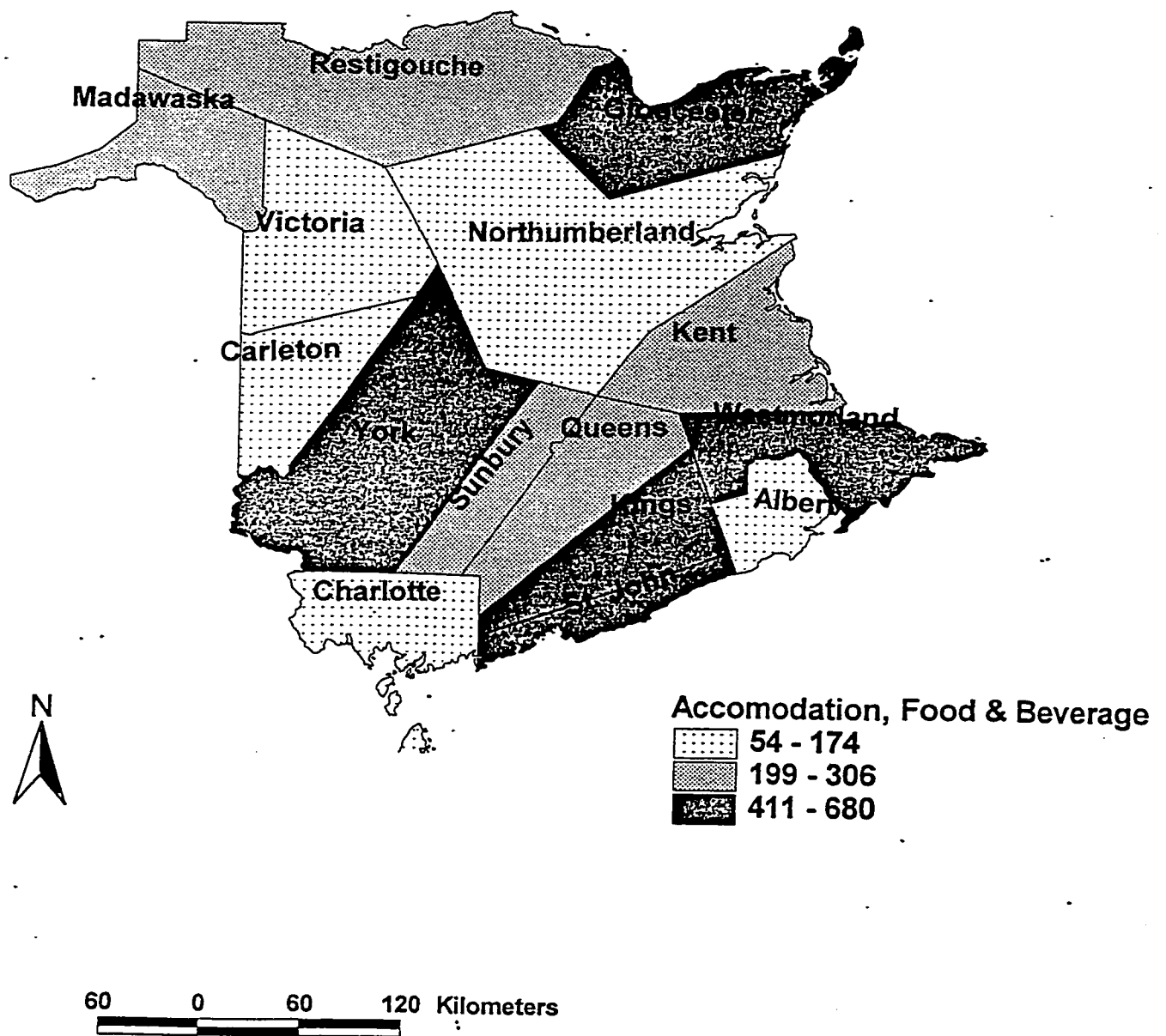
Figure 2.12 shows that the four southern counties of York, Westmorland, St. John, and Kings and the one northern county of Gloucester had the largest increases. Only the counties of Northumberland and Carleton had actual decreases compared to the number of jobs the provincial rate would have added to the local economies. The other counties had weaker growth rates (see annex 6.18).

Although growth in this sector is positive and adds to the total employment of a region, these jobs are generally low paying and low skilled, and not as central to competitiveness in the knowledge-based economy.

Figure 2.10: Total Shift in Health and Social Services, New Brunswick, 1991-1996



**Figure 2.11: Total Shift in Accomodation, Food & Beverage Services
New Brunswick, 1991-1996**



4.2.11 Other Services

This sector includes all of the other service sector jobs that do not directly fall into one of the previous categories. This includes the following groups of jobs:

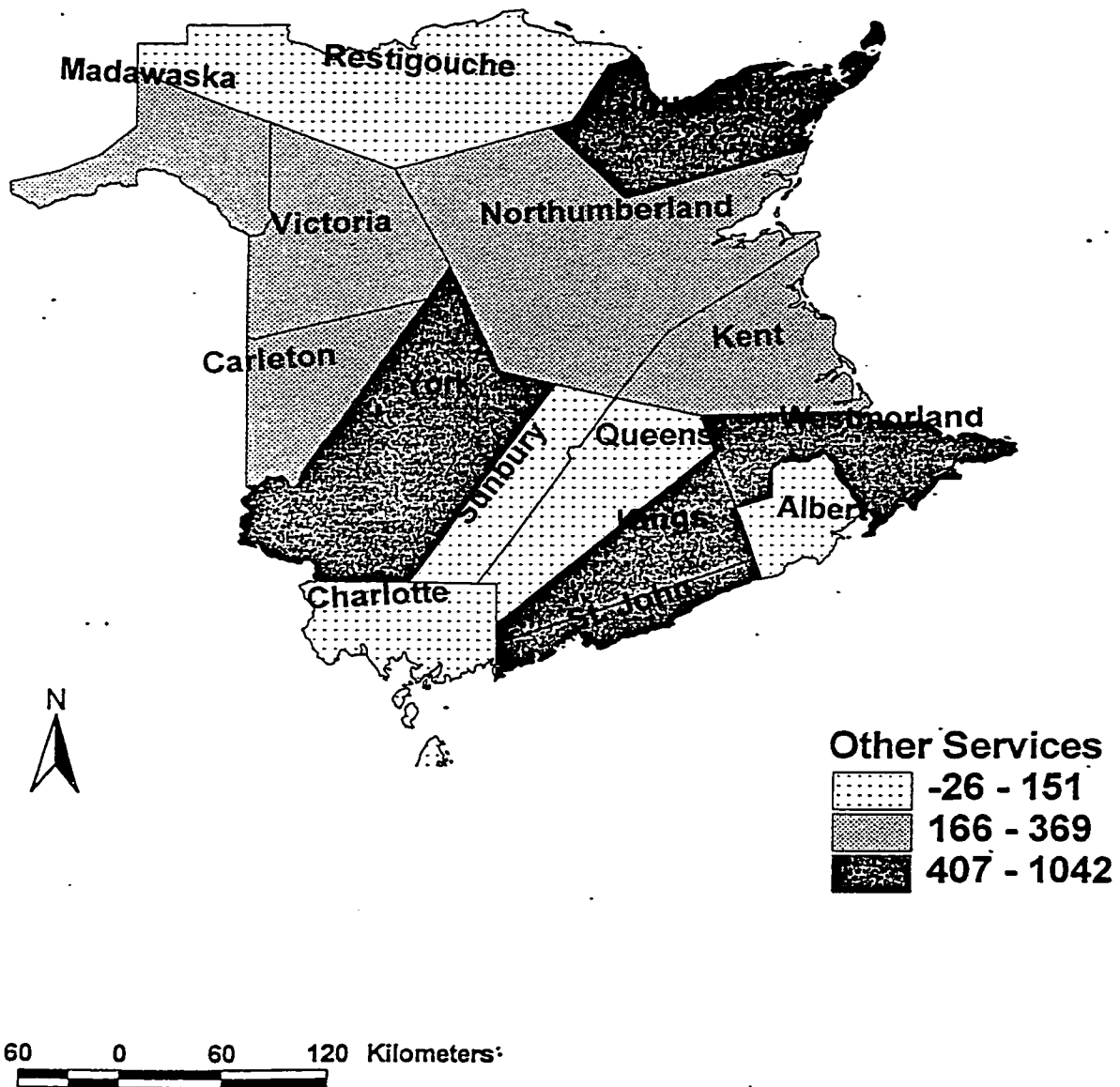
- *Amusement and Recreational Services*: Motion Picture, Audio and Video Production and Distribution, Motion Picture Exhibition (cinemas, etc.), Theatrical and Other Staged Entertainment Services (all entertainment artists, etc.), Commercial Spectator Sports (sports clubs, professional athletes and promoters, race tracks), Sports and Recreation Clubs and Services (golf courses, curling clubs, skiing facilities, etc.), Gambling Operations, Other Amusement and Recreational Services (bowling alleys, etc.)
- *Personal and Household Services*: Barber and Beauty Shops, Laundries and Cleaners, Funeral Services, Private Households (cooks, maids, etc.), Other Personal and Household Services (shoe repair, etc.)
- *Membership Organisation Industries*: Religious Organisations, Business Associations Professional Membership Associations, Labour Organisations, Political Organisations, Civic and Fraternal Organisations
- *Other Service Industries*: Machinery and Equipment Rental and Leasing Services, Automobile and Truck Rental and Leasing Services, Photographers, Repair Services (electrical, welding, etc.), Services to Buildings and Dwellings (exterminating, window cleaning, janitorial), Travel Services (ticket and travel agencies, tour wholesalers and operators), Other Services (parking lots and garages, artists, auctioneers, etc.)

The wide variety of jobs in this sector includes some that are considered low-skilled and those that require higher levels of education and training. Nonetheless, growth in this sector was the third highest in the province. The growth rate was 13.92% and the sector added 3010 new jobs to the province's economy. Growth in this sector is an indication of economies diversifying and creating demand for the services listed above. Regions that experience overall job growth in other sectors and who large urban centres create greater demand for a wider variety of services. Large agglomerations allow more competition in the delivery of services.

Figure 2.13 shows that the five counties that had high total shifts in other services are the same as those in the previous sector. Of those five counties, Westmorland, York, and St. John

experienced a total shift that was as significant as those with the highest total shifts in total employment. Those with decreases from the provincial rate are the counties Restigouche, Albert, and Queens (see annex 6.19). As the economies of the southern counties developed at a quicker pace than those in the north, unemployment was lower and labour force participation was higher. These trends, along with higher average incomes, were the cause for the high levels of growth in the jobs of this sector. The northern counties with small rural populations cannot support large numbers of jobs in this sector, as there is a very small market.

Figure 2.12: Total Shift in Other Services New Brunswick, 1991-1996



4.3 Regional Share of Industrial Sectors

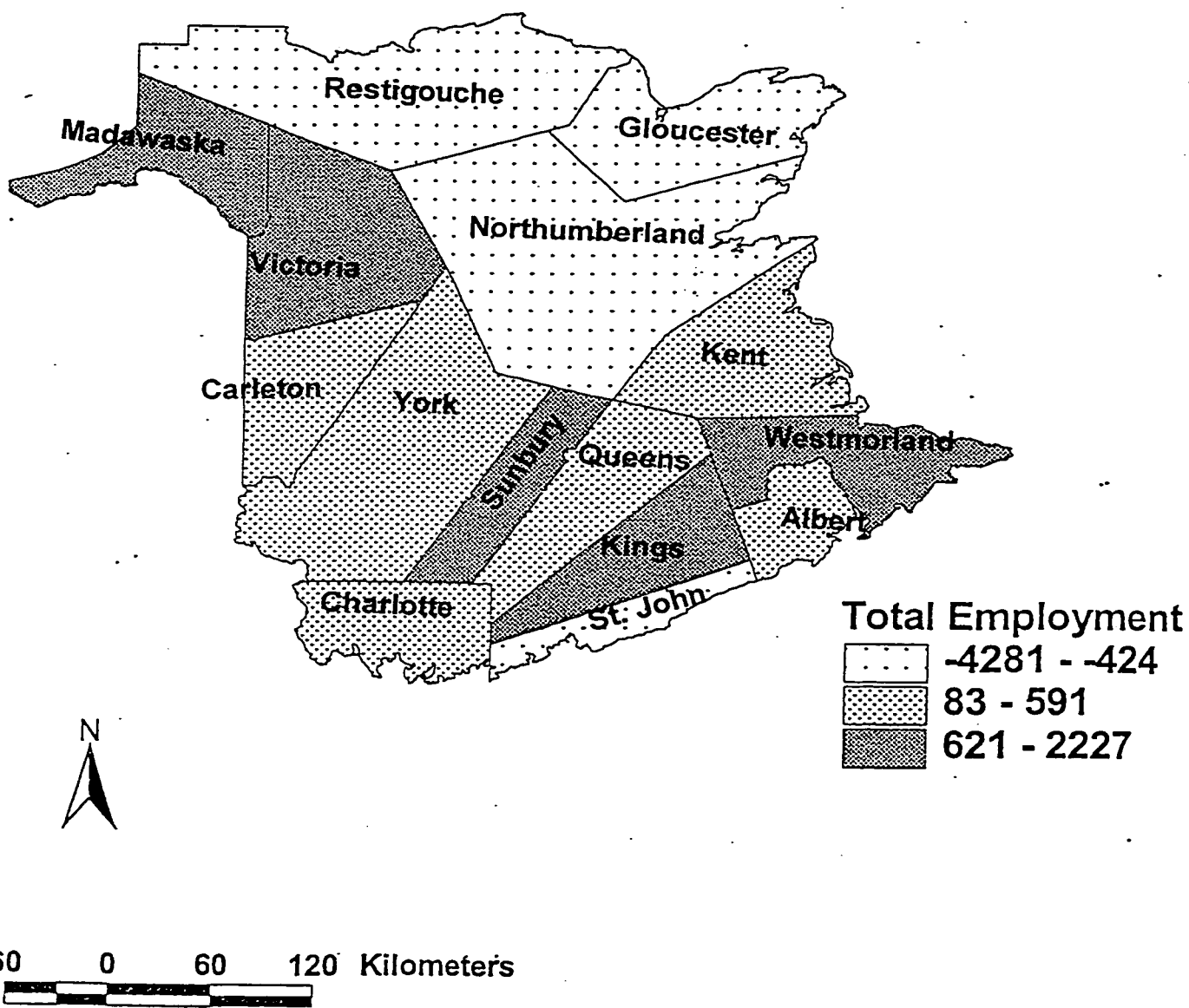
In the methodology chapter it was stated that the regional share is a component of the total shift that measures the level of competitiveness of a local industry. Therefore, this is the factor that measures the growth in employment in a sector due to the regional nature of the industry and not the provincial growth rate. This analysis differs from the previous total shift of employment analysis because it does not factor in the provincial growth for a given industrial sector and measures solely the region's competitive advantage. The analysis in this section examines the competitive share of each of the industrial sectors between 1991 and 1996. As regional share measures the performance of a local industry, there is no provincial average available for comparison. The following subsections will follow the same model as the previous analysis of the total shift and focuses on comparing the southern counties to those in the north.

4.3.1 Total Employment

The regional share of total employment in the counties of New Brunswick are mainly positive, as most of the fifteen counties have positive regional shares. As shown by figure 3.1, the southern counties of Westmorland, Kings and Sunbury, and the two northern counties of Madawaska and Victoria had the most jobs created because of their competitive labour forces. In contrast, the counties of Northumberland, Restigouche, Gloucester, and St. John all had negative regional shares, resulting in a net loss of jobs and competitiveness (see annex 5.2).

These measures are important because they show the overall trend in the province and where the most competitive total labour forces are located. As the previous section demonstrated, growth rates in the individual industrial sectors indicate some interesting patterns. The previous analysis of the total shift in the featured sectors shows that growth was concentrated in certain southern counties. Government services was the only sector which experienced greater growth in the north than in the south. The significance of such results questions the success of the regional development policies and the trust that a technology-based infrastructure can benefit all regions. The regional share of total employment has very similar results as those in the total shift. In both cases, growth in total employment is higher in the

Figure 3.1: Regional Share of Total Employment New Brunswick, 1991-1996



southern counties. The following sectoral analysis will determine whether or not the competitive advantages of the counties resulted in a gain or decline in employment.

4.3.2 Fishing and Trapping Industries

Despite the problems that plagued the Atlantic fishery between 1991 and 1996, the analysis of the total shift in this sector showed that it had experienced strong growth in employment. Figure 3.3 indicates that the only one of the counties where fishing is a major employer (Northumberland) had a high regional share. The other counties with similar rates, are either inland or have a very small fishing community. Of the other three major fishing counties, Gloucester had moderate competitiveness while Kent and Charlotte had the two lowest shares in the province (see annex 5.4). These results would indicate that counties with small fisheries or those that have employment in trapping than fishing are more competitive than those on the coast with significantly more people employed in fishing. This result is very different from the results of the previous total shift analysis in this sector. Northumberland is the only county with a major fisheries sector to have experienced growth due to its competitive advantage. Smaller and inland freshwater operations are those with greater competitive advantages.

