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Strategies For NL's Shrinking Workforce: Regional Approaches for Regional Impacts

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Abstract

The report examines potential impacts of demographic decline on regions of Newfoundland and Labrador in the current and subsequent decade. Between now and 2030, the province will see a rapid aging of its population and a significant decline in the number of people available for work. A shrinking workforce will make it difficult for the province to maintain the current level of economic activity without major improvement in labour productivity and the adoption of new technology. To provide an estimate of the size of labour force shortfalls across the province, we first identify five large regions that cover the entire province. For each region, measures of current levels of employment by sector are developed as a proxy for the level of economic activity at the beginning of this decade. We then provide projections of the future labour force for each region. The gap between the two measures provides an estimate of the potential worker shortfall. While all regions will experience a shortfall, some regions face a much higher relative decline than do others, which suggests they will have a much harder time maintaining current levels of economic activity. Because the province has both a low labour force participation rate, relative to other provinces in Canada, and relatively high unemployment rates, we examine the impact of increasing participation rates and reducing unemployment rates to the Canadian average by 2030. Once again, regional differences are significant, and the impact is larger in those regions that now have the lowest participation rates and highest unemployment rates.

While the current focus in the province is on improving fiscal conditions at the provincial level, this will be insufficient to ensure a prosperous future. However, improved provincial finances will be needed to fund the investments required to deal with demographic decline. These will include: a significant reform of skill development programs to ensure a more productive labour force; restructuring of public services to provide better elder care; a sound education for a smaller number of students; investments in new technologies to make firms in the province more competitive; and better matching procedures to connect workers with jobs. Crucially, because there are such significant differences among the five regions we define, in terms of current types of economic activity, population dynamics and future economic opportunities, different types of investment will be required across the province. It is unlikely that the provincial government will have the capacity to effectively implement all the policies needed to address these diverse regional needs, even if current fiscal conditions improve. Thus we suggest that a significant devolution of responsibility, authority and financial resources to a new level of regional government will be required if Newfoundland and Labrador is to effectively manage the necessary transitions.

Introduction

The current fiscal situation of the province is challenging, as was made clear in the Report of the Premier's Economic Recovery Team, *The Big Reset*, released in May 2021. The report concentrates on the need for reframing the provincial budget to recognize revenue limitations in a changing environment where the province can no longer sustain public services as they are currently delivered. The analysis in this report provides a different and complementary perspective, as it focuses on the sub-provincial economy and the coming twin challenges caused by economic restructuring and a rapidly shrinking labour force. Our contention is that the fiscal crisis is part of a larger problem that will require major adjustments across the entire province; and, because different regions of the province face distinct opportunities and challenges, a single province-wide approach managed from the Confederation Building cannot be effective. Resolving budget problems is vital, but attaining economic prosperity for all of Newfoundland and Labrador will require a devolution of authority, responsibility and funding to implement new region-specific development approaches.

The future prosperity of Newfoundland and Labrador will be determined by multiple factors, but a central one is improved labour market outcomes. Labour markets capture both the types of employment opportunities available and the share of the population that is actually working. Roughly speaking, the structure of the economy—the types of private businesses and the number of public sector jobs—determines employment opportunities, while the number of people seeking work and their skill levels determine the number of people employed. Although labour market analysis can be carried out for the province, this approach does not recognize the diversity of economic opportunities, nor the significant differences in attributes of regional labour markets across a province as large and heterogeneous as Newfoundland and Labrador.

"The different regions of the province face distinct opportunities and challenges, which a single province-wide approach cannot address. Resolving budget problems is vital, but attaining economic prosperity for all of Newfoundland and Labrador will require a devolution of authority and responsibility and funding to implement new region-specific development approaches."

This report provides a regional perspective on projected labour market outcomes over the current decade. In this period the population will age, with births and net in-migration projected to be less than deaths, even as older people live longer – in short, there will be demographic decline. Demographic decline has clear implications for the labour force and for the demand for specific types of public services. Over time, as the labour force replacement ratio shrinks, because there are fewer young people entering work than there are those retiring, the supply of workers will decrease. Similarly, as the youth dependency ratio, the share of children below working age in the population, also declines, the old age dependency

ratio, the share of people in the population above retirement age, will increase. This has important implications for government services, as there will be less demand for schools and more demand for support for seniors.

Although the aggregate effect of demographic decline for the province is well known, the specific patterns of change will vary considerably across the regions, with some regions experiencing effects sooner than others, and some regions experiencing smaller absolute changes, but larger relative changes. In general, those regions that currently have the weakest local economies, with low levels of employment and the smallest current labour force, will have the largest percentage declines in the number of workers; however, because their populations are small, they will experience a smaller decline in the actual number of workers. With fewer workers, the level of economic activity in a region will decrease; a number of other factors will determine by how much. Labour market outcomes also depend on the demand for workers, which is largely determined by the types of employer in a labour market. The current mix of business types in a region provides some indication of the types of economic activity and their related employment levels that can be expected in the future. Various assumptions about firms' need for workers, the mix of firms and the number and skills of workers will alter the impact of demographic decline on regions. Each set of assumptions in turn leads to a different scenario.

In this current study, we examine a relatively simple scenario. It assumes that current levels of output are desired in the future with no change in the mix of industries or in the amount of labour required to produce it – that is, we project the status quo. We also assume that the current regional share of production remains the same to capture the spatial effects of demographic decline. We then project demographic trends to construct the likely future labour force by region; we can then show labour force shortfalls by region and industry sectors. This scenario, while hugely unrealistic, provides a region-specific estimate of the magnitude of the forecast worker gap by industry type. To capture a simple adaptation, we assume that labour force participation rates in the province adjust from their current levels to the Canadian national average and unemployment rates correspondingly decline to the Canadian average. This provides a significant augmentation of the number of workers in some, but not all, regions and reduces the worker shortfall.

More realistic scenarios are required before potential policies can be developed and the model structure currently in place at the Harris Centre's Regional Analytics Laboratory (RAnLab) is capable of examining their effects. These models will require making critical assumptions about: how workers might respond to different incentives; which economic sectors are most likely to adapt to demographic decline; and, crucially, how the provincial government will alter funding for key public services across regions. These services include health care, education, public safety, municipal assistance and transportation. Other important adjustments could include increasing the number of immigrant workers, increasing labour force participation rates especially for females, extending the working age before retirement, or reducing the number of people who currently receive Employment Insurance benefits as an incentive to shift their work decisions. Responses that are somewhat more complex involve adjusting the demand for workers by altering the mix of industries in a region. This could involve shrinking or eliminating

low wage industries, to reduce the role of those least able to pay higher wages, or increasing the relative role of those best able to substitute capital for labour, or shrinking the level of firm activity to restore an equilibrium between labour supply and demand.