4.3.3 Logging and Forestry Industries

As stated in the previous section, the logging and forestry sector experienced one of the lowest growth rates during this time period. The regional share in this sector is consistent with the other primary industry above. Figure 3.4 shows that the southern counties of Kings, Sunbury and Queens, have high levels of competitiveness. On the other hand, many northern counties that have a greater dependency on forestry sector jobs, experienced moderate or low growth rates as well as low regional shares (see annex 5.5).

Counties with small logging operations had higher numbers of jobs created because of highly competitive operations, whereas, a smaller number of jobs were created in larger operations where the industry had a greater importance to the local economy. Therefore, a county that lacks a diversified economy loses the competitive nature of its labour force because the capital investment that is brought into other sectors of a local economy such as services is absent. For example, a county such as Kings, which has a small forestry sector compared to

Figure 3.2: Regional Share of Fishing & Trapping, New Brunswick, 1991-1996

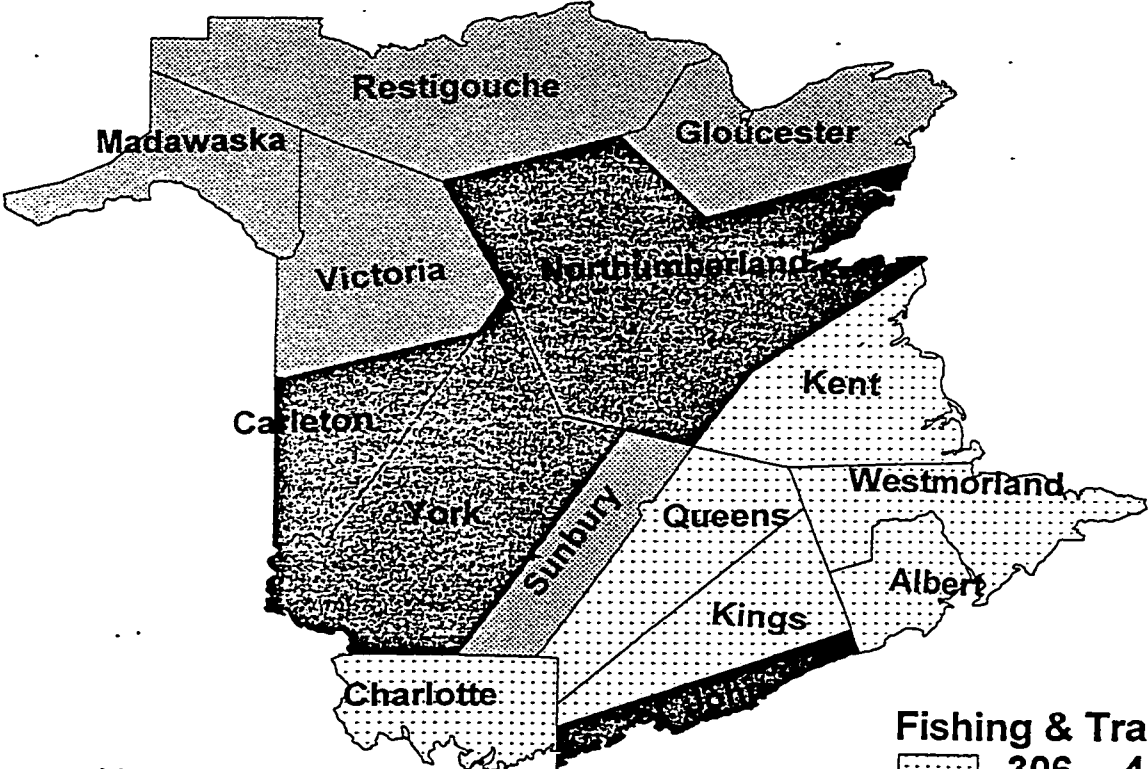
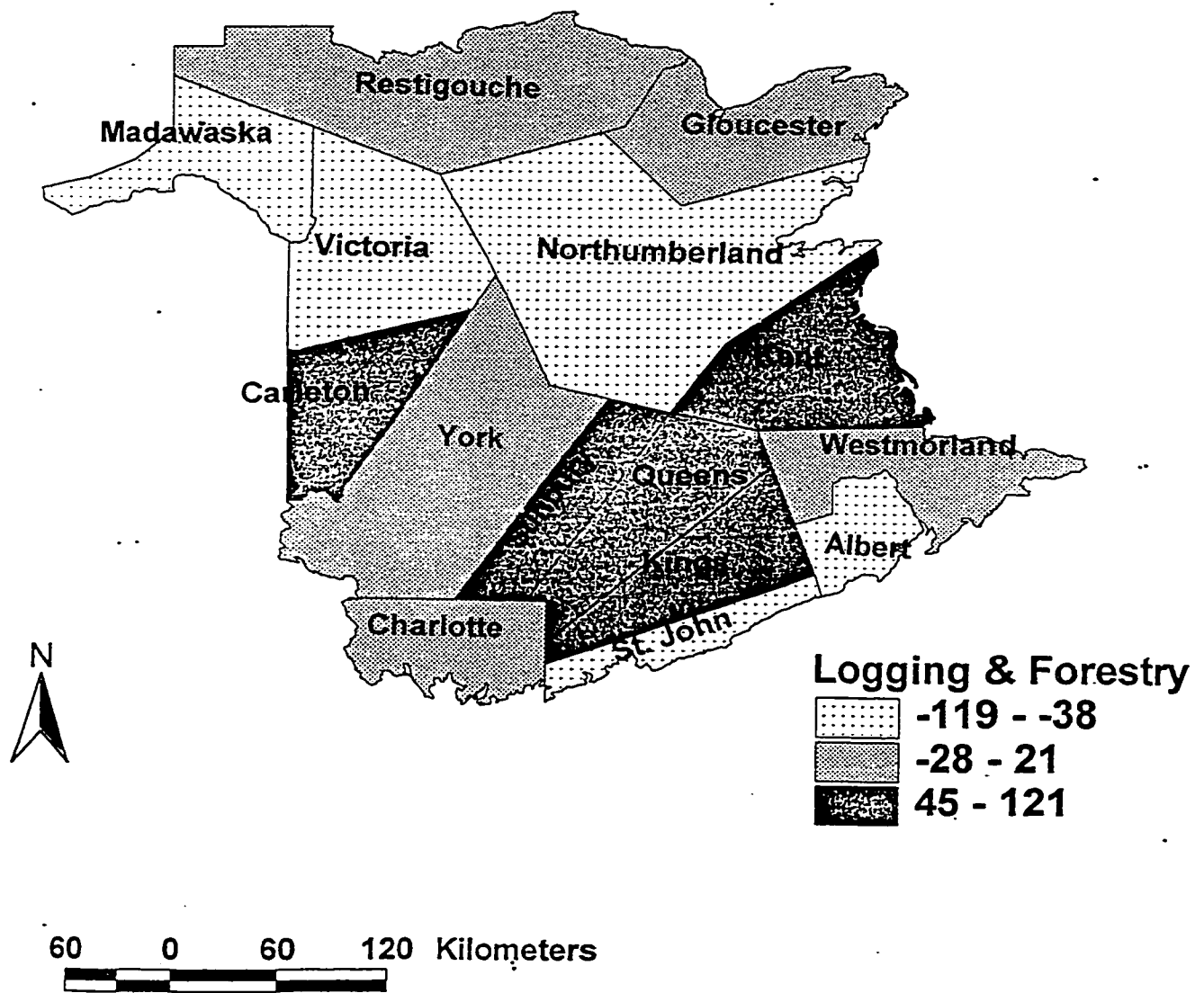


Figure 3.3: Regional Share of Logging & Forestry New Brunswick, 1991-1996



county such as Victoria has experienced greater growth due to its higher competitive advantage that translates into a more diversified economy and labour force. Kings has experienced high levels of growth in sectors where there have been high levels of investment. In contrast, Victoria has a much less diversified economy and is therefore more dependent on a declining forestry sector, which results in lower levels of investment.

4.3.4 Manufacturing

Manufacturing remains the largest employer in the province and a number of counties have significant percentages of their total sectoral employment in this sector. Figure 3.6 shows that most of the counties had positive regional shares. Thus, the competitiveness of the local industries would have created more jobs in this sector despite the decline in employment between 1991 and 1996. Westmorland had the highest regional share, adding almost 500 jobs more than the second highest county of Charlotte. In contrast, Gloucester and St. John have the largest job losses (see annex 5.7). The counties rank in almost the same order as they did in the previous analysis of the total shift in manufacturing.

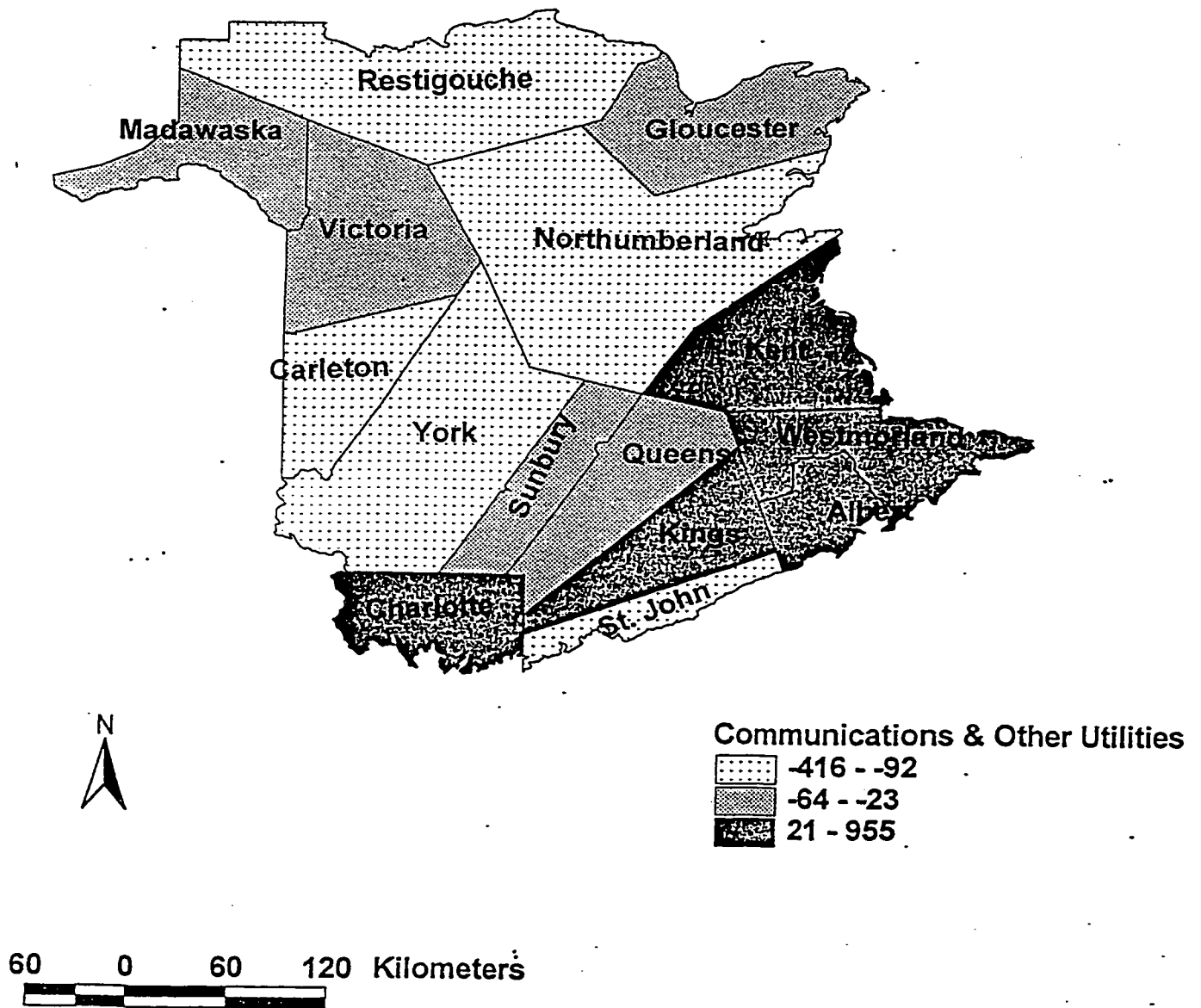
The manufacturing sector has been in decline in its share of total sectoral employment and the number of people it employs since 1986. The gains in counties such as Westmorland have not made up for the significant losses in the northern counties or in St. John.

4.3.5 Communications and Other Utilities

The communications and other utilities sector exhibit a trend that concentrates most of the job growth and competitiveness in one county. As figure 3.9 shows, only five counties had positive regional shares. Of those five, Westmorland is the only county to have a significant number of jobs created because of the competitive level of its local industry (see annex 5.10).

The expansion of the Call Centres and of telecommunications jobs in this most populated county of the province was the direct result of companies favouring Moncton over other urban centres. The other southern counties had difficulty competing with Westmorland for jobs in the growing telecommunications industry. The northern counties had even less opportunity to attract companies and investment in creating jobs in telecommunications. This further reinforces the statement made in the previous analysis of this sector. Despite the installation the latest

Figure 3.5: Regional Share of Communications & Other Utilities New Brunswick, 1991-1996



telecommunications infrastructure, employment in this sector was not distributed to the other counties. Employment in the communications sector in New Brunswick therefore favours only the county with the largest population and city. This was not the intention of the regional development policies. The telecommunications infrastructure was intended to open economic opportunities for all of New Brunswick's counties. Instead, employment growth and competitive advantage tended to concentrate in a few individual counties.

4.3.6 Retail Trade

The retail trade sector had more negative regional shares than positive. Figure 3.11 shows an interesting clustering of high numbers of jobs created in the counties that border the United States. The four counties with the highest regional shares all share a border with the state of Maine. The only exception is Carleton, which had very small gains in this sector. A second interesting observation is that the county of Westmorland that has the largest population experienced one of the lowest levels of competitiveness in retail trade (see annex 5.12). The increase in retail trade employment in the border counties could be caused by increases in cross-border shopping by Americans attracted by a lower Canadian dollar as well as increased tourism.

4.3.7 Insurance Agents and Real Estate Brokers

Contrary to the growth rates seen in the total shifts in this sector, the regional shares were much lower. Figure 3.13 shows that both those with the highest and lowest numbers are minimal compared to other more important employers. The highest regional shares are found in the two extreme ends of the province. The counties of Madawaska and Restigouche in the north and Albert and Westmorland in the south are most competitive in promoting growth for insurance agents and real estate brokers (see annex 5.14).

Figure 3.6: Regional Share of Retail Trade New Brunswick, 1991-1996

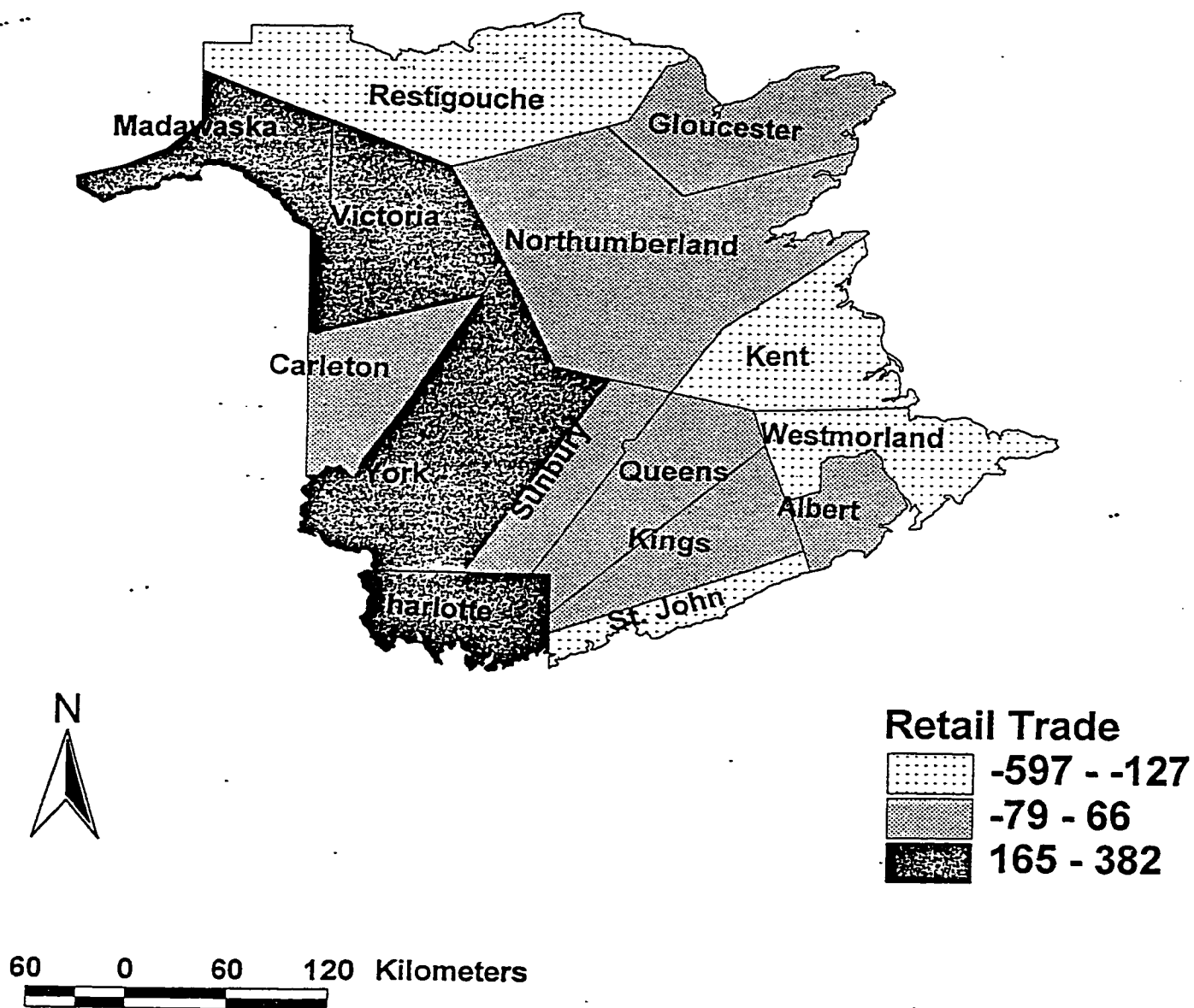
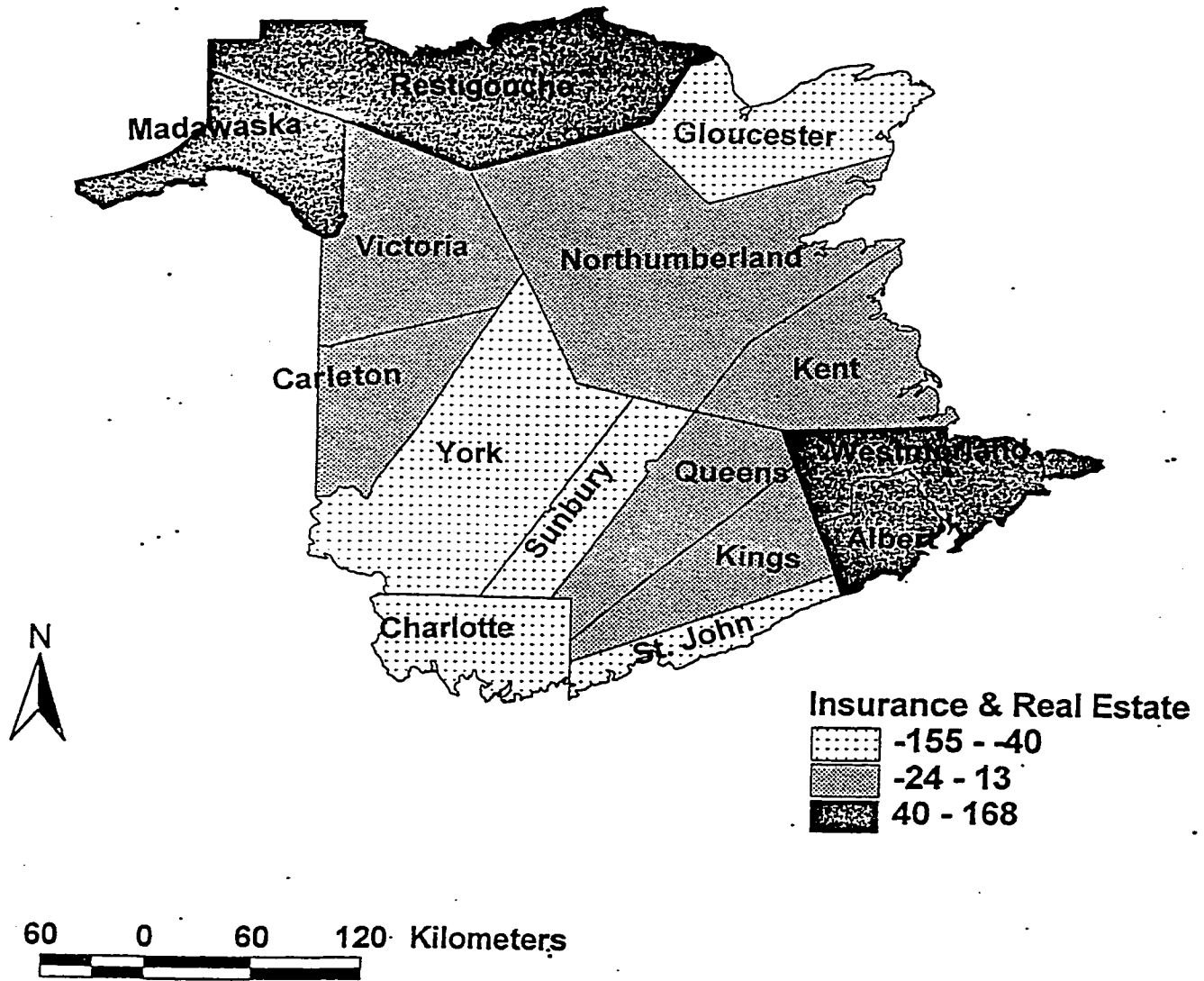


Figure 3.7: Regional Share of Insurance Agents & Real Estate Brokers New Brunswick, 1991-1996



4.3.8 Business Services

The regional shares in business services are very different from the total shifts. Figure 3.14 shows that the three of the five counties with the highest growth attributed to the competitiveness of local industries are scattered across the province. The opposite is evident in the south, in that three of the five counties with the lowest regional share are located there. In fact, not one of the three counties with the largest urban centres, where growth should be concentrated, have high regional shares (see annex 5.15). This is a very different result from the total shift analysis. Kings is the only county to have experienced high growth levels in both the total shift and regional share analysis. The local economic attributes of the counties did not allow for large investments by companies as was expected in the provincial government's regional development policies.

The differences in the two analysis would suggest that it was not the competitiveness of the local industries that was the cause of the high growth rates in this sector where the majority of call centres located, but rather the provincial share and the industrial mix.

4.3.9 Government Services

The reductions of the public service at all three levels of government have translated into the most profound negative growth rates of all the industrial sectors. Figure 3.15 shows that only four of the fifteen counties had high regional shares. York and Sunbury, with the largest numbers of people employed in this sector, also experienced the two with the highest regional shares. Although some counties increased the actual number of jobs in this sector, the loss of jobs in other counties has resulted in an overall negative growth rate (see annex 5.16).

4.3.10 Health and Social Services

The health and social services sector experienced one of the highest growth rates between 1991 and 1996. Figure 3.17 shows that, four of the five counties to have high regional share are in the south of New Brunswick. Six counties had small increases or decreases and the four counties with significantly low regional shares are divided equally between the north and south

Figure 3.8: Regional Share of Business Services New Brunswick, 1991-1996

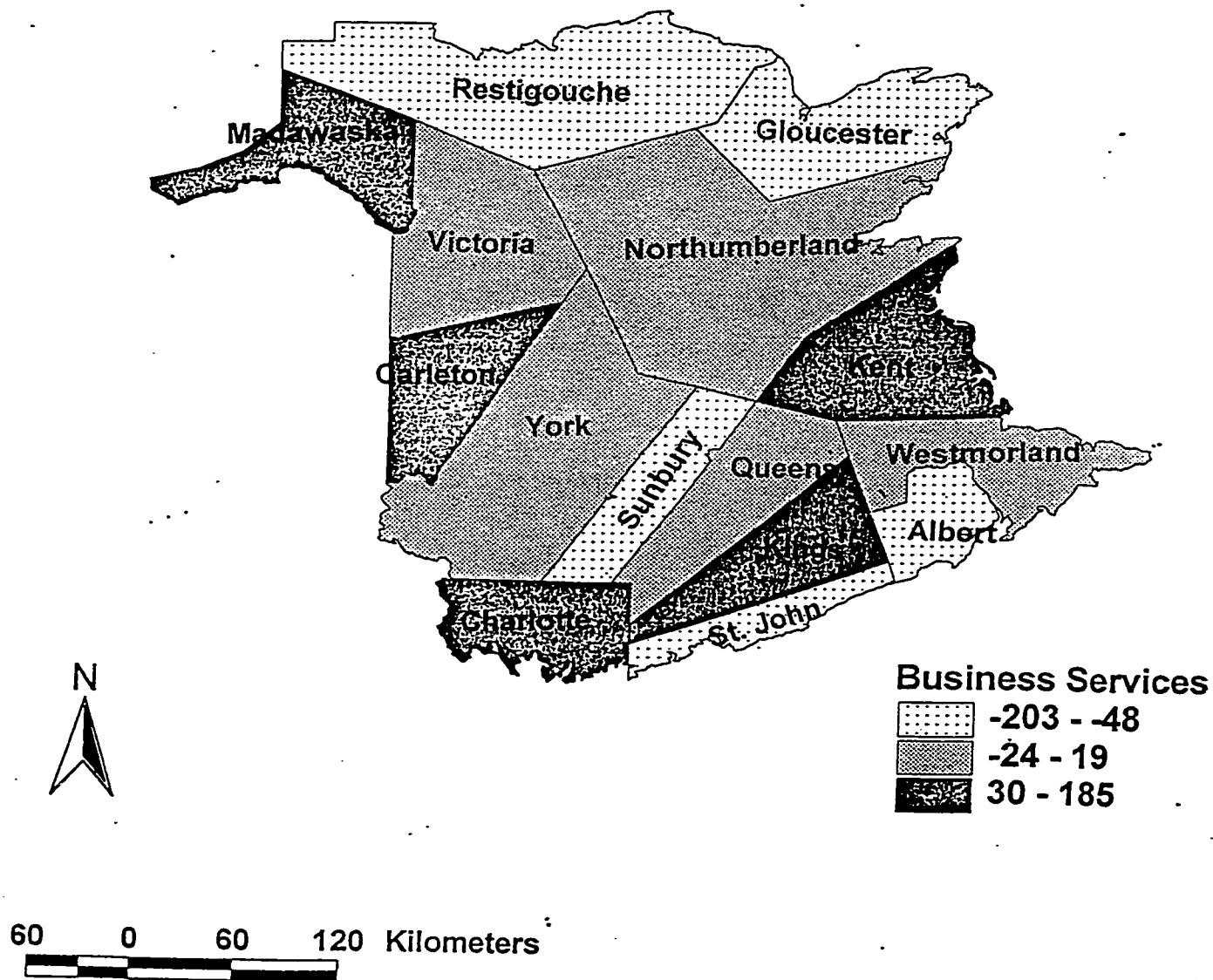


Figure 3.9 : Regional Share of Government Services, New Brunswick, 1991-1996

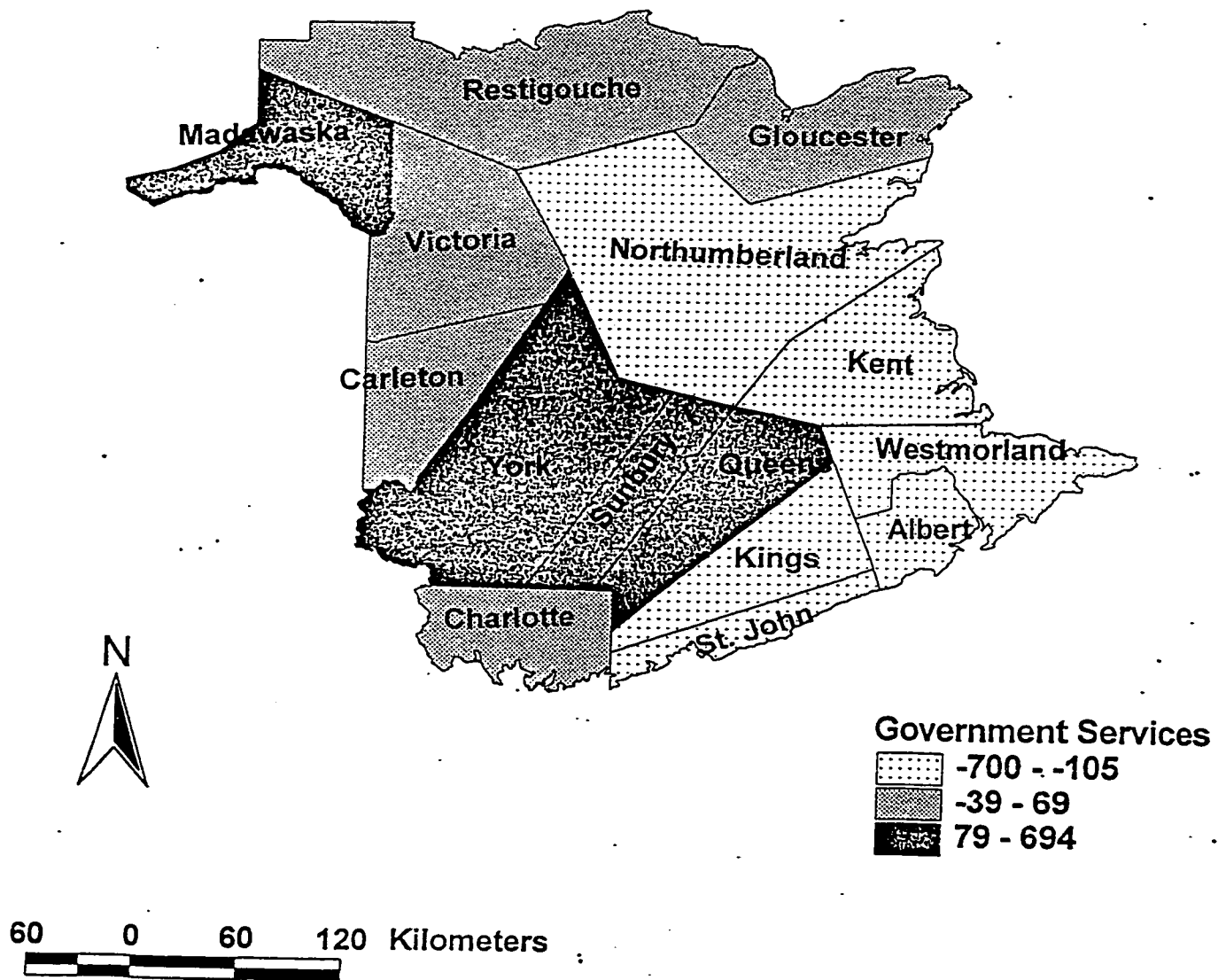
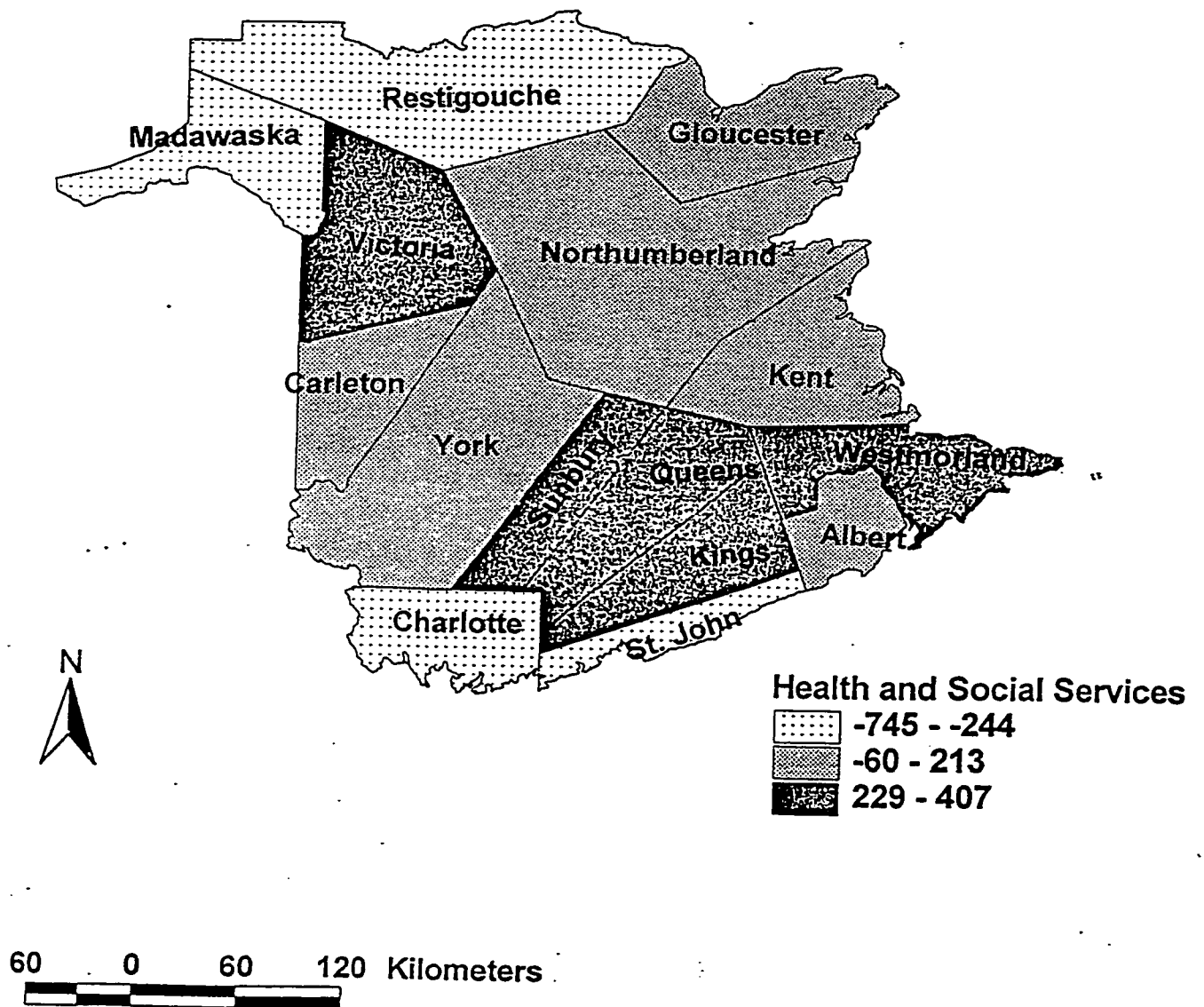


Figure 3.10: Regional Share of Health & Social Services, New Brunswick, 1991-1996



(see annex 5.18). The regional shares in this sector are among the highest of all eighteen industrial sectors.