The Provincial Economy: A Historical Context

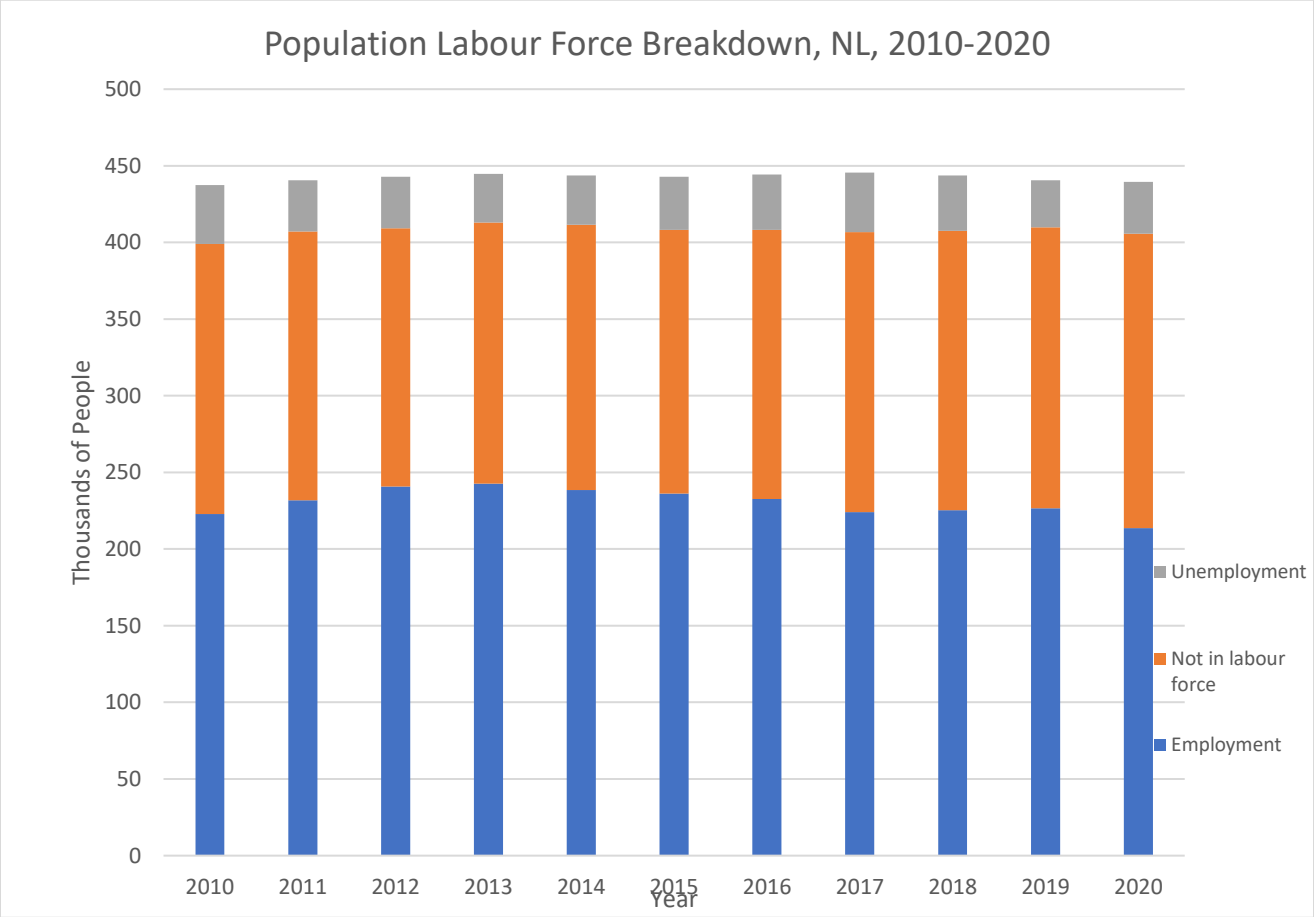
Newfoundland and Labrador (NL) has the second smallest provincial economy in Canada, and the island of Newfoundland is physically separate from the rest of the country, which imposes a distinct set of constraints. While it is the part of Canada closest to Europe, this is far less of an advantage in the 21st century than it was in earlier times. In a North American context, NL is far from the population centres that are the major sources of economic and social activity, and the province is only weakly attached to the continent spanning trade flows that link Canada, Mexico and the United States.

For centuries, the economy of NL was driven by exploitation of highly productive fisheries, and more recently by timber, mining and oil production. Revenue from natural resource extraction and first stage processing created a clear example of a staple economy. Resource based economies can also suffer from what has been called the "natural resources curse." The curse is a reinterpretation of Innis's staple theory updated to deal with the challenges facing governments that host large petroleum deposits. These deposits bring the economy and public sector large amounts of revenue, but often at a significant cost (Murtazashvili and Piano, 2019; Venables, 2016). These costs include: inflation in the local cost of living; increased income inequality between those participating in the energy sector and those who do not; potential environmental damage; decreased competitiveness of other sectors, as the energy sector bids up input prices; and reduced control of the local economy, because the energy sector is dominated by large multinational corporations. Over time, the economy of NL has experienced considerable resource driven volatility. The "cod crisis" of the early 1990s was followed by a period of relative prosperity as off-shore oil expanded, producing high provincial government revenue, while parallel oil-sands development in Alberta provided opportunities for "long distance commuting" for a considerable number of NL workers. More recently, until 2021, the collapse of oil prices had created another crisis in the province and ended most long-distance commuting to Alberta. Both factors were instrumental in the decision to create the Premier's Economic Recovery Team and its 2021 report. While oil prices have recovered, their longer-term prospects remain uncertain.

In particular, as the influence of the energy sector increases the economy becomes more susceptible to shocks associated with oil price fluctuations (van der Ploeg and Poelhekke, 2009). While some governments have chosen to create reserves to buffer the effects of falling revenue, these reserves are seldom large enough to offset long-term price declines, especially when the shocks propagate through the rest of the economy (Kotschwar, 2014). Further, sub-national governments, such as provinces or states, may face a more difficult adjustment process than do national governments, because they have less fiscal capacity and monetary policy is not available to them. If the rest of the country is not dependent on oil revenues there

may be less willingness by national governments to modify policy to relieve stress on affected provinces or states.

The provincial labour force peaked in 2013 and has since declined slightly (Figure 3). The decline has mainly come through actual employment numbers as shown by their visible downward slope since 2013 in Figure 3. In addition, both the number of people that are unemployed and the number of people of working age outside the labour force have increased, so the number of working aged people has declined by less than the fall in employment in recent years. One obvious policy question is how to reduce the number of unemployed and increase the labour force participation rate, since these could be relatively simple ways to counter demographic decline.