4.3.11 Accommodation, Food and Beverage Services

While growth in this sector has been positive, the types of jobs that are created are generally low paying, low skilled, part-time, and temporary. In fact, many of the people employed in these services are seasonal workers who heavily depend on tourism. Figure 3.18 shows that four of the five counties with high regional shares are located in the south. In contrast, three of the five counties with significant job losses due to a lack of competitiveness are in the north (see annex 5.19). Job creation in accommodation, food and beverage services is dependent on growth in other sectors of the economy. As more people are employed and earning wages, the demand for such services increases.

4.3.12 Other Services

As described in the previous analysis of the total shift in this sector, the types of jobs are a very wide variety. Some require high levels of skills and training but the majority are purely service sector jobs that do not require more than college level education. Nonetheless, there has been an increase in the demand for workers in the types of jobs found in this sector. Figure 3.19 shows that three of the four counties with high regional shares are in the south of the province, while three of the five counties with significant job losses are in the north (see annex 5.20). Therefore, the regional share in this sector generally follows the general trend of job growth being concentrated in the south to the disadvantage of their northern counterparts who suffer from low competitive shares.

Figure 3.11: Regional Share of Accommodation, Food & Beverage Services New Brunswick, 1991-1996

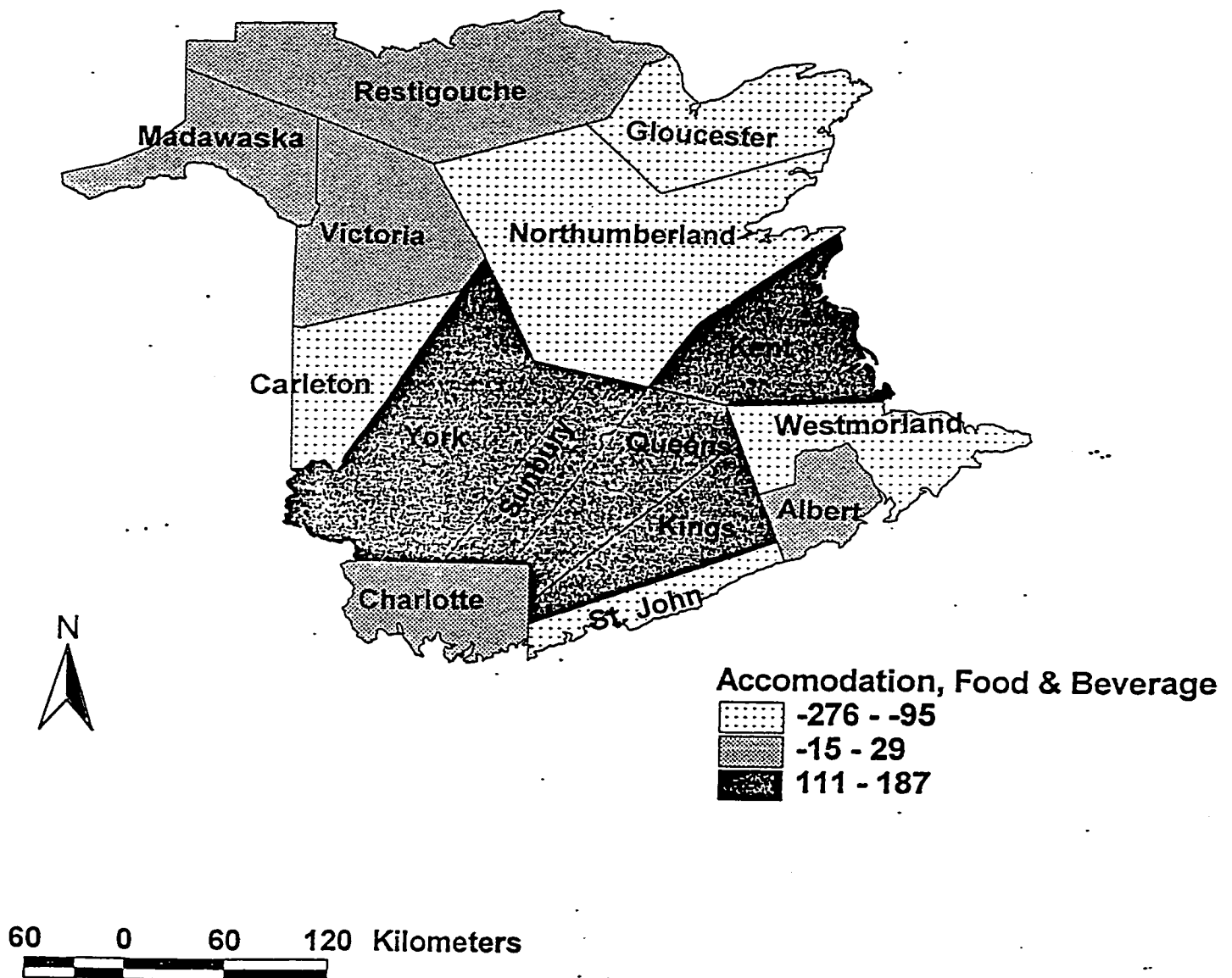
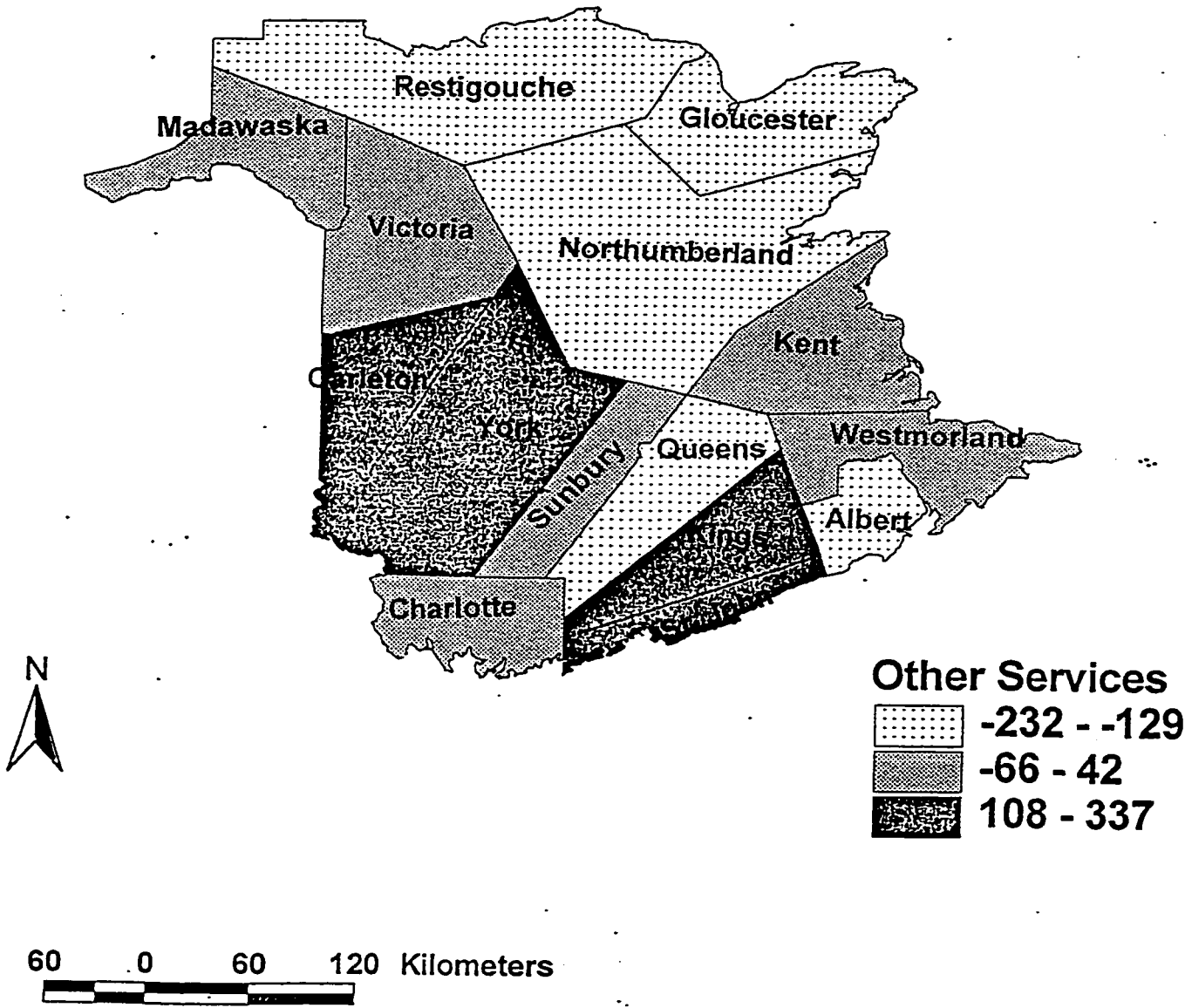


Figure 3.12: Regional Share of Other Services New Brunswick, 1991-1996



4.4 Summation

The shift-share analysis has brought to light the major trends affecting the industrial sectors in New Brunswick. Between 1991 and 1996, a few select sectors have experienced significant overall growth. Eleven of the eighteen industrial sectors had positive growth rates and six of the eleven sectors experienced growth above 10%. The services sector was the most important job creator during this time period, as more jobs were created here than were lost in the seven sectors that experienced negative growth rates.

In analysing the number of jobs created, the total shifts and regional shares show that larger gains were made in the southern counties. Those in the north have also exhibited some growth in certain sectors, but in most cases the southern counties outpaced the north. In other words, the southern service sectors were the ones to benefit the most from the provision of new technology and infrastructure. Traditional employers in primary and manufacturing could not adopt this technology at the same pace as the services and were seriously affected by the recession of the early 1990's. The provincial government targeted only certain industries in their regional development policies. Fishing was the only traditional employer to benefit in any way from the government's policies, as this is evident in the sector's high employment growth.

The pursuit of making New Brunswick attractive to investments resulted in mainly service sector jobs being created and many of these jobs came in the form of call centres. The innovation and research and development capacity of the province has therefore been limited as most jobs were in services and did not require high skill levels. Employment in New Brunswick's cities remained largely in manufacturing, retail, and services. Growth and competitiveness was never shared equally between the northern and southern counties and regional disparities continued to present a challenge to policy and decision-makers.

Chapter 5: Conclusions

The previous chapters of this thesis have established the conceptual and applied foundation of regional development in the knowledge-based economy. The conclusions that will be presented in the following paragraphs are supported by the statistical analysis of the selected socio-economic indicators, as well as the shift-share analysis of the industrial structure of New Brunswick.

In the introduction, two research questions were identified to guide the literature review and statistical analysis that followed.

5.1 What have been the changes to the regional disparities in New Brunswick under the regional development policies of the McKenna government?

The analysis of the socio-economic indicators in chapter three indicate that between 1986 and 1996 the state of regional disparities in the province has changed little. In certain cases, the disparities between the north and the south have grown as the north has difficulty competing for investments and a high-knowledge labour force. The analysis of chapter three examined the industrial sector composition, unemployment and labour force participation, average incomes, and migration rates in all of the province's fifteen counties. A number of striking observations were made suggesting that certain northern counties are struggling to prevent their low economic growth from deepening. The conclusions drawn from the study of the changes to the regional disparities between the northern and southern counties from 1986 to 1996 are:

Southern Counties

- The south generally has a diversified industrial structure, especially in the counties with large populations or urban centres.
- Most have low unemployment rates and high labour force participation.
- High numbers of women have entered the labour force from 1986 to 1996.
- Household, Male and Female average incomes are high, especially in counties with very diversified industrial

Northern Counties

- The north depends heavily on traditional primary and manufacturing industries. These counties do not have strong urban centres.
- Unemployment rates are high and labour force participation is low.
- The number of women in the labour force is much lower than in the south.
- Average incomes remain lower than the southern counties for households, males and females.

structures.

- In-migration is generally higher than out-migration. More people from other provinces and outside of Canada tend to migrate to the south instead of the north. The south also receives large numbers of migrants from the north.
- Out-migration is a consistent problem for the north as many people leave to seek better opportunities in the south or in other provinces. A lack of employment and lower wages are the main causes of the high out-migration.

Although there are were some variations in each of the indicators, these conclusions show that very little change occurred over the time period studied to change the level of regional disparities between southern and northern.

5.2 What are the changes to the economic growth and industrial structure of the province's regions as a consequence of the impact of the regional development policies and a provision of a technology-based infrastructure?

The answer to this question is found in the shift-share analysis of the industrial sectors from 1991 to 1996. A number of important trends in the changes to the province's industrial structure were identified in this analysis as the cause of the state of New Brunswick's regional disparities.

The shift-share analysis found that services were responsible for most of the employment growth in the province. The industrial sectors of business services, health and social services, educational services, and accommodation, food and beverage services were mainly responsible for the high growth levels exhibited by a number of counties. On the other hand, the government services, forestry, mining, and manufacturing sectors all experienced large job losses. This had some very negative effects on counties where these sectors formed a substantial part of overall employment. This is the result of technologically induced productivity and a restructuring of the industrial base. A loss of employment in these sectors may not have resulted in loss productivity but may have increased productivity levels. Due to limitations in time, scope, and data, an analysis of productivity levels in the industrial sectors has not been factored in to further understand growth in the counties.

Another conclusion drawn from the shift-share analysis is that, apart from growth in the business services sector, there is no evidence of important gains made in industries

that are tied to the knowledge-based economy. The high-tech infrastructure did not add significantly to the industrial mix, nor did it create employment that would allow New Brunswick to compete in the new economy. The divide between the north and south has further disadvantaged the province in attracting investment and corporations.

As this thesis focused on the county as its unit of analysis, the consideration of all of the socio-economic factors and the shift-share analysis allowed for the counties to be divided into three groups.

Counties with most positive changes	Counties with average changes	Counties with most negative changes
<ul style="list-style-type: none"> • Westmorland (S) • Kings (S) • York (S) • Albert (S) • Sunbury (S) 	<ul style="list-style-type: none"> • Carleton (N) • Victoria (N) • Madawaska (N) • Charlotte (S) • Queens (S) 	<ul style="list-style-type: none"> • St. John (S) • Gloucester (N) • Restigouche (N) • Northumberland (N) • Kent (N)

By 1996, the north has not recovered from the loss in the primary and manufacturing sectors. As these industries stagnated, the availability of jobs did not expand with the growing labour force causing high male unemployment rates. This is mainly because these sectors were the only major employers in the northern counties. The data corroborates the fact that as male unemployment increased in 12 of 15 counties, its effects were more pronounced in the north. At the same time, female unemployment decreased and labour force participation increased. This means that the jobs created in the business services, health and social services, accommodation, food and beverage services, and other services sectors benefited mainly women. The men who lost their jobs in traditional sectors could not make the move into these service sector jobs. When people are then unable to find work in the region where they live, two situations are most likely to happen:

- They migrate to the south, where more jobs are available in large urban centres.
- They drop out of the labour force, which means increased government transfers and thus larger regional disparities.

The south also experienced some negative economic impacts between 1986 and 1996. These impacts were concentrated in certain counties where traditional employers

reduced their workforce. The county of St. John lost a significant number of jobs in manufacturing and therefore had negative growth rates during the ten year period studied. Those counties who did experience growth, focused their attention on expanding their service sectors. Unfortunately, a large number of service sector jobs are low-skilled, low-paying and lack security.

It is obvious that the southern part of the province outpaced the north in virtually all of the economic indicators. The regional development policies and use of a technology-based infrastructure have allowed the counties to develop certain industrial sectors. While the infrastructure is in place, it is missing the element of a competitive labour force. The growth of highly skilled workers in the health, education, and business services sectors is not a clear indication that New Brunswick's counties are moving towards the knowledge-based economy. There is no real presence of important sectors such as computing and high-tech manufacturing. The government's regional development plan was to produce instant results, which meant the creation of service sector jobs. The call-centre initiative was the main thrust behind a concerted effort to upgrade the province's telecommunications network. As shown in the analysis, the only county to have experienced growth in the communications sector was that of Westmorland. The business services sector, which experienced the highest employment growth of all sectors and where most call centres would be classified, concentrated most of its growth in the southern counties. This result along with the evidence that the socio-economic indicators such as income levels, and labour force participation are higher in the southern counties lead to the conclusion that the regional development policies have not reduced disparities. The period between 1986 and 1991 did show some economic growth, but 1991 to 1996 was a period of recession and of very slow recovery. This reality is evident in all of the indicators analysed in this thesis. However, growth was much more pronounced in those counties that were able to use the new infrastructure to their benefit and therefore confirms the existence of a core-periphery relationship between the north and south. The core-periphery relations do not favour development and growth in poor rural northern counties or even in outlying southern counties.

The core-periphery model described in the context chapter, would be an accurate description of the economic developments in New Brunswick from 1986 to 1996. The core southern counties have outpaced the northern periphery counties in economic growth in almost all industrial sectors and in all major economic indicators considered in this thesis. According to the model, periphery regions become increasingly dependent on the core for their economic growth. This results in uneven development and expanding regional disparities.

Technology-based infrastructure, and in particular telecommunications is thought to be the economic development tool that does not limit or restrict investment or the location of firms to core regions. In theory, this is true, but there are a number of other factors that influence the location of investment and firms. Companies who are searching to invest in a given region, must consider its advantages over other regions. In the context of this thesis, the companies that selected to invest in New Brunswick, as was the case for call centres, had to decide in which region of the province they should set up their operations. Most companies chose regions with important urban centres, a large and skilled labour force, and a more diversified economy. Thus, building a technology-based infrastructure and offering economic incentives to companies does not instantly translate into higher economic development and job growth in periphery regions. This is especially true if those rural, low-skilled, and high unemployment regions must compete for investments with those of the core.

As stated previously in this thesis, there are few studies that focus on New Brunswick and none that examine the issues of industrial structure, regional disparities and technology in the same time frame and scale. The studies that have been completed show that there are results that are common with those of this thesis. Lamarche (1994) analysed the maritime urban system during the 1970's, 80's, and early 90's and concluded that the three major centres in New Brunswick have greatly benefited from information technologies. His analysis goes on to state that all three centres have had increases in infrastructure, business information services and the administrative sector which are all important industries in a knowledge based economy. Although the three major urban

centres attracted the most investment and experienced the highest growth levels, not all developed at the same rate.

In De Benedetti's (1994) analysis of St. John, he found that while it remains the core of manufacturing in the Maritimes, it is failing to restructure its economy toward services. The city (and surrounding county) has grown more dependent on the primary and manufacturing sectors and is thus falling behind Moncton and Fredericton. In an analysis of Fredericton's economic development, De Benedetti and Weiss (1994) see that the city (and the county of York) has demonstrated growth in sectors relevant to the knowledge based economy and is beginning to diversify its government services and education services industrial base. As previously stated, it is clear that the county with the largest population and city has experienced the highest growth in the most relevant sectors. In Savoie and Bougeois' (1994) analysis, they conclude that the city of Moncton (and county of Westmorland) has been able to diversify its economic base and therefore stabilise its economy. Factors such as its entrepreneurial spirit, two universities, an emphasis on business services and communications, and a bilingual labour force are all reasons why the city has done well. The authors are cautious in their analysis and state that Moncton has not yet made the full transition to the point where it can compete nationally and globally.

The commonalties between the above mentioned results of other studies and those of this thesis are in the growth levels that those urban centres experienced due to sectors relevant to the knowledge based economy. This thesis goes further in firstly, considering other economic factors such as income disparities, gender gaps, and migration. Secondly, this thesis analyses the regional disparities among counties that have developed high growth knowledge sectors though infrastructure provision, and those who have not. This leads to a third and important question that needs to be answered.

5.3 Did the regional development policies in fact have an impact on the economic structure of the counties in New Brunswick?

In chapter one of this thesis, a number of regional development policies are described. Governments create such policies to influence or change the economic structure of particular regions. A debate exists in policy, economic and political circles of the utility

and effectiveness of regional development policies. This debate has proponents claiming that such policies have either a significant impact, a limited impact or no impact whatsoever on the socio-economic makeup of the regions where the policies are applied. The findings of this thesis support the argument that regional development policies had a limited impact on the counties of New Brunswick.

In this test case, the results of the thesis show that there was little change in the regional disparities in New Brunswick. The provincial government relied upon policies that encouraged the provision of a high technology infrastructure to all of the fifteen counties. As was described in chapter one, the logic behind such a policy was that firms and companies, especially those in telecommunications, would either form or locate in all of the counties of New Brunswick. But the results of this thesis show that the distribution of economic growth was uneven across the province and certain counties developed at a faster and greater rate than others. This was not the intention of the provincial government's policies. It could be stated that the policies had only a limiting effect on regional disparities, but the research does not allow for concrete conclusions to be made.

It is difficult to determine if the provincial government laid the foundation upon which certain industrial sectors flourished and others declined. The adoption of a policy that favoured technology and in particular telecommunications may have had an impact on these sectors. There remains several elements that were considered in this thesis and therefore does not conclusively state that the province's regional development policies had an impact on regional disparities. The research suggests that the provincial government embarking on an aggressive campaign to attract companies that required technology resulted in some economic growth. The research also suggests that the policies did not have an impact on where those companies located in the province. However, it is uncertain whether or not economic growth or decline would have occurred in New Brunswick regardless of any government policies. The role of government in the economy is somewhat limited; even in a welfare state such as Canada. Certainly, public policy influences the location of firms but the research presented in this thesis does not draw any firm conclusions as to the role or influence of the provincial government's policies in the changes observed in New Brunswick's regional disparities.

5.4 Lessons Learned, Limitations and Opportunities

This thesis presents some lessons learned for the policy-makers and for the researcher. The first lesson for the policy-maker is that the use of technology and telecommunications infrastructure to aid in the economic growth of regions may have had limiting effects in regions such as those in the north of New Brunswick. Companies will continue to tend to locate in regions that have the better socio-economic indicators and stronger urban structures. The second lesson for the policy-maker is that regional development policies have a somewhat limited impact (if any at all) on the industrial structure and regional disparities. This thesis lends some support for government intervention in the local economies of regions experiencing less growth than others but at the same time cautions against relying on policies regardless if they promote technological development.

The lessons learned for the researcher are twofold. The first is in the limitations of the data. While this thesis was still in its formative stages, a decision had to be taken on what geographic units would be studied. The census division or county unit was chosen because there were no changes to the boundaries like there was in the census subdivision or municipal level. If this same study would focus on the municipal level rather than the counties, the results would have been different, more comprehensive and detailed.

The second lesson for the researcher is in the utility of the shift-share method as an analytical and information tool. This method allowed for the different components of economic growth to be broken down and distinguished from one another. But a shift-share analysis is most useful when one region is compared to another. To achieve a better understanding of the levels of economic growth and industrial change in New Brunswick, it would have been beneficial to compare the province to another geographic unit. This means using a control method to measure and analyse the impact level of the policies. The first step would be to study New Brunswick and another region which presents the same industrial structures and economic realities. The next step is to study both regions from one time period to another and measure the changes to the socio-economic

indicators. The final step in the control method is to analyse the impact of the regional development policies applied in the first region as opposed to the second region which had no such policies. Only a control method such as this one would be a policy analysis with concrete conclusions. Government involvement in the reduction or the expansion of regional disparities could then be better measured and a more sound analysis of the policies could be integrated into understanding the results. The thesis could then be expanded by adding elements such as the two mentioned above which would subsequently improve the analysis of the data and the results of the study.

It is difficult to draw conclusions on complex issues such as the impact of regional development policies and technology on disparities. This thesis has opened the door to further research into relations between core and periphery regions. Future studies that uses the control method in a shift-share analysis would reveal a better understanding of the workings of the regional development policies applied in New Brunswick and what impact they really had on the socio-economic indicators and industrial structures in the province.

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Data Sources

Matrices extracted from CANSIM database:

1. Emigrants by Census Division, Population, New Brunswick (Labels C356865-C356879)
2. Immigrants by Census Division, Population, New Brunswick (Labels C356565-C356579)
3. Inter-provincial In-Migrants by Census Division, Population, New Brunswick (Labels C357165-C357179)
4. Inter-provincial Out-Migrants by Census Division, Population, New Brunswick (Labels C357465-C357479)
5. Intra-provincial In-Migrants by Census Division, Population, New Brunswick (Labels C357765-C357779)
6. Intra-provincial Out-Migrants by Census Division, Population, New Brunswick (Labels C358065-C358079)

Data extracted from Census of Canada for years 1986, 1991, and 1996:

A. Geographic Areas:

1. New Brunswick (Geo Code 1300000)
2. Saint John County (Geo Code 1301000)
3. Charlotte County (Geo Code 1302000)
4. Sunbury County (Geo Code 1303000)
5. Queens County (Geo Code 1304000)
6. Kings County (Geo Code 1305000)
7. Albert County (Geo Code 1306000)
8. Westmorland County (Geo Code 1307000)
9. Kent County (Geo Code 1308000)
10. Northumberland County (Geo Code 1309000)
11. York County (Geo Code 1310000)
12. Carleton County (Geo Code 1311000)
13. Victoria County (Geo Code 1312000)
14. Madawaska County (Geo Code 1313000)
15. Restigouche County (Geo Code 1314000)
16. Gloucester County (Geo Code 1315000)

B. Variables:

Income Data:

1. Average Household Income
2. Average Income (Males aged 15 and over)
3. Average Income (Females aged 15 and over)

Industrial Sectors:

1. Primary Industries (Labour Force aged 15 and over, 1986)

2. Manufacturing (Labour Force aged 15 and over, 1986)
3. Construction (Labour Force aged 15 and over, 1986)
4. Transportation, Storage and Communications (Labour Force aged 15 and over, 1986)
5. Trade (Labour Force aged 15 and over, 1986)
6. Financial Services, Insurance and Real Estate (Labour Force aged 15 and over, 1986)
7. Government Services (Labour Force aged 15 and over, 1986)
8. Other Service Industries (Labour Force aged 15 and over, 1986)
9. Agriculture and Related Service Industries (Labour Force aged 15 and over, 1991, 1996)
10. Fishing and Trapping Industries (Labour Force aged 15 and over, 1991, 1996)
11. Logging and Forestry Industries (Labour Force aged 15 and over, 1991, 1996)
12. Mining (including Milling), Quarrying and Oil Well (Labour Force aged 15 and over, 1991, 1996)
13. Manufacturing Industries (Labour Force aged 15 and over, 1991, 1996)
14. Construction Industries (Labour Force aged 15 and over, 1991, 1996)
15. Transportation and Storage (Labour Force aged 15 and over, 1991, 1996)
16. Communication and Other Utility Industries (Labour Force aged 15 and over, 1991, 1996)
17. Wholesale Trade (Labour Force aged 15 and over, 1991, 1996)
18. Retail Trade (Labour Force aged 15 and over, 1991, 1996)
19. Finance and Insurance Industries (Labour Force aged 15 and over, 1991, 1996)
20. Real Estate Operator and Insurance Agent Industries (Labour Force aged 15 and over, 1991, 1996)
21. Business Service Industries (Labour Force aged 15 and over, 1991, 1996)
22. Government Service Industries (Labour Force aged 15 and over, 1991, 1996)
23. Educational Service Industries (Labour Force aged 15 and over, 1991, 1996)
24. Health and Social Service Industries (Labour Force aged 15 and over, 1991, 1996)
25. Accommodation, Food and Beverage Service Industries (Labour Force aged 15 and over, 1991, 1996)
26. Other Service Industries (Labour Force aged 15 and over, 1991, 1996)

Labour Force Characteristics:

1. Participation Rate (Both Sexes aged 15 and over)
2. Participation Rate (Males aged 15 and over)
3. Participation Rate (Females aged 15 and over)
4. Unemployment Rate (Both Sexes aged 15 and over)
5. Unemployment Rate (Males aged 15 and over)
6. Unemployment Rate (Females aged 15 and over)

C. Census Dictionaries

Statistics Canada. *1986 Census Dictionary*. Ottawa: Statistics Canada, 1986, pp. 11-12, 31-35, 40-42, 48, 64, 125-126, 155-156.

Statistics Canada. *1991 Census Dictionary*. Ottawa: Statistics Canada, 1991, pp. 38-39, 48-51, 57, 59-62, 75, 93-95, 171, 180-181, 225-228. Catalogue 92-301E

Statistics Canada. *1996 Census Dictionary*. Ottawa: Statistics Canada, 1996, pp. 27, 37-39, 47, 51-52, 58-61, 64-65, 90-92, 178-180. Catalogue 92-351-XPE

Annex – Data Tables

1.1a Primary Industries in Southern Counties

Primary	Queens	Charlotte	Kings	York	Sunbury	Westmorland	Albert	St. John
Employment								
1986	1030	1255	2320	2285	630	1615	395	435
1991	910	1610	2550	2270	550	1720	480	495
1996	755	1710	2415	2450	570	1680	420	620
Change	-275	455	95	165	-60	65	25	185
Percentage								
1986	20%	11%	9%	6%	5%	3%	3%	1%
1991	17%	13%	8%	5%	4%	3%	4%	1%
1996	13%	12%	8%	5%	4%	3%	3%	2%
Change	-7%	1%	-1%	-1%	-1%	0%	0%	1%

1.1b Primary Industries in Northern Counties

Primary	Victoria	Carleton	Northumberland	Gloucester	Kent	Restigouche	Madawaska
Employment							
1986	1695	1960	2675	5155	1625	1240	1465
1991	1435	1795	2575	5055	1595	1350	1240
1996	1360	1725	2870	5065	1825	1295	1250
Change	-335	-235	195	-90	200	55	-215
Percentage							
1986	19%	17%	13%	14%	12%	8%	9%
1991	16%	14%	11%	13%	11%	8%	8%
1996	14%	13%	13%	13%	12%	8%	7%
Change	-5%	-4%	0%	-1%	0%	0%	-2%

1.2a Manufacturing Industries in Southern Counties

Manufacturing	Charlotte	Kings	Westmorland	St. John	Queens	Albert	York	Sunbury
Employment								
1986	3115	3530	6480	5350	660	965	2810	635
1991	3005	4200	6235	6375	645	1090	2775	630
1996	3325	4050	7100	4355	645	1120	2750	495
Change	455	520	620	-995	-15	155	-60	-140
Percentage								
1986	26%	14%	12%	14%	13%	8%	7%	6%
1991	24%	14%	11%	16%	12%	8%	6%	5%
1996	24%	13%	12%	12%	11%	8%	6%	4%
Change	-2%	-1%	0%	-2%	-2%	0%	-1%	-2%

1.2b Manufacturing Industries in Northern Counties

Manufacturing	Madawaska	Carleton	Kent	Northumberland	Restigouche	Victoria	Gloucester
Employment							
1986	3390	2015	2620	2575	3010	1430	7855
1991	3530	2425	2625	3400	2305	1325	6800
1996	3800	2415	2795	3405	2430	1515	5540
Change	410	400	175	830	-580	85	-2315
Percentage							
1986	22%	18%	20%	13%	19%	16%	21%
1991	22%	20%	18%	15%	14%	14%	17%
1996	22%	18%	18%	15%	15%	15%	14%
Change	0%	0%	-2%	2%	-4%	-1%	-7%

1.3a Construction Industries in Southern Counties

Construction	Queens	York	Kings	Westmorland	St. John	Albert	Charlotte	Sunbury
Employment								
1986	395	2565	2140	3405	2300	510	665	425
1991	475	2920	2190	3710	2315	625	830	685
1996	480	2840	2200	3755	2255	790	705	875
Change	85	275	60	350	-45	280	40	295
Percentage								
1986	8%	7%	8%	6%	6%	4%	6%	4%
1991	9%	7%	7%	6%	6%	5%	7%	5%
1996	8%	7%	7%	6%	6%	6%	5%	4%
Change	0%	0%	-1%	0%	0%	2%	-1%	0%

1.3b Construction Industries in Southern Counties

Construction	Kent	Northumberland	Gloucester	Madawaska	Restigouche	Carleton	Victoria
Employment							
1986	1500	1855	2730	980	1010	625	495
1991	1665	1895	3385	995	1130	620	790
1996	1720	1910	3115	1035	1015	840	620
Change	220	55	385	55	5	215	125
Percentage							
1986	11%	9%	7%	6%	6%	5%	6%
1991	11%	8%	9%	6%	7%	5%	9%
1996	11%	8%	8%	6%	6%	6%	6%
Change	0%	-1%	1%	0%	0%	1%	0%