"Currently, public sector employment provides a large share of non-seasonal employment in the province, and the share of public sector employment is well above the provincial average in a number of regions. If the province can no longer support current levels of public sector employment then future job growth will have to depend more on private sector firms."

Compounding the adjustment challenges facing the province is a weak financial position (Premier's Economic Recovery Team, 2021). Accumulated debt and weak revenue prospects from resource extraction place limits on future provincial government outlays, and this will in turn constrain municipal governments that rely heavily on transfer payments from the province. Currently public sector employment provides a large share of non-seasonal employment in the province, and the share of public sector employment is well above the provincial average in a number of regions. If the province can no longer support current levels of public sector employment then future job growth will have to depend more on private sector firms. This means that regions will have to identify those sectors in which they have opportunities for expansion and act to support business development. This is a more "bottom-up" development approach than the province has followed in the past, but it may offer a more sustainable development path.

Labour Markets in Newfoundland & Labrador

For most of the last 50 years, workers in the province have experienced a situation of chronic underemployment. Evidence of this include: high rates of outmigration to other provinces, low investments by individuals in the acquisition of formal education and skills, a high rate of long-distance commuting to work in other provinces, low rates of labour force participation, and high rates of seasonal unemployment. While the collapse of fertility rates several generations ago reduced the supply of labour, it is only recently that the worker replacement ratio turned negative, with fewer new workers entering the labour force than the number exiting due to retirement. Within the province, the St. John's metropolitan region has had the most dynamic labour market and has been able to attract needed workers from other parts of the province. In particular, it has been able to attract and retain younger workers who come to St John's for post-secondary education and stay afterwards. However, accelerating demographic decline, especially outside St. John's, is beginning to slow these flows, reducing St. John's prospects for future growth.

Staple Theory

Staple theory was developed by Harold Innis in the 1930s as a way to explain early stages of the process of economic development in Canada (Innis, 1930; Innis, 1940; Watkins, 1963; Drache, 1982).The theory holds that a resource rich economy can establish a complex economic structure by using revenue from the export of a natural resource, either in raw or semi-processed form, to introduce forward and backward linkages and significant commercial and public sectors. In the process, the relative importance of the staple exports decline in terms of employment and income. But, crucially, staples remain the foundation for the entire economic structure. Fluctuations in supply and demand of staples cascade through the balance of the economy causing cyclical booms and busts. The result is an economy with a high degree of volatility driven by external shocks in the demand for its core outputs. Innis saw the only escape from this situation to involve a shift to a different economic function. Such a shift starts with efforts to diversify the economy, followed by investments to expand the new functions, but multiple factors make this process difficult.

The essence of the problem is that staple economies face difficulties in progressing to the next stage of development where they diversify their economic base in a way that makes them less reliant on resource exports. Successful diversification typically requires introducing a stronger manufacturing sector that is weakly linked to the resource base, and developing local financial and managerial capacity to identify and exploit external markets. Critically, this is more easily accomplished in a region or country with a large population. The large domestic population: provides a significant home market for a variety of goods and services, allows greater specialization in production, and introduces more competition among firms - because multiple providers of the same goods and services can compete successfully in large markets. Drache observes that in the Canadian context Ontario was able to make this transition from a simple export-oriented agrarian economy to a far more complex economy that exported manufactured goods and services to the rest of Canada, and in the process expanded its population to create a large home market (Drache, 1982, p.44). Ontario also benefitted from its geographic location on the Great Lakes that allowed it to be readily integrated into the much larger US industrial complex. Moreover, the late 19th century National Policy of Canada that along with, the opening up of the Prairie provinces, the growth of rail transportation, and imposition of tariff barriers provided markets for this diversification.

Until recently, the provincial economy has typically had difficulty expanding fast enough to create sufficient jobs to employ the potential labour supply. In part, this reflects the structure of the economy, where the main sectors supporting economic growth have been based on

natural resource extraction, and more recently tourism. Over time, the resource sector has expanded beyond fishing and forestry to include minerals and energy, but these sectors have experienced major reductions in employment as production technology has shifted to replacing workers with capital in order to remain competitive in external markets. In particular, because the oil industry in NL involves off-shore extraction, it is very capital intensive and provides limited employment for local workers. Only in fish processing has technological change been slow, and this largely reflects an ability of the sector to continue to attract low wage workers, largely by virtue of the huge implicit wage subsidy provided by the seasonal Employment Insurance (EI) program. Access to seasonal EI significantly raises the effective wage for fish plant workers by providing them with income after the fish plant lays them off. Tourism has provided a significant increase in employment in recent decades. But here, too, wages are mostly low and employment is seasonal.

Full time employment is concentrated in the service sectors, which also provide the majority of jobs in NL. In this respect, the province is similar to other parts of Canada and other OECD countries. Outside the St. John's metropolitan area, public sector employment is particularly high, reflecting the limited size and scope of these economies. While the public sector provides important services to the communities in which these jobs are located, the funding for public services largely comes from provincial (and to a lesser extent, Government of Canada) revenue. Reductions in provincial revenue associated with declines in the crucial natural resource sectors can lead to lower transfers to municipalities and reductions in services directly provided by the province. This translates into fewer jobs in areas that rely on them as major sources of employment and less income to circulate within communities. In essence, this is the "staple trap" that was identified by Innis in the 1930s. Economies remain dependent on strong performance of their natural resource base, even though it may now account for a small share of total employment.

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The shift from an excess supply of labour to an under supply will only get worse as more workers retire in coming years. While fewer available workers may be seen as offering an opportunity for wages to rise in the province (to attract what few workers are available), the scope for wage increases will be limited (unless the skill level of the workforce significantly increases to improve productivity), and incentives to remain outside full-time employment are reduced. Employers cannot pay wages that exceed the value that a worker contributes to output. Thus, without an increase in skills, the likely consequence of a worker shortage will be a

reduction in employment and output to a level compatible with the reduced number of workers. The continued existence of seasonal EI has two effects: the first, it encourages workers to remain in a low wage seasonal job even though higher wage full-time jobs may be available, because their effective wage is higher with part-time employment; and second, EI may reduce the incentives for firms (e.g., small fish plants), to modernize their technology to increase productivity, which would release workers for other jobs.

"Thriving export-oriented firms generate the income and employment that funds government and creates demand for the broad range of public and private services that offer employment opportunities for the majority of the work force."

To put it another way, without an increase in worker skills, the provincial economy runs the risk of experiencing a serious contraction as employers scale back production to a level that is compatible with current wage levels, thereby reducing their demand for workers. While the province has an abundance of natural resources that can be either extracted and processed, or used to drive a tourism industry, this will only happen if the firms in these industries can offer a competitive product in national and international markets. Low skill workers not only command a low wage, but they may also restrict the firm employing them to a technology that makes it a relatively high unit cost or lower quality producer, thereby reducing its competitiveness. On the other hand, thriving export-oriented firms can generate the income and employment that funds government and creates demand for the broad range of public and private services that offer employment opportunities for the majority of the work force.

Demographic change will also lead to shifts in the service sectors, irrespective of how the core tradable (export-oriented) sectors of natural resource extraction, manufacturing and tourism perform. Successful expansion of the export sectors will result in higher tax revenues for the province and greater demand for both public and private services. Conversely, lower tax revenues and demand for services will occur if the export-oriented sectors are not able to maintain production at current levels. While the aggregate demand for services is uncertain, the mix of services will inevitably undergo change. An older and smaller population will reduce the need for schools, childcare, and most forms of recreation. At the same time, the demand for elderly health care, assisted living, and meal delivery and cleaning services will increase. A larger share of the provincial budget will have to go to the elderly and this may require reconfiguration of both healthcare districts and school districts.

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While in the past many families were able to provide a significant share of the care needed by older relatives, the possibility for this occurring in the future is poor. With fewer people in a population, a larger share of the potential work force will have to be in full-time employment than is the case today and more workers will be required to look after the large number of elderly people. For example, this means that both a larger absolute number, and a larger share, of the employed workforce will have to be involved in elderly care than is currently the case. Although a number of these workers may not require specialized skills, a considerable share will, suggesting both the need for better secondary school outcomes than is presently the case and for investments in training programs for elderly care. In general, those service sectors that have relied on low-wage, low-skill workers will face difficulties in finding all the workers they want. Raising wages to attract more workers may not be possible without increasing their productivity, which is harder for service industries than in manufacturing. Technological change may resolve some of these problems, as now appears to be the case in retailing where e-commerce has reduced the need for retail workers in brick-and-mortar stores. However, e-commerce has vastly increased the need for additional workers in logistics, particularly warehouse and delivery workers.

Regional Governments Can Facilitate Development

The province is geographically large and sparsely settled; it has a limited transportation network, and diverse regional economic opportunities. This suggests that a regional approach to development is desirable. However, defining coherent regions has been difficult, with various attempts over the last half-century having only limited success. A key problem is that the province has no official sub-provincial system of public administration, such as counties or regions. Instead, there are self-governing municipalities that are communities of various size, and local service districts that are settlements with no formal government but which offer limited local services funded by the provincial government. Dividing the province into regions could be valuable because the province as a whole is too large and heterogeneous for the provincial government to effectively deliver differentiated development support, while municipalities are too small to be viable economic units by themselves or to efficiently deliver most public services.

While the provincial government has periodically adopted various schemes that created regional agencies within the provincial government, it has never actually devolved provincial powers to an operationally autonomous intermediate layer of government that is common in other provinces (e.g., counties). Importantly, these intermediate units of government are given

both specific responsibilities and specific sources of revenue in the form of local taxes to carry out their responsibilities. Broad policy parameters remain at the provincial level, but devolution allows each regional authority to formulate tailored approaches that suit the locality. Moreover, since households and firms pay taxes in the region, they have a stronger incentive to engage in local governance.

In summary, introducing "regional" governments can have the following benefits.

- They can provide a middle level of government that that can efficiently deliver specific public services that are tailored to fit the needs of the particular territory;
- They allow more efficient delivery of key public services that can exploit economies of scale, such as school systems, health care facilities and transport infrastructure;
- They can increase social cohesion among municipalities by connecting people in a number of small communities into a larger shared system of governance, without requiring forced amalgamation;
- They can better facilitate local economic development by creating a geography that can make more strategic investments in infrastructure, provide more comprehensive skill development opportunities, and take advantage of opportunities to better link adjacent local labour markets that are all tailored to local conditions;
- Finally, devolution allows the provincial government to focus on a smaller set of policies and programs that constitute its core responsibility and avoid being drawn into local issues where it often has struggled to achieve outcomes that the community embraces.

We suggest a relatively small number of regions in order to assure that each region has a significant number of people even though this reduces homogeneity within regions (Figure 1: Map of Regions). Two of these regions have boundaries that are already well defined – Labrador and the Avalon Peninsula. The challenge lies in segmenting the rest of the island. We define three additional regions: the West Coast, Central Newfoundland and the South Coast. While these regions have no obvious specific geographic boundaries, they do correspond to some meaningful socio-economic patterns and, as we demonstrate below, have distinct economic opportunities. Region boundaries follow Statistics Canada census boundaries to allow data aggregation. While this has made some of parts of a regional boundary problematic, they largely correspond to how people commute to work, shop, and engage with public and private services.