1.4a Transportation, Communications and Other Utilities in the Southern Counties

Transportation, Communications	Albert	Westmorland	St. John	Kings	Queens	York	Charlotte	Sunbury
Employment								
1986	1930	6330	4235	2725	600	3035	925	580
1991	1760	5620	3855	2765	540	3650	1050	825
1996	1945	6915	3770	3205	530	3525	1150	875
Change	15	585	-465	480	-70	490	225	295
Percentage								
1986	16%	12%	11%	11%	12%	8%	8%	5%
1991	13%	10%	10%	9%	10%	8%	8%	7%
1996	14%	11%	11%	10%	9%	8%	8%	7%
Change	-2%	-1%	0%	-1%	-3%	0%	0%	2%

1.4b Transportation, Communications and Other Utilities in the Northern Counties

Transportation, Communications	Carleton	Restigouche	Victoria	Northumberland	Kent	Gloucester	Madawaska
Employment							
1986	1020	1200	650	1270	990	1400	1025
1991	1235	1295	650	1455	910	1750	1025
1996	1270	1135	700	1305	975	1755	935
Change	250	-65	50	35	-15	355	-90
Percentage							
1986	9%	7%	7%	6%	7%	4%	7%
1991	10%	8%	7%	6%	6%	4%	6%
1996	10%	7%	7%	6%	6%	5%	5%
Change	1%	0%	0%	0%	-1%	1%	-2%

1.5a Trade Industries in the Southern Counties

Trade	Albert	Westmorland	St. John	Kings	York	Sunbury	Queens	Charlotte
Employment								
1986	2785	10490	7190	4655	6735	1355	635	1625
1991	3185	11735	7380	5545	7305	1655	720	1335
1996	3150	11340	6515	5505	7215	1705	655	1580
Change	365	850	-675	850	480	350	20	-45
Percentage								
1986	24%	20%	11%	18%	17%	12%	12%	14%
1991	24%	20%	10%	18%	17%	13%	13%	11%
1996	23%	19%	11%	17%	16%	13%	12%	11%
Change	-1%	-1%	0%	-1%	-1%	1%	0%	-3%

1.5b Trade Industries in the Northern Counties

Trade	Gloucester	Northumberland	Madawaska	Carleton	Victoria	Restigouche	Kent
Employment							
1986	6040	3175	2500	1905	1330	2460	1935
1991	6645	3780	2425	2010	1200	2700	2360
1996	6385	3680	2690	2065	1560	2350	2135
Change	345	505	160	160	230	-110	200
Percentage							
1986	16%	15%	16%	17%	15%	15%	14%
1991	17%	16%	15%	16%	13%	16%	16%
1996	17%	16%	16%	16%	16%	15%	14%
Change	1%	1%	0%	-1%	1%	0%	0%

1.6a Financial Services, Insurance and Real Estate Industries in the Southern Counties

Financial Services	Albert	Westmorland	Kings	York	St. John	Queens	Charlotte	Sunbury
Employment								
1986	730	2525	1200	1465	1845	95	285	240
1991	790	2485	1565	1825	1720	160	275	420
1996	865	2790	1445	1660	1385	160	300	275
Change	135	265	245	195	-460	65	15	35
Percentage								
1986	6%	5%	5%	4%	5%	2%	2%	2%
1991	6%	4%	5%	4%	4%	3%	2%	3%
1996	6%	5%	5%	4%	4%	3%	2%	2%
Change	0%	0%	0%	0%	-1%	1%	0%	0%

1.6b Financial Services, Insurance and Real Estate Industries in the Northern Counties

Financial Services	Madawaska	Gloucester	Restigouche	Carleton	Kent	Northumberland	Victoria
Employment							
1986	530	985	425	320	355	475	190
1991	440	1380	440	360	385	480	240
1996	605	1340	530	405	395	535	195
Change	75	355	105	85	40	60	5
Percentage							
1986	3%	3%	3%	3%	3%	2%	2%
1991	3%	3%	3%	3%	3%	2%	3%
1996	4%	3%	3%	3%	3%	2%	2%
Change	1%	0%	0%	0%	0%	0%	0%

1.7a Government Services in the Southern Counties

Government Services	Sunbury	York	Queens	Westmorland	St. John	Albert	Charlotte	Kings
Employment								
1986	4995	6360	480	4810	2450	1035	900	1610
1991	4720	7295	555	5615	2960	1180	925	2035
1996	4575	6445	535	4510	2195	865	830	1545
Change	-145	85	55	-300	-255	-170	-70	-65
Percentage								
1986	43%	16%	9%	9%	7%	9%	8%	6%
1991	38%	16%	10%	10%	8%	9%	7%	7%
1996	36%	14%	9%	7%	6%	6%	6%	5%
Change	-7%	-2%	0%	-2%	-1%	-3%	-2%	-1%

1.7b Government Services in the Northern Counties

Government Services	Northumberland	Gloucester	Madawaska	Restigouche	Kent	Carleton	Victoria
Employment							
1986	2895	2455	1020	1060	860	670	590
1991	2785	2765	1115	1305	1270	710	590
1996	1590	2235	1085	1040	875	635	500
Change	-1305	-220	65	-20	15	-35	-90
Percentage							
1986	14%	7%	7%	7%	6%	6%	7%
1991	12%	7%	7%	8%	9%	6%	6%
1996	7%	6%	6%	6%	6%	5%	5%
Change	-7%	-1%	-1%	-1%	0%	-1%	-2%

1.8a Other Services Industries in the Southern Counties

Other Services	York	St. John	Westmorland	Kings	Albert	Queens	Sunbury	Charlotte
Employment								
1986	13605	13400	17250	7345	3425	1260	2640	3020
1991	16230	13710	20680	9340	4295	1395	3085	3615
1996	18230	14450	23140	11450	4630	1930	3740	3695
Change	4985	1050	5890	4105	1205	670	1100	675
Percentage								
1986	35%	36%	33%	29%	29%	24%	23%	26%
1991	37%	35%	36%	31%	32%	26%	25%	29%
1996	41%	41%	38%	36%	34%	34%	29%	27%
Change	6%	5%	5%	7%	5%	10%	6%	1%

1.8b Other Services Industries in the Northern Counties

Other Services	Restigouche	Victoria	Gloucester	Northumberland	Madawaska	Kent	Carleton
Employment							
1986	5605	2405	10200	5645	4735	3510	2865
1991	6235	2925	11985	6995	5540	3700	3280
1996	6310	3495	13065	7630	5735	4475	3720
Change	705	1090	2865	1985	1000	965	855
Percentage							
1986	35%	27%	28%	27%	30%	26%	25%
1991	37%	32%	30%	30%	34%	25%	26%
1996	39%	35%	34%	33%	33%	29%	28%
Change	4%	8%	6%	6%	3%	3%	3%

2.1a Unemployment Rates in the Southern Counties

Unemployment Rates-South								
	St. John	Charlotte	Sunbury	York	Kings	Queens	Westmorland	Albert
1986	14.5	23.7	12.8	11.3	11.7	21.5	13.3	10.6
1991	12.2	17	11.2	11.6	10.1	18	12.2	11.6
1996	15	23.5	11.2	10.9	10.3	20.5	11.1	9.6
Change	0.5	-0.2	-1.6	-0.4	-1.4	-1	-2.2	-1
Average	13.9	21.4	11.7	11.3	10.7	20	12.2	10.6

2.1b Unemployment Rates in the Northern Counties

Unemployment Rates-North							
	Carleton	Victoria	Madawaska	Restigouche	Gloucester	Northumberland	Kent
1986	12.2	20	17.4	23.8	21.7	26.5	29
1991	11.1	16.2	17.4	21.4	22	24.2	24.8
1996	10.4	17.2	15	23	21.7	24.6	24
Change	-1.8	-2.8	-2.4	-0.8	0	-1.9	-5
Average	11.2	17.8	16.6	22.7	21.8	25.1	25.9

2.2a Labour Force Participation in the Southern Counties

Participation Rates-South								
	St. John	Charlotte	Sunbury	York	Kings	Queens	Westmorland	Albert
1986	60.4	58.9	67.8	66.2	62.9	54.4	62.6	64.3
1991	61.7	61.6	71.2	68.6	65.9	55.1	64.4	68.1
1996	59.5	62.8	68.6	67.7	65.9	55.3	64.9	67.3
Change	-0.9	3.9	0.8	1.5	3	0.9	2.3	3
Average	60.5	61.1	69.2	67.5	64.9	54.9	64	66.6

2.2b Labour Force Participation in the Northern Counties

Participation Rates-North							
	Carleton	Victoria	Madawaska	Restigouche	Gloucester	Northumberland	Kent
1986	60.2	57.3	58.5	56.2	59	54.8	58.8
1991	63.1	58.9	58.9	58.8	60	59	60.5
1996	64	60.9	59.9	55.9	57.3	57.9	61.1
Change	3.8	3.6	1.4	-0.3	-1.7	3.1	2.3
Average	62.4	59	59.1	57	58.8	57.2	60.1

2.3a Male Unemployment Rates in the Southern Counties

Males-Unemployment-South								
	St. John	Charlotte	Sunbury	York	Queens	Kings	Westmorland	Albert
1986	15.9	19.3	8.3	10.3	18.5	10.9	12.3	8.8
1991	12.2	15.7	8.2	11.3	19.4	9.1	12.3	10.7
1996	17.7	20.7	10.9	11.6	23.3	11.9	11.4	9.8
Change	1.8	1.4	2.6	1.3	4.8	1	-0.9	1
Average	15.3	18.6	9.1	11.1	20.4	10.6	12	9.8

2.3b Male Unemployment Rates in the Northern Counties

Males-Unemployment-North							
	Carleton	Victoria	Madawaska	Restigouche	Gloucester	Northumberland	Kent
1986	11.4	19.2	17	24.2	22.3	27.6	29.1
1991	10.5	14	18.1	22.3	23.3	25.3	27.9
1996	10.3	17.8	14.3	26.5	23.4	27.9	26.4
Change	-1.1	-1.4	-2.7	2.3	1.1	0.3	-2.7
Average	10.7	17	16.5	24.3	23	27	27.8

2.3c Female Unemployment Rates in the Northern Counties

Females-Unemployment-South								
	St. John	Charlotte	Sunbury	York	Queens	Kings	Westmorland	Albert
1986	12.7	29.9	21	12.5	26.6	13	14.6	13.1
1991	12.3	18.6	15.8	12	15.8	11.4	12.1	12.8
1996	11.9	26.8	11.7	10.2	17.1	8.2	10.7	9.5
Change	-0.8	-2.9	-9.3	-2.3	-9.5	-4.8	-3.9	-3.6
Average	12.3	25.1	16.2	11.6	19.8	10.9	12.5	11.8

2.3d Female Unemployment Rates in the Northern Counties

Females-Unemployment-North							
	Carleton	Victoria	Madawaska	Restigouche	Gloucester	Northumberland	Kent
1986	13.9	21.2	18	23.1	20.9	24.8	29
1991	11.8	19.2	16.5	20.2	20.3	22.6	21
1996	10.4	16.5	15.7	18.6	19.6	20.4	20.9
Change	-3.5	-4.7	-2.3	-4.5	-1.3	-4.4	-8.1
Average	12	19	16.7	20.6	20.3	22.6	23.6

2.4a Male Labour Force Participation in the Southern Counties

Males-Participation-South								
	St. John	Charlotte	Sunbury	York	Queens	Kings	Westmorland	Albert
1986	72	70.9	82.4	77.2	67.4	76.4	73.2	76.1
1991	71.4	70.4	82.5	76.7	65.6	76.6	73.1	77.5
1996	67.6	71.8	76.5	74.5	63.8	74.4	71.5	73.6
Change	-4.4	0.9	-5.9	-2.7	-3.6	-2	-1.7	-2.5
Average	70.3	71	80.5	76.1	65.6	75.8	72.6	75.3

2.4b Male Labour Force Participation in the Northern Counties

Males-Participation-North							
	Carleton	Victoria	Madawaska	Restigouche	Gloucester	Northumberland	Kent
1986	71.5	69.4	70.5	68.2	67.7	66.8	66.9
1991	73.6	68.4	67.2	68.3	67.4	68.2	66.8
1996	74.3	68.5	66.3	63.2	63.2	65.7	66.8
Change	2.8	-0.9	-4.2	-5	-4.5	-1.1	-0.1
Average	73.1	68.8	68	66.6	66.1	66.9	66.8

2.4c Female Labour Force Participation in the Southern Counties

Females-Participation-South								
	St. John	Charlotte	Sunbury	York	Queens	Kings	Westmorland	Albert
1986	50.2	47.6	51.3	56	41.3	49.7	52.9	52.8
1991	53.4	53.3	58.8	61.1	44.6	55.4	56.4	58.9
1996	52.4	54.4	60.3	61.2	47	57.6	58.8	61.1
Change	2.2	6.8	9	5.2	5.7	7.9	5.9	8.3
Average	52	51.8	56.8	59.4	44.3	54.2	56	57.6

2.4d Female Labour Force Participation in the Northern Counties

Females-Participation-North							
	Carleton	Victoria	Madawaska	Restigouche	Gloucester	Northumberland	Kent
1986	49.4	45.6	47.2	44.6	50.2	42.7	50.3
1991	53	49.8	51.1	49.5	52.6	49.8	54
1996	54.1	53.7	53.9	48.9	51.3	50.3	55.2
Change	4.7	8.1	6.7	4.3	1.1	7.6	4.9
Average	52.2	49.7	50.7	47.7	51.4	47.6	53.2

3.1a Household Average Incomes in the Southern Counties

Household Incomes-South								
	St. John	Charlotte	Sunbury	York	Queens	Kings	Westmorland	Albert
1986	27,925	25,384	29,938	32,716	22,792	33,919	30,879	34,781
1991	37,738	35,573	40,679	44,531	32,596	46,865	40,736	45,849
1996	38,079	38,682	41,968	47,297	33,478	50,616	43,213	48,440
Change	10,154	13,298	12,030	14,581	10,686	16,697	12,334	13,659
Average	34,580	33,213	37,528	41,514	29,622	43,800	38,276	43,023

3.1b Household Average Incomes in the Northern Counties

Household Incomes-North							
	Carleton	Victoria	Madawaska	Restigouche	Gloucester	Northumberland	Kent
1986	24,174	22,768	26,810	27,074	27,054	25,677	24,679
1991	35,922	32,321	34,612	35,465	34,684	36,796	32,906
1996	36,516	33,200	36,667	37,645	37,550	39,102	35,372
Change	12,342	10,432	9,857	10,571	10,496	13,425	10,693
Average	32,204	29,430	32,696	33,395	33,096	33,858	30,986

3.2a Male Average Incomes in the Southern Counties

Incomes-Males-South								
	St. John	Charlotte	Sunbury	York	Queens	Kings	Westmorland	Albert
1986	19,714	17,634	19,999	21,651	15,469	22,875	20,194	23,210
1991	26,533	23,444	26,816	28,593	22,631	31,113	26,223	29,255
1996	27,188	23,638	26,538	29,172	21,531	33,165	26,917	30,128
Change	7,474	6,004	6,539	7,521	6,062	10,290	6,723	6,918
Average	24,478	21,572	24,451	26,472	19,877	29,051	24,445	27,531

3.2b Male Average Incomes in the Northern Counties

Incomes-Males-North							
	Carleton	Victoria	Madawaska	Restigouche	Gloucester	Northumberland	Kent
1986	14,668	14,710	17,800	18,331	16,675	16,461	14,645
1991	23,381	20,645	22,329	23,073	21,332	23,611	19,570
1996	23,644	20,069	24,503	23,936	23,644	24,256	19,572
Change	8,976	5,359	6,703	5,605	6,969	7,795	4,927
Average	20,564	18,475	21,544	21,780	20,550	21,443	17,929

3.2c Female Average Incomes in the Southern Counties

Incomes-Females-South								
	St. John	Charlotte	Sunbury	York	Queens	Kings	Westmorland	Albert
1986	10,909	9,208	9,679	12,092	8,591	11,282	10,974	11,207
1991	14,865	13,543	13,082	16,580	11,982	15,177	15,025	15,014
1996	16,252	13,482	14,645	18,170	13,650	16,544	16,837	15,544
Change	5,343	4,274	4,966	6,078	5,059	5,262	5,863	4,337
Average	14,009	12,078	12,469	15,614	11,408	14,334	14,279	13,922

3.2d Female Average Incomes in the Northern Counties

Incomes-Females-North							
	Carleton	Victoria	Madawaska	Restigouche	Gloucester	Northumberland	Kent
1986	8,969	8,866	9,935	9,953	9,139	9,074	8,297
1991	12,688	12,697	13,162	13,219	12,468	12,497	11,641
1996	13,155	13,303	13,704	15,271	13,700	13,865	12,087
Change	4,186	4,437	3,769	5,318	4,561	4,791	3,790
Average	11,604	11,622	12,267	12,814	11,769	11,812	10,675