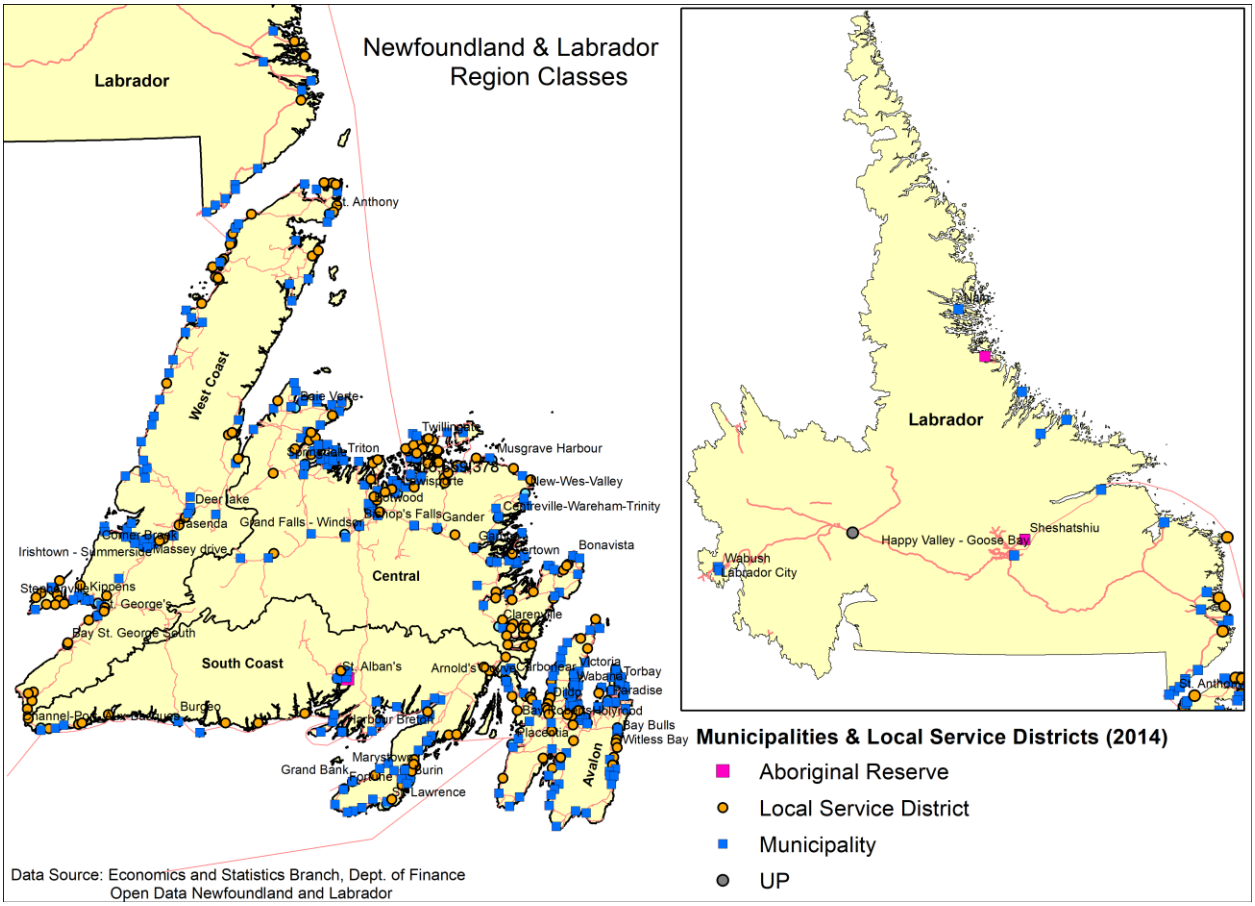

Figure 1

Within the five large regions are multiple units of local government, mostly small municipalities, but also reserves and local service districts. Figure 1 shows the location of these settlements. A striking feature of the map is the large amount of unsettled land in the province. Because agriculture is not a current major economic driver in NL, very few people live outside settlements in the open countryside and the vast majority of settlements are located on the water, reflecting the historic reliance on shipping as the main means of transportation.

Table 1 provides the size distribution of local labour markets in the province. These "functional regions" are each a distinct local labour market, and in most cases are a single municipality and any nearby, unincorporated settlements. While functional regions are useful ways to examine economic development opportunities, they are not appropriate ways to construct regions for delivering public services, such as, education or healthcare, or even core infrastructure, like water and sewer or roads. For these purposes, a larger territory and population are needed.

Table 1: THE FIVE CATEGORIES OF FUNCTIONAL REGIONS IN NEWFOUNDLAND & LABRADOR			
	Number of Regions	**Average Population 2021**	**Range in Size of Regional Population 2021**
Urban Centres	1	216,307	216,307
Small Cities & Regional Towns	9	19,360	9376 – 37,721
First Order Rural	17	4,012	1881 – 6796
Second Order Rural	29	992	492 – 2117
Third Order Rural	117	207	32 - 856

Only ten of the functional regions have more than 9,000 people with only one over 100,000. It is difficult for even the larger functional regions, other than the St. John's metropolitan area, to provide even basic levels of public services and few have adequate "own-source revenue" to undertake any additional activities. This points to the need for some way of aggregating existing local labour markets into a smaller number of larger administrative regions that can better deliver public services and coordinate development activities.

Even before demographic decline, the vast majority of the small settlements were too small to support an independent viable local economy or provide the basic services their populations need. With demographic decline, the problem is worse and a considerable number of the settlements in the province face imminent collapse. In the last decade, a number of municipalities have given up self-rule and reverted to being local service districts. Falling revenue and the increased per capita cost of providing services to a shrinking and aging population will likely lead to a further reduction in the number of municipalities and consequently increased costs for the provincial government as it will have to directly provide services. While regional government offers some hope for more efficient delivery of public services, most units of regional government do not correspond to how people live, interact, and work.

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Regional analysis in more densely settled regions, by RAnLab, is largely based on local labour units as the basic unit for economic development. A local labour market typically contains multiple municipalities and is defined by worker commuting patterns. Daily journeys from place of residence to place of employment identify how a labour market is spatially defined. The more complex the labour market, the more complex the flows of workers. While some people are prepared to commute more than 100 km, or roughly 1 hour, each way, this is unusual behavior in NL, in part because many local labour markets are small and isolated. A key advantage of using local labour markets as the unit of analysis is that as economic conditions change so does the size of the labour market. A new source of employment in a settlement will normally employ people from that settlement as well as from nearby settlements, which distributes the benefits from economic development over a larger area.

Figure 2 shows the set of functional economic regions (FERs) in the province. These regions each contain one local labour market plus neighboring uninhabited territory, because the boundaries for each labour market have been expanded to correspond to census sub-divisions, which are the basic unit for collecting socio-economic data. While the entire territory of the province is covered by these FERs, in reality, other than on the Avalon Peninsula, the vast majority of the territory of most FERs is uninhabited. Thus, while it appears on the map that local labour markets meet at a boundary, in reality, many labour markets in NL are not adjacent to other labour markets. This means that it is difficult for workers to move from one FER to another without changing their place of residence. As a result, if employment conditions in an FER either improve or decrease there is a good chance that workers will not move into or out of the FER in response. This leads to slow labour market responses to change, and to difficulties for firms in filling jobs, or, more commonly, to pockets of high unemployment where workers are unable to find local work, but for one or more reasons are unable to relocate.

While we believe that introducing regional government can help the development process in the province, the regions we describe may not be the most appropriate, either in terms of boundaries or in number of entities. They should be seen as “place-holders” that illustrate our argument. Our intent is to demonstrate that there can be a useful middle point between a provincial government-led, top-down development process that tends to provide the same thing to all people, and a completely bottom-up process, where local governments compete with each other for jobs and resources. While an improved governance process can result from constructing a regional layer, an equally compelling argument is that municipalities in well-defined regions will have a considerable degree of homogeneity, both in terms of problems and opportunities, and thus can have better prospects for successful development if they can work together.