4.1a Net Migration in the Southern Counties

Net Migration-South 1987-1998								
	St. John	Charlotte	Sunbury	Queens	Kings	York	Westmorland	Albert
Intraprovincial	-7145	523	-1532	107	5321	4711	6390	219
Interprovincial	-3372	637	-3256	132	-684	-1201	1599	-597
External	-40	-105	-511	-20	-242	385	30	-86
Net Flow	-10557	1055	-5299	219	4395	3895	8019	-454

4.1b Net Migration in the Northern Counties

Net Migration-North 1987-1998							
	Northumberland	Carleton	Victoria	Madawaska	Restigouche	Gloucester	Kent
Intraprovincial	-1955	0	-184	-713	-2380	-2396	-991
Interprovincial	-1476	386	-41	-958	-1022	-1868	239
External	-227	-35	-44	-84	-56	-84	164
Net Flow	-3658	351	-269	-1755	-3458	-4348	-588

5.1 Shift-Share Analysis, New Brunswick 1986-1996

New Brunswick				
	Labour 1986	Labour 1996	Observed Growth	Growth Rate (%)
Total Employment	317315	352820	35505	11.19
Primary	25780	26145	365	1.42
Manufacturing	46440	45890	-550	-1.18
Construction	21600	23800	2200	10.19
Transport & Commun.	27915	29990	2075	7.43
Trade	54815	58595	3780	6.9
Financial Services	11665	12885	1220	10.46
Government	32190	29460	-2730	-8.48
Other Services	96910	126055	29145	30.07

5.2 Shift-Share Analysis, Total Employment 1991-1996

Total Employment								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	347390	352455	5065	1.46	5065	0	0	-23
Westmorland	57800	61230	3430	5.93	843	2587	2227	359
St. John	38810	35545	-3265	-8.41	566	-3831	-4281	450
Albert	13405	13785	380	2.83	195	185	83	102
Queens	5400	5690	290	5.37	79	211	286	-75
Kings	30190	31815	1625	5.38	440	1185	1092	93
York	44270	45430	1160	2.62	645	515	591	-77
Sunbury	12570	12800	230	1.83	183	47	734	-687
Charlotte	12645	13295	650	5.14	184	466	216	249
Kent	14510	15195	685	4.72	212	473	503	-30
Carleton	12435	13075	640	5.15	181	459	430	30
Northumberland	23365	22925	-440	-1.88	341	-781	-424	-356
Victoria	9155	9945	790	8.63	133	657	667	-9
Madawaska	16320	17105	785	4.81	238	547	621	-73
Gloucester	39765	38500	-1265	-3.18	580	-1845	-1841	-6
Restigouche	16760	16105	-655	-3.91	244	-899	-904	7

5.3 Shift-Share Analysis, Agriculture and Related Service Industries 1991-1996

Agriculture and Related Service Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	7865	8370	505	6.42	115	390	0	390
Westmorland	855	765	-90	-10.53	12	-102	-145	42
St. John	140	145	5	3.57	2	3	-4	7
Albert	220	210	-10	-4.55	3	-13	-24	11
Queens	265	195	-70	-26.42	4	-74	-87	13
Kings	1000	1120	120	12	15	105	56	50
York	915	1025	110	12.02	13	97	51	45
Sunbury	240	255	15	6.25	3	12	0	12
Charlotte	200	350	150	75	3	147	137	10
Kent	335	405	70	20.9	5	65	48	17
Carleton	1410	1280	-130	-9.22	21	-151	-221	70
Northumberland	245	345	100	40.82	4	96	84	12
Victoria	795	890	95	11.95	12	83	44	39
Madawaska	475	650	175	36.84	7	168	145	24
Gloucester	480	400	-80	-16.67	7	-87	-111	24
Restigouche	290	335	45	15.52	4	41	26	14

5.4 Shift-Share Analysis, Fishing and Trapping Industries 1991-1996

Fishing and Trapping Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	4765	5965	1200	25.18	69	1131	0	1131
Westmorland	335	415	80	23.88	5	75	-4	79
St. John	100	210	110	110	1	109	85	24
Albert	75	55	-20	-26.67	1	-21	-39	18
Queens	35	25	-10	-28.57	1	-11	-19	8
Kings	80	45	-35	-43.75	1	-36	-55	19
York	45	130	85	188.89	1	84	74	11
Sunbury	20	35	15	75	0	15	10	5
Charlotte	1195	1190	-5	-0.42	17	-22	-306	284
Kent	735	825	90	12.24	11	79	-95	174
Carleton	10	75	65	650	0	65	62	2
Northumberland	410	665	255	62.2	6	249	152	97
Victoria	15	40	25	166.67	0	25	21	4
Madawaska	15	35	20	133.33	0	20	16	4
Gloucester	1635	2100	465	28.44	24	441	53	388
Restigouche	60	120	60	100	1	59	45	14

5.5 Shift-Share Analysis, Logging and Forestry Industries 1991-1996

Logging and Forestry Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	8470	7545	-925	-10.92	123	-1048	0	-1048
Westmorland	385	345	-40	-10.39	6	-46	2	-48
St. John	195	120	-75	-38.46	3	-78	-54	-24
Albert	155	100	-55	-35.48	2	-57	-38	-19
Queens	355	365	10	2.82	5	5	49	-44
Kings	425	500	75	17.65	6	69	121	-53
York	1245	1130	-115	-9.24	18	-133	21	-154
Sunbury	200	255	55	27.5	3	52	77	-25
Charlotte	200	150	-50	-25	3	-53	-28	-25
Kent	350	430	80	22.86	5	75	118	-43
Carleton	365	370	5	1.37	5	0	45	-45
Northumberland	1495	1240	-255	-17.06	22	-277	-92	-185
Victoria	605	420	-185	-30.58	9	-194	-119	-75
Madawaska	750	565	-185	-24.67	11	-196	-103	-93
Gloucester	870	775	-95	-10.92	13	-108	0	-108
Restigouche	875	780	-95	-10.86	13	-108	1	-108

5.6 Shift-Share Analysis, Mining (including Milling) and Oil Well Industries 1991-1996

Mining (including Milling) and Oil Well Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	4540	4085	-455	-10.02	66	-521	0	-521
Westmorland	145	155	10	6.9	2	8	25	-17
St. John	60	145	85	141.67	1	84	91	-7
Albert	30	55	25	83.33	0	25	28	-3
Queens	255	170	-85	-33.33	4	-89	-59	-29
Kings	1045	750	-295	-28.23	15	-310	-190	-120
York	65	120	55	84.62	1	54	62	-7
Sunbury	90	25	-65	-72.22	1	-66	-56	-10
Charlotte	15	20	5	33.33	0	5	7	-2
Kent	175	165	-10	-5.71	3	-13	8	-20
Carleton	10	0	-10	-100	0	-10	-9	-1
Northumberland	425	620	195	45.88	6	189	238	-49
Victoria	20	10	-10	-50	0	-10	-8	-2
Madawaska	0	0	0	0	0	0	0	0
Gloucester	2070	1790	-280	-13.53	30	-310	-73	-238
Restigouche	125	60	-65	-52	2	-67	-52	-14

5.7 Shift-Share Analysis, Manufacturing Industries 1991-1996

Manufacturing Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	47365	45740	-1625	-3.43	691	-2316	0	-2316
Westmorland	6235	7100	865	13.87	91	774	1079	-305
St. John	6375	4355	-2020	-31.69	93	-2113	-1801	-312
Albert	1090	1120	30	2.75	16	14	67	
Queens	645	645	0	0	9	-9	22	-32
Kings	4200	4050	-150	-3.57	61	-211	-6	-205
York	2775	2750	-25	-0.9	40	-65	70	-136
Sunbury	630	495	-135	-21.43	9	-144	-113	-31
Charlotte	3005	3325	320	10.65	44	276	423	-147
Kent	2625	2795	170	6.48	38	132	260	-128
Carleton	2425	2415	-10	-0.41	35	-45	73	-119
Northumberland	3400	3405	5	0.15	50	-45	122	-166
Victoria	1325	1515	190	14.34	19	171	235	-65
Madawaska	3530	3800	270	7.65	51	219	391	-173
Gloucester	6800	5540	-1260	-18.53	99	-1359	-1027	-332
Restigouche	2305	2430	125	5.42	34	91	204	-113

5.8 Shift-Share Analysis, Construction Industries 1991-1996

Construction Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	24230	23845	-385	-1.59	353	-738	0	-738
Westmorland	3710	3755	45	1.21	54	-9	104	-113
St. John	2315	2255	-60	-2.59	34	-94	-23	-71
Albert	625	790	165	26.4	9	156	175	-19
Queens	475	480	5	1.05	7	-2	13	-14
Kings	2190	2200	10	0.46	32	-22	45	-67
York	2920	2840	-80	-2.74	43	-123	-34	-89
Sunbury	685	565	-120	-17.52	10	-130	-109	-21
Charlotte	830	705	-125	-15.06	12	-137	-112	-25
Kent	1665	1720	55	3.3	24	31	81	-51
Carleton	620	840	220	35.48	9	211	230	-19
Northumberland	1895	1910	15	0.79	28	-13	45	-58
Victoria	790	620	-170	-21.52	12	-182	-157	-24
Madawaska	995	1035	40	4.02	15	25	56	-30
Gloucester	3385	3115	-270	-7.98	49	-319	-216	-103
Restigouche	1130	1015	-115	-10.18	16	-131	-97	-34

5.9 Shift-Share Analysis, Transportation and Storage Industries 1991-1996

Transportation and Storage Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	16465	17060	595	3.61	240	355	0	355
Westmorland	4085	4295	210	5.14	60	150	62	88
St. John	1720	1870	150	8.72	25	125	88	37
Albert	1290	1330	40	3.1	19	21	-7	28
Queens	320	345	25	7.81	5	20	13	7
Kings	1215	1485	270	22.22	18	252	226	26
York	1435	1310	-125	-8.71	21	-146	-177	31
Sunbury	430	470	40	9.3	6	34	24	9
Charlotte	645	675	30	4.65	9	21	7	14
Kent	630	650	20	3.17	9	11	-3	14
Carleton	895	1035	140	15.64	13	127	108	19
Northumberland	965	865	-100	-10.36	14	-114	-135	21
Victoria	420	515	95	22.62	6	89	80	9
Madawaska	755	675	-80	-10.6	11	-91	-107	16
Gloucester	900	865	-35	-3.89	13	-48	-68	19
Restigouche	760	675	-85	-11.18	11	-96	-112	16

5.10 Shift-Share Analysis, Communications and Other Utilities 1991-1996

Communications and Other Utilities								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	11920	12930	1010	8.47	174	836	0	836
Westmorland	1535	2620	1085	70.68	22	1063	955	108
St. John	2135	1900	-235	-11.01	31	-266	-416	150
Albert	470	615	145	30.85	7	138	105	33
Queens	220	185	-35	-15.91	3	-38	-54	15
Kings	1550	1720	170	10.97	23	147	39	109
York	2215	2215	0	0	32	-32	-188	155
Sunbury	395	405	10	2.53	6	4	-23	28
Charlotte	405	475	70	17.28	6	64	36	28
Kent	280	325	45	16.07	4	41	21	20
Carleton	340	235	-105	-30.88	5	-110	-134	24
Northumberland	490	440	-50	-10.2	7	-57	-92	34
Victoria	230	185	-45	-19.57	3	-48	-64	16
Madawaska	270	260	-10	-3.7	4	-14	-33	19
Gloucester	850	890	40	4.71	12	28	-32	60
Restigouche	535	460	-75	-14.02	8	-83	-120	38

5.11 Shift-Share Analysis, Wholesale Trade Industries 1991-1996

Wholesale Trade Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	13670	13755	85	0.62	199	-114	0	-114
Westmorland	3415	3435	20	0.59	50	-30	-1	-29
St. John	1805	1725	-80	-4.43	26	-106	-91	-15
Albert	1070	1185	115	10.75	16	99	108	-9
Queens	155	140	-15	-9.68	2	-17	-16	-1
Kings	1435	1495	60	4.18	21	39	51	-12
York	1765	1480	-285	-16.15	26	-311	-296	-15
Sunbury	300	330	30	10	4	26	28	-3
Charlotte	200	290	90	45	3	87	89	-2
Kent	505	490	-15	-2.97	7	-22	-18	-4
Carleton	515	630	115	22.33	8	107	112	-4
Northumberland	520	570	50	9.62	8	42	47	-4
Victoria	160	250	90	56.25	2	88	89	-1
Madawaska	345	485	140	40.58	5	135	138	-3
Gloucester	1085	1000	-85	-7.83	16	-101	-92	-9
Restigouche	395	250	-145	-36.71	6	-151	-147	-3

5.12 Shift-Share Analysis, Retail Trade Industries 1991-1996

Retail Trade Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	46310	44745	-1565	-3.38	675	-2240	0	-2240
Westmorland	8320	7905	-415	-4.99	121	-536	-134	-402
St. John	5575	4790	-785	-14.08	81	-866	-597	-270
Albert	2115	1965	-150	-7.09	31	-181	-79	-102
Queens	565	515	-50	-8.85	8	-58	-31	-27
Kings	4110	4010	-100	-2.43	60	-160	39	-199
York	5540	5735	195	3.52	81	114	382	-268
Sunbury	1355	1375	20	1.48	20	0	66	-66
Charlotte	1135	1290	155	13.66	17	138	193	-55
Kent	1855	1645	-210	-11.32	27	-237	-147	-90
Carleton	1495	1435	-60	-4.01	22	-82	-9	-72
Northumberland	3260	3110	-150	-4.6	48	-198	-40	-158
Victoria	1040	1310	270	25.96	15	255	305	-50
Madawaska	2080	2175	95	4.57	30	65	165	-101
Gloucester	5560	5385	-175	-3.15	81	-256	13	-269
Restigouche	2305	2100	-205	-8.89	34	-239	-127	-112

5.13 Shift-Share Analysis, Financial Services and Insurance Industries 1991-1996

Financial Services and Insurance Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	9325	8800	-525	-5.63	136	-661	0	-661
Westmorland	1865	2010	145	7.77	27	118	250	-132
St. John	1190	945	-245	-20.59	17	-262	-178	-84
Albert	650	540	-110	-16.92	9	-119	-73	-46
Queens	110	95	-15	-13.64	2	-17	-9	-8
Kings	1125	975	-150	-13.33	16	-166	-87	-80
York	1055	895	-160	-15.17	15	-175	-101	-75
Sunbury	290	170	-120	-41.38	4	-124	-104	-21
Charlotte	195	250	55	28.21	3	52	66	-14
Kent	290	295	5	1.72	4	1	21	-21
Carleton	245	275	30	12.24	4	26	44	-17
Northumberland	345	370	25	7.25	5	20	44	-24
Victoria	200	165	-35	-17.5	3	-38	-24	-14
Madawaska	280	385	105	37.5	4	101	121	-20
Gloucester	1125	1105	-20	-1.78	16	-36	43	-80
Restigouche	360	325	-35	-9.72	5	-40	-15	-26

5.14 Shift-Share Analysis, Insurance Agent and Real Estate Broker Industries 1991-1996

Insurance Agent and Real Estate Broker Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	3640	4085	445	12.23	53	392	0	392
Westmorland	620	780	160	25.81	9	151	84	67
St. John	530	440	-90	-16.98	8	-98	-155	57
Albert	140	325	185	132.14	2	183	168	15
Queens	50	65	15	30	1	14	9	5
Kings	440	470	30	6.82	6	24	-24	47
York	770	765	-5	-0.65	11	-16	-99	83
Sunbury	130	105	-25	-19.23	2	-27	-41	14
Charlotte	80	50	-30	-37.5	1	-31	-40	9
Kent	95	100	5	5.26	1	4	-7	10
Carleton	115	130	15	13.04	2	13	1	12
Northumberland	135	165	30	22.22	2	28	13	15
Victoria	40	30	-10	-25	1	-11	-15	4
Madawaska	160	220	60	37.5	2	58	40	17
Gloucester	255	235	-20	-7.84	4	-24	-51	27
Restigouche	80	205	125	156.25	1	124	115	9

5.15 Shift-Share Analysis, Business Services 1991-1996

Business Services								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	10890	14025	3135	28.79	159	2976	0	2976
Westmorland	2080	2655	575	27.64	30	545	-24	568
St. John	1660	1935	275	16.57	24	251	-203	454
Albert	550	650	100	18.18	8	92	-58	150
Queens	90	135	45	50	1	44	19	25
Kings	1060	1550	490	46.23	15	475	185	290
York	2470	3165	695	28.14	36	659	-16	675
Sunbury	345	355	10	2.9	5	5	-89	94
Charlotte	295	410	115	38.98	4	111	30	81
Kent	205	295	90	43.9	3	87	31	56
Carleton	230	360	130	56.52	3	127	64	63
Northumberland	380	505	125	32.89	6	119	16	104
Victoria	145	175	30	20.69	2	28	-12	40
Madawaska	185	420	235	127.03	3	232	182	51
Gloucester	890	1070	180	20.22	13	167	-76	243
Restigouche	305	345	40	13.11	4	36	-48	83