Five size categories of functional economic region are shown on the map, below. Table 1 provides definitions of the five types of FER and the number of each type in the province. Only the St. John’s metropolitan region is characterized as an urban region as it is the only part of the province with both a large enough population and complex enough economy. Every region has at least one city or regional town and these FERs have a reasonably strong internal labour markets with workers having a variety of skills and firms offering a range of employment opportunities. Moreover, these FERs with larger populations are most likely to be retail and service hubs for a larger territory, which allows it to attract people from outside their region

who travel to purchase goods and services not available in the rural FERs. The last three categories are very small but varying size local labour markets that provide a limited range of jobs that employ a small number of people. The municipalities in these FERs have no more than basic services and residents must leave their FER to obtain a significant share of the goods and services they require.

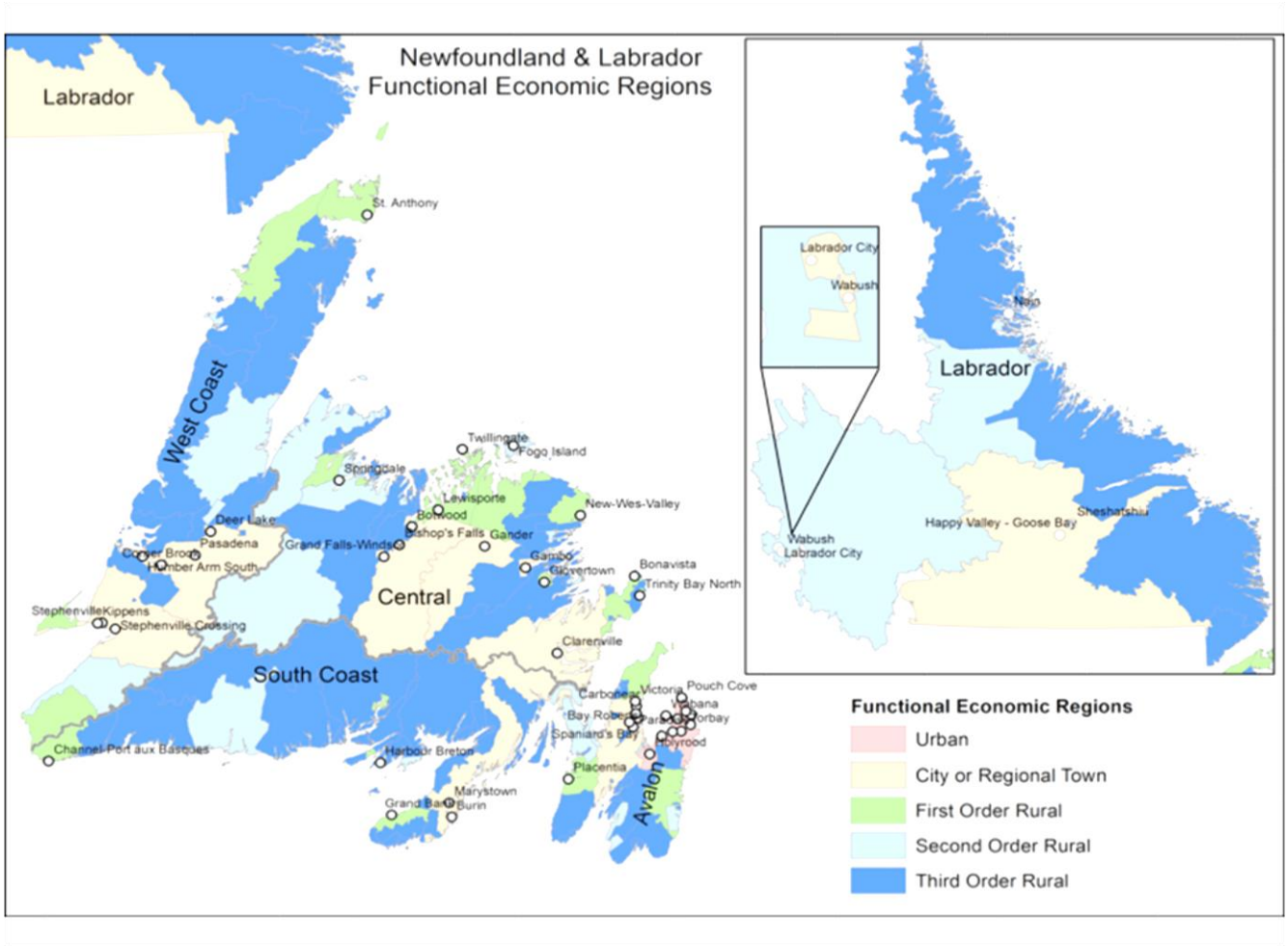

Figure 2

Examining Regional Labour Markets

This section of the report uses the regions we have constructed to demonstrate that there are significant differences among regions in terms of economic structure and employment levels, size of labour force and a labour force participation rates. These differences suggest that economic development problems and opportunities vary considerably, and that provincial averages may not provide useful guidance for public policies. Statistics are taken from the most recent year prior to the onset of COVID-19, because of the large disruptions in employment that resulted from the pandemic.

Tradable and Non-Tradable Products and Services

Distinguishing between these two types of goods and services is important because tradable goods and services provide the money to purchase all the items that people and firms consume that are not produced in the local economy. Because the province is small, it imports a lot of the items people and firms consume from other places. These have to be funded either by transfer payments or by money earned from selling goods and services produced in Newfoundland and Labrador to other places. The most obvious tradables are oil, fish products and minerals. But tourism is also a tradable, as are computer services sold to other parts of Canada or to other countries. Conversely, most services such as health care and car repair, or education are nontradables, although attracting students either from other provinces or other countries is a tradable activity. The essence of the distinction is that the person/firm paying for the good or service is not resident in the province.

Moreover, the impact of demographic decline also varies by region. There are two main implications that come from the analysis. The first is simply to illustrate the diverse nature of the province, even using the high degree of aggregation associated with only five regions. As the number of regions increases, we would expect diversity to increase correspondingly among regions, and this could be an argument for having more regions. However, the second implication is that even with only five regions there is huge variability in population numbers and other demographic measures that make both economic development and the delivery of public services more challenging in some places than others. Increasing the number of regions would certainly make this a more challenging problem as the population in each region is reduced.

Table 2 provides simple statistics on employment by major sector that is derived from Business Register data for December 2019, the last period before the effects of COVID-19 occurred. The sectors were constructed by aggregating six digit NAICs into six categories: 1) Hospitality/ Tourism; 2) Manufacturing; 3) Natural Resources (including first-stage processing); 4) Logistics; 5) Public Sector; and 6) Private Sector Services (including Transportation). The logic for these categories is as follows. The first three sectors are tradables – they produce goods and services that can be consumed locally, or importantly, be exported to generate external income that can be used to purchase goods and services from outside the province, or to fund the production of non-tradables, such as public and private services, within the province. Hospitality/Tourism numbers have been adjusted to reflect the fact that some part of sales by restaurants and entertainment are to local residents, but the remainder are to non-residents (tourists or other visitors) and hence bring in revenue from another place. This means that a portion of total Hospitality/Tourism employment is included in Private Sector Services. Similarly, both manufacturing and the natural resource industries (energy, minerals, fishing, forestry and agriculture) produce goods that are exchanged, potentially to purchasers outside the region.

Table 2

EMPLOYMENT BY MAJOR SECTOR AND REGION						
	Avalon	**Central**	**Labrador**	**South Coast**	**West Coast**	**NL**
Hospitality/Tourism	5,715	2,270	471	287	1,764	10,507
Manufacturing	5,171	746	138	228	320	6,602
Natural Resources and First-stage Processing	33,313	6,115	4,414	2,961	4,541	51,343
Logistics	35,369	11,342	3,874	2,896	8,693	62,174
Private services and Construction	66,631	13,275	4,308	3,134	10,992	98,339
Public Sector Services	27,701	9,790	3,322	2,577	7,420	50,809
Total Employment	**173,900**	**43,538**	**16,526**	**12,082**	**33,729**	**279,774**

MAJOR SECTOR PERCENTAGE SHARE OF REGIONAL EMPLOYMENT					
	Avalon	**Central**	**Labrador**	**South Coast**	**West Coast**
Hospitality/Tourism	3%	5%	3%	2%	5%
Natural Resources and First-stage Processing	19%	14%	27%	25%	13%
Manufacturing	3%	2%	1%	2%	1%
Logistics	20%	26%	23%	24%	26%
Private services and Construction	38%	30%	26%	26%	33%
Public Sector Services	16%	22%	20%	21%	22%

REGIONAL EMPLOYMENT PERCENTAGE SHARE OF MAJOR SECTOR					
	Avalon	**Central**	**Labrador**	**South Coast**	**West Coast**
Hospitality/Tourism	54%	22%	4%	3%	17%
Natural Resources and First-stage Processing	65%	12%	9%	6%	9%
Manufacturing	78%	11%	2%	3%	5%
Logistics	57%	18%	6%	5%	14%
Private services and Construction	68%	13%	4%	3%	11%
Public Sector Services	55%	19%	7%	5%	15%
Region Share of Total Employment	62%	16%	6%	4%	12%

The last three categories (Logistics, Public Sector, and Private Sector Services including Transportation) are the nontradable services and goods that are largely purchased by those within the region. Nontradables are equally important to society and to the economy – they provide the services that are now the main source of employment, but nontradables do not

bring external revenue into the local economy. It is this distinction that is fundamental to Innis's staple economy concern.

The nontradable portion of the economy is viable only as long as earnings from exporting the staples are large enough to sustain it. While the nontradable sectors add value to the community, their value does not bring any revenue from other places. As an example, consider a small fishing community where the only product that is sold outside the community is the locally caught fish processed in the local fish plant (natural resource and first stage processing). In the community, there are several shops, a trucking company and a local government that is funded only by local taxes. The number of workers in the shops, trucking company, and the government is larger than the number of fishermen and fish plant workers. But if the fish stocks disappear, the community will fail, despite fishing being well under one quarter of employment. Only the processed fish are a tradable commodity that is sold to other places, and the value of the processed fish reflects both the values of the catch and the value-added by processing. Revenue from fish sales is the only source of income coming into the community from outside. Thus, it is the ultimate source of all wages and local shop purchases and generates the taxes used to fund government services. Without the earnings from exporting fish, the community cannot pay for goods and services from other places, nor can the wages of local workers be paid.

Public Services are defined as any service that is largely funded by some level of provincial or local government. Similarly, private services are provided by individuals or firms. The locally consumed portion of hospitality services is included in this category. Construction is included with Private Services because it is similarly provided by private firms and while construction leads to a tangible product, it is not tradable in the sense that a building is fixed in place, so only ownership can be changed. Finally, Logistics is mainly made up of retail and wholesale establishments, but also transportation. This category recognizes that now, most of retail and e-commerce in particular is a fusion of traditional retail, wholesale and shipping functions, and that in each case the main value provided to the economy comes from moving and storing a product before it is sold to the final customer.

The first block of Table 2, showing the number of workers, provides employment in each major sector by region and the provincial total by major sector. It is immediately obvious that the Avalon Peninsula is by far the largest employment location for every category or sector. The Central and West Coast regions are much smaller than the Avalon in terms of employment, while Labrador and the South Coast are significantly smaller in terms of employment than the other regions. Employment in the province is dominated by the service sectors, both private and public. Conversely, employment in export oriented tradables categories—primary industries and first stage process, hospitality and tourism, and manufacturing—is a much smaller share of total employment. In particular, manufacturing, and hospitality and tourism provided a very small share of provincial employment. However, these three industry groups, plus transfers of funds into the province from the Government of Canada and other sources,

generate the revenue to purchase goods and services from outside the province and pay external debts. The table also shows the dominance of the Avalon Peninsula region in all categories of employment, which is unsurprising since it accounts for over 62% of all employment in the province. Employment in the Avalon Peninsula exceeds the cumulative employment for the other four regions in all six categories.

The second block of Table 2 shows differences in regional specialization expressed as each major sectors share of employment in that region. The first thing to note is that employment in the three nontradable sectors vastly exceeds employment in the three tradable sectors. Only the natural resources sector is of roughly the same magnitude as each of the three nontradables. This suggests the continued relevance of Innis's staples theory, and potentially the importance of the natural resource curse, to economic development strategies. Employment in all regions of the province rest on a narrow base of tradable activities, with natural resources being the largest component of the base, even on the Avalon Peninsula. Both the West Coast and Central regions are less reliant on natural resources as a share of employment than are the other three regions. Tourism/Hospitality is relatively more important in the West Coast and Central regions than in the other regions. In combination, manufacturing and Tourism/hospitability account for between 4 and 7 percent of total employment in the five regions, with only the West Coast and Central regions having more than the provincial average.

Block 3 of Table 2 shows the relative share of each major sector in the regions, with each row summing to 100%. Clearly, the Avalon Peninsula accounts for well over half of employment in any sector, but particularly in manufacturing, and to a slightly lesser extent for Private Service/Construction and Natural Resources. This suggests that if manufacturing is an opportunity for future development, it is more likely to be successful on the Avalon Peninsula than elsewhere if the province. Not surprisingly, Tourism is relatively more important in the Central and West Coast regions, even though it is a far larger sector on the Avalon. While employment in the Public Sector is also dominated by the Avalon Peninsula, it is relatively more important in all four of the other regions suggesting that providing public sector services to smaller and dispersed populations may require more workers per capita than providing similar services to a predominantly urban region.