5.16 Shift-Share Analysis, Government Services 1991-1996

Government Services								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	35825	29460	-6365	-17.77	522	-6887	0	-6887
Westmorland	5615	4510	-1105	-19.68	82	-1187	-107	-1079
St. John	2960	2195	-765	-25.84	43	-808	-239	-569
Albert	1180	865	-315	-26.69	17	-332	-105	-227
Queens	555	535	-20	-3.6	8	-28	79	-107
Kings	2035	1545	-490	-24.08	30	-520	-128	-391
York	7295	6445	-850	-11.65	106	-956	446	-1402
Sunbury	4720	4575	-145	-3.07	69	-214	694	-907
Charlotte	925	830	-95	-10.27	13	-108	69	-178
Kent	1270	875	-395	-31.1	19	-414	-169	-244
Carleton	710	635	-75	-10.56	10	-85	51	-136
Northumberland	2785	1590	-1195	-42.91	41	-1236	-700	-535
Victoria	590	500	-90	-15.25	9	-99	15	-113
Madawaska	1115	1085	-30	-2.69	16	-46	168	-214
Gloucester	2765	2235	-530	-19.17	40	-570	-39	-532
Restigouche	1305	1040	-265	-20.31	19	-284	-33	-251

3.17 Shift-Share Analysis, Educational Services 1991-1996

Educational Services								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	25470	26145	675	2.65	371	304	0	304
Westmorland	4610	4640	30	0.65	67	-37	-92	55
St. John	2095	1870	-225	-10.74	31	-256	-281	25
Albert	825	870	45	5.45	12	33	23	10
Queens	285	370	85	29.82	4	81	77	3
Kings	2125	2255	130	6.12	31	99	74	25
York	4230	4520	290	6.86	62	228	178	50
Sunbury	640	605	-35	-5.47	9	-44	-52	8
Charlotte	820	745	-75	-9.15	12	-87	-97	10
Kent	1010	1065	55	5.45	15	40	28	12
Carleton	750	730	-20	-2.67	11	-31	-40	9
Northumberland	1720	1810	90	5.23	25	65	44	21
Victoria	755	770	15	1.99	11	4	-5	9
Madawaska	1355	1255	-100	-7.38	20	-120	-136	16
Gloucester	2920	3260	340	11.64	43	297	263	35
Restigouche	1330	1380	50	3.76	19	31	15	16

3.18 Shift-Share Analysis, Health and Social Services 1991-1996

Health and Social Services Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	33845	37670	3825	11.3	493	3332	0	3332
Westmorland	5820	6885	1065	18.3	85	980	407	573
St. John	4645	4425	-220	-4.74	68	-288	-745	457
Albert	1160	1305	145	12.5	17	128	14	114
Queens	355	645	290	81.69	5	285	250	35
Kings	2975	3575	600	20.17	43	557	264	293
York	3815	4245	430	11.27	56	374	-1	376
Sunbury	700	1120	420	60	10	410	341	69
Charlotte	1095	975	-120	-10.96	16	-136	-244	108
Kent	975	1280	305	31.28	14	291	195	96
Carleton	1045	1110	65	6.22	15	50	-53	103
Northumberland	1920	2350	430	22.4	28	402	213	189
Victoria	940	1275	335	35.64	14	321	229	93
Madawaska	2125	1925	-200	-9.41	31	-231	-440	209
Gloucester	3625	3975	350	9.66	53	297	-60	357
Restigouche	2650	2580	-70	-2.64	39	-109	-369	261

5.19 Shift-Share Analysis, Accomodation, Food and Beverage Industries 1991-1996

Accomodation, Food and Beverage Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	21180	23580	2400	11.33	309	2091	0	2091
Westmorland	4380	4600	220	5.02	64	156	-276	432
St. John	2735	2950	215	7.86	40	175	-95	270
Albert	700	805	105	15	10	95	26	69
Queens	275	465	190	69.09	4	186	159	27
Kings	1350	1690	340	25.19	20	320	187	133
York	2685	3100	415	15.46	39	376	111	265
Sunbury	640	860	220	34.38	9	211	147	63
Charlotte	835	915	80	9.58	12	68	-15	82
Kent	620	865	245	39.52	9	236	175	61
Carleton	625	600	-25	-4	9	-34	-96	62
Northumberland	1580	1530	-50	-3.16	23	-73	-229	156
Victoria	555	645	90	16.22	8	82	27	55
Madawaska	1070	1220	150	14.02	16	134	29	106
Gloucester	2130	2235	105	4.93	31	74	-136	210
Restigouche	1000	1100	100	10	15	85	-13	99

5.20 Shift-Share Analysis, Other Service Industries 1991-1996

Other Services Industries								
	Labour 1991	Labour 1996	Observed Growth	Growth Rate (%)	At Systemic Rate	Shift (Difference)	Regional Share	Industry Mix
New Brunswick	21625	24635	3010	13.92	315	2695	0	2695
Westmorland	3790	4360	570	15.04	55	515	42	472
St. John	2575	3270	695	26.99	38	657	337	321
Albert	1060	1000	-60	-5.66	15	-75	-208	132
Queens	390	315	-75	-19.23	6	-81	-129	49
Kings	1830	2380	550	30.05	27	523	295	228
York	3030	3560	530	17.49	44	486	108	378
Sunbury	760	800	40	5.26	11	29	-66	95
Charlotte	570	650	80	14.04	8	72	1	71
Kent	890	970	80	8.99	13	67	-44	111
Carleton	630	920	290	46.03	9	281	202	79
Northumberland	1395	1435	40	2.87	20	20	-154	174
Victoria	530	630	100	18.87	8	92	26	66
Madawaska	805	915	110	13.66	12	98	-2	100
Gloucester	2420	2525	105	4.34	35	70	-232	302
Restigouche	950	905	-45	-4.74	14	-59	-177	118

6.1 Shift-Share Analysis, Total Change in Total Employment

Total Employment		
	Provincial Growth	Total Change
Westmorland	3430	844
St. John	567	-2814
Albert	196	381
Queens	19	230
Kings	440	1625
York	646	1160
Sunbury	184	231
Charlotte	185	650
Kent	212	685
Carleton	182	642
Northumberland	341	-439
Victoria	134	792
Madawaska	238	786
Gloucester	581	-1266
Restigouche	245	-652

6.2 Shift-Share Analysis, Total Change in Agriculture and Related Services

Agriculture		
	Provincial Growth	Total Change
Westmorland	55	402
St. John	9	12
Albert	14	1
Queens	17	-57
Kings	64	170
York	59	155
Sunbury	15	27
Charlotte	13	160
Kent	22	87
Carleton	91	-60
Northumberland	16	112
Victoria	51	134
Madawaska	31	200
Gloucester	31	-56
Restigouche	19	59

6.3 Shift-Share Analysis, Total Change in Fishing and Trapping Industries

Fishing	Provincial Growth	Total Change
Westmorland	84	159
St. John	25	134
Albert	19	-2
Queens	9	-2
Kings	20	-16
York	11	107
Sunbury	5	20
Charlotte	301	279
Kent	185	264
Carleton	3	-148
Northumberland	103	352
Victoria	4	29
Madawaska	4	24
Gloucester	412	853
Restigouche	73	132

6.4 Shift-Share Analysis, Total Change in Logging and Forestry Industries

Forestry	Provincial Growth	Total Change
Westmorland	-42	-88
St. John	-21	88
Albert	-17	-74
Queens	-39	-34
Kings	-46	22
York	-136	-269
Sunbury	-22	30
Charlotte	-22	-75
Kent	-38	37
Carleton	-40	-40
Northumberland	-163	-440
Victoria	-66	-260
Madawaska	-82	-278
Gloucester	-95	-203
Restigouche	-96	-203

6.5 Shift-Share Analysis, Total Change in Mining, Milling and Oil Well Industries

Mining		
	Provincial Growth	Total Change
Westmorland	-15	-7
St. John	-6	78
Albert	-3	22
Queens	-26	-114
Kings	-105	-415
York	-7	48
Sunbury	-9	-75
Charlotte	-2	3
Kent	-18	-30
Carleton	-1	-11
Northumberland	-43	146
Victoria	-2	-12
Madawaska	-1	-11
Gloucester	-207	-518
Restigouche	-13	-79

6.6 Shift-Share Analysis, Total Change in Manufacturing Industries

Manufacturing		
	Provincial Growth	Total Change
Westmorland	-214	560
St. John	-219	-2332
Albert	-37	-23
Queens	-22	-32
Kings	-144	-355
York	-95	-161
Sunbury	-22	-166
Charlotte	-103	173
Kent	-90	42
Carleton	-83	-129
Northumberland	-117	-161
Victoria	-46	124
Madawaska	-121	97
Gloucester	-233	-1592
Restigouche	-79	12

6.7 Shift-Share Analysis, Total Change in Construction Industries

Construction		
	Provincial Growth	Total Change
Westmorland	-59	-68
St. John	-37	-131
Albert	-10	146
Queens	-10	-32
Kings	-35	-57
York	-46	-169
Sunbury	-11	-141
Charlotte	-13	-150
Kent	-26	4
Carleton	-10	201
Northumberland	-30	-43
Victoria	-13	-194
Madawaska	-16	10
Gloucester	-54	-373
Restigouche	-18	-149

6.8 Shift-Share Analysis, Total Change in Transportation and Storage Industries

Transportation		
	Provincial Growth	Total Change
Westmorland	148	1211
St. John	62	187
Albert	47	68
Queens	12	32
Kings	44	296
York	52	-94
Sunbury	16	49
Charlotte	23	44
Kent	23	34
Carleton	32	159
Northumberland	35	-79
Victoria	15	95
Madawaska	27	-64
Gloucester	33	-16
Restigouche	27	-69

6.9 Shift-Share Analysis, Total Change in Communications and Other Utilities

Communications		
	Provincial Growth	Total Change
Westmorland	130	1193
St. John	181	-85
Albert	40	178
Queens	19	-20
Kings	130	192
York	186	19
Sunbury	33	38
Charlotte	34	98
Kent	24	65
Carleton	29	-81
Northumberland	41	-17
Victoria	19	-29
Madawaska	23	9
Gloucester	72	100
Restigouche	45	-37

6.10 Shift-Share Analysis, Total Change in Wholesale Trade

Wholesale Trade		
	Provincial Growth	Total Change
Westmorland	21	-9
St. John	11	-95
Albert	7	-10
Queens	1	-16
Kings	9	48
York	11	-300
Sunbury	2	27
Charlotte	1	88
Kent	3	-19
Carleton	3	-78
Northumberland	3	46
Victoria	1	89
Madawaska	2	137
Gloucester	7	-94
Restigouche	3	-147

6.11 Shift-Share Analysis, Total Change in Retail Trade

Retail Trade		
	Provincial Growth	Total Change
Westmorland	-281	-817
St. John	-188	-1055
Albert	-72	-253
Queens	-19	-77
Kings	-139	-299
York	-187	-73
Sunbury	-46	-46
Charlotte	-38	100
Kent	-63	-300
Carleton	-51	-132
Northumberland	-110	8
Victoria	-35	220
Madawaska	-70	-6
Gloucester	-188	-444
Restigouche	-78	-317

6.12 Shift-Share Analysis, Total Change in Financial Services and Insurance Industries

Financial Services		
	Provincial Growth	Total Change
Westmorland	-105	13
St. John	-67	-329
Albert	-37	-156
Queens	-6	-23
Kings	-63	-230
York	-59	-235
Sunbury	-16	-141
Charlotte	-11	41
Kent	-16	-16
Carleton	-14	13
Northumberland	-19	1
Victoria	-11	-49
Madawaska	-16	85
Gloucester	-63	-100
Restigouche	-20	-61

6.13 Shift-Share Analysis, Total Change in Insurance Agent and Real Estate Broker Industries

Insurance and Real Estate		
	Provincial Growth	Total Change
Westmorland	76	227
St. John	65	-33
Albert	17	200
Queens	6	20
Kings	54	77
York	94	78
Sunbury	16	-11
Charlotte	10	-21
Kent	12	15
Carleton	14	41
Northumberland	16	44
Victoria	5	-33
Madawaska	20	77
Gloucester	31	-6
Restigouche	10	134

6.14 Shift-Share Analysis, Total Change in Business Services

Business Services		
	Provincial Growth	Total Change
Westmorland	599	1143
St. John	478	729
Albert	158	250
Queens	26	70
Kings	305	780
York	711	1370
Sunbury	99	104
Charlotte	85	196
Kent	59	146
Carleton	66	193
Northumberland	109	229
Victoria	42	70
Madawaska	53	286
Gloucester	256	423
Restigouche	88	123

6.15 Shift-Share Analysis, Total Change in Government Services

Government Services		
	Provincial Growth	Total Change
Westmorland	-998	-2184
St. John	-526	-1334
Albert	-210	-542
Queens	-99	-127
Kings	-362	-881
York	-1296	-2252
Sunbury	-839	-1052
Charlotte	-164	-273
Kent	-226	-639
Carleton	-126	-211
Northumberland	-495	-1730
Victoria	-105	-203
Madawaska	-198	-244
Gloucester	-491	-1062
Restigouche	-232	-516

6.16 Shift-Share Analysis, Total Change in Educational Services

Education		
	Provincial Growth	Total Change
Westmorland	122	85
St. John	56	-200
Albert	22	55
Queens	8	88
Kings	56	155
York	112	284
Sunbury	17	-27
Charlotte	22	-65
Kent	27	67
Carleton	20	-11
Northumberland	46	85
Victoria	20	24
Madawaska	36	-84
Gloucester	77	375
Restigouche	35	34

6.17 Shift-Share Analysis, Total Change in Health and Social Services

Health		
	Provincial Growth	Total Change
Westmorland	658	1638
St. John	525	237
Albert	131	259
Queens	40	325
Kings	336	893
York	431	806
Sunbury	79	489
Charlotte	124	-12
Kent	110	401
Carleton	118	168
Northumberland	217	619
Victoria	106	428
Madawaska	240	9
Gloucester	410	707
Restigouche	300	192

6.18 Shift-Share Analysis, Total Change in Accomodation, Food and Beverage Industries

Accomodation, Food & Beverage		
	Provincial Growth	Total Change
Westmorland	496	652
St. John	310	485
Albert	79	174
Queens	31	217
Kings	153	473
York	304	680
Sunbury	73	283
Charlotte	95	162
Kent	70	306
Carleton	71	54
Northumberland	173	121
Victoria	63	156
Madawaska	121	247
Gloucester	241	411
Restigouche	113	199

6.19 Shift-Share Analysis, Total Change in Other Service Industries

Other Services	Provincial Growth	Total Change
Westmorland	528	1042
St. John	358	1016
Albert	148	72
Queens	54	-26
Kings	255	778
York	422	908
Sunbury	106	135
Charlotte	79	151
Kent	124	191
Carleton	88	369
Northumberland	194	214
Victoria	74	166
Madawaska	112	210
Gloucester	337	407
Restigouche	132	73

7.1 New Brunswick Call Centres

New Brunswick Call Centres	
Westmorland	Atlantic Lottery BBM/Comquest Blue Cross Camco Canadian Food Inspection Agency Canadian Pacific Hotels and Resorts Carlson Wagonlit Group Ltd. CCS Clinidata CN Rail Dun & Bradstreet Information Services EPC Industries Limited Fundy Communications Health Connect ICT Canada Marketing (2 centres) Imperial Oil ITS Canada Labatt MITI Oracle Assistance Services Pepsi-Cola Canada Purolator Courier Royal Direct Call Centre Sun Life of Canada United Parcel Services Via Rail Canada Inc. Zurich Canada

7.1 New Brunswick Call Centres (Continued)

St. John	<p>Air Canada Canada Customs and Revenue Cendant Canada Inc. Client Logic CorporaTel Director's Choice Genesys Canada The Hub Group IBM Canada Ltd. Irving Customer Contact Centre Liberty Mutual Insurance of Canada MediTrust NB Tel Nortel Red Cross Client Services RMH Teleservices International TD Canada Trust Xerox</p>
York	<p>Canada Post Cendant Canada Inc. Delta Hotels and Resorts Marriott Reservations Canada MITI NB Power Star Choice Unisys United Parcel Services</p>
Gloucester	<p>Canadian Facts Canjet Employment Insurance Telecentre Income Security Programs Pollara Social Insurance Registration Stellaris Communications</p>
Carleton	<p>BDC Direct Day and Ross McCain Foods Canada TBC Consulting Group Inc.</p>
Restigouche	<p>Fulford Enterprises Service New Brunswick Tourism Call Centre</p>

7.1 New Brunswick Call Centres (Continued)

Northumberland	Canadian Firearms Registry ICT Canada Marketing MLHL
Kings	Virtual-Agent Services
Charlotte	Connect North America Corporation
Madawaska	Primus Canada
Sunbury	RMH Teleservices International
Albert	Furlford Enterprises

Source: Business New Brunswick, 2000.