With demographic decline, there is a higher implicit cost to society from underutilized labour in the form of unemployment or low labour force participation rates. In Newfoundland and Labrador, there have been historically high rates of seasonal unemployment, largely associated with resource extraction and processing and more recently with tourism. In both cases is a considerable share of the workforce that is only employed for part of the year, which reduces productivity and diverts government funds from potentially more needed expenditures. As with employment, there are considerable differences in the relative importance of unemployment across the various regions.

Figure 3 shows the number of monthly EI recipients by region from January 2010 through July 2020. Two striking phenomena are revealed. The first is the high rate of seasonal EI claims in all regions of the province. EI numbers peak in winter months and fall in summer months, even on

the Avalon Peninsula, where the urban economy of St. John's might be thought to offer less seasonal employment than in the more rural regions. Labrador has the least seasonal variation in EI numbers, as shown by the much smaller amplitude of the almost sine wave patterns. The Avalon and the Central regions have both the largest number of EI recipients and exhibit the greatest seasonal fluctuations between winter peaks and summer troughs. But while the number of EI recipients is roughly the same in both regions, the number of workers in the Avalon is roughly 4 times as large as the number of workers in the Central region (Table 1). This means that the relative importance of seasonal EI is far higher in the Central Region because its total workforce is much smaller.

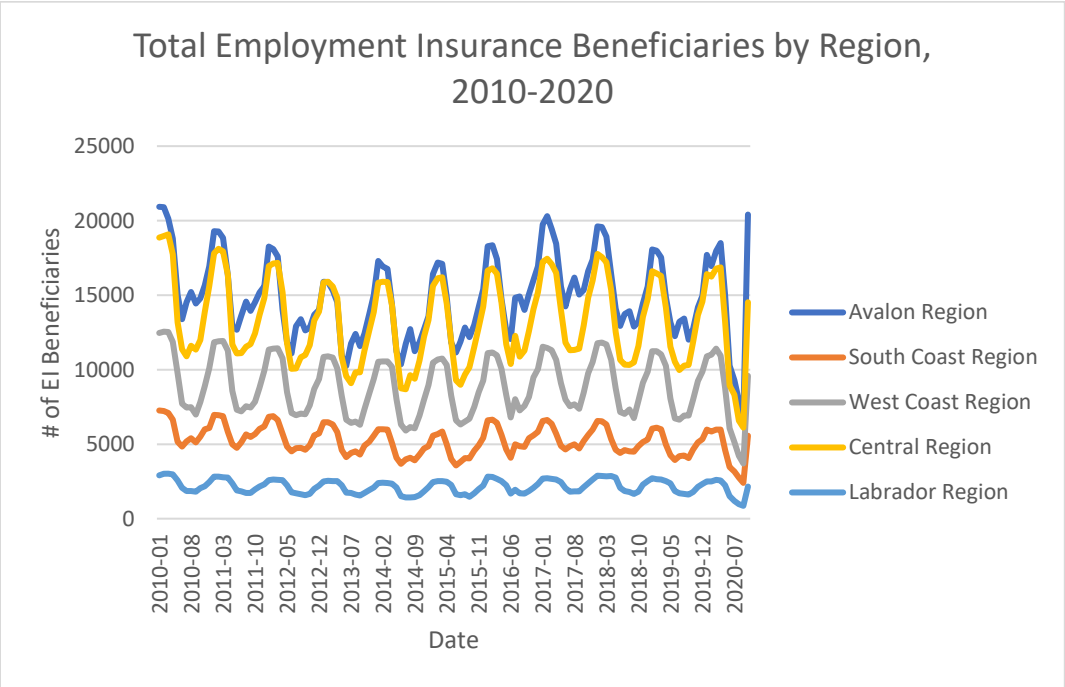

Figure 3

Location Quotients Identify Different Economic Structures in Different Regions

Location quotients (LQs) measure the relative importance of a particular industry/sector in a region compared to its importance in the province as a whole. A location quotient larger than one suggests that the industry/sector is more important in that region than for the province as a whole, while a LQ below one suggests a lower importance. They can be used to identify areas of regional specialization, which in turn may suggest a sector where the region has a competitive advantage. In this analysis, LQs are calculated based on employment share, so an LQ greater than one suggests the industry/sector has a higher share of employment than the provincial average.

Table 3 shows LQs for the six aggregate sectors for the five regions. The three basic, or export oriented, sectors (natural resources, manufacturing, and hospitality and tourism) are discussed first. Because these three sectors provide external income for the region that is, in turn, used to support firms providing local goods and services and to purchase imported goods and services, they are particularly important. Although the Avalon Peninsula region dominates the other regions, in terms of employment share for all goods and services, not surprisingly, it is relatively less reliant on natural resources and first stage processing than are the other four regions. Labrador, also unsurprisingly, has the highest reliance on natural resource extraction of all regions and the sector is by far the most important in the regional economy. However, the LQ for natural resources for the South Coast is also large. In this case while total employment in the sector is considerable smaller than in the other four regions, it is the single largest source of employment in this region. Only the Avalon region has a LQ for manufacturing (excluding first stage resource processing) that is greater than one, suggesting that the small manufacturing sector in the province is highly concentrated in the Avalon Peninsula. Hospitality and Tourism is relatively more important in the Central and West Coast regions, even though once again total employment in the sector is far higher in the Avalon region.

Table 3**: LQ by Aggregated Sector and Region**

	Avalon	**South Coast**	**West Coast**	**Central**	**Labrador**
Hospitality/Tourism	0.95	0.75	1.22	1.20	0.80
Manufacturing	1.26	0.80	0.40	0.73	0.35
Natural Resources & First-Stage Processing	1.04	1.34	0.73	0.77	1.46
Logistics	0.92	1.08	1.16	1.17	1.05
Private Services & Construction	1.10	072	0.90	0.84	0.73
Public Sector Services	0.88	1.17	1.21	1.24	1.11

Turning to the three local, or non-export, sectors, both Logistics and Public Sector services have LQs that are less than one in the Avalon and above one in the other four regions. Because Logistics includes transportation, wholesale and retail functions, it should be more important in the smaller-population, dispersed-settlement regions, where goods have to move longer distances and economies of scale and scope are not present. And, while St John's hosts much of provincial government employment, the city has a much larger and more complex local economy than is present in any other municipality, which diminishes the relative importance of public sector employment as a fraction of total employment. In this regard only, the Avalon region has a LQ above 1 for private services and construction. Once again, this reflects the opportunity for a much more complex array of goods and services to be sold by private firms in

the St. John's area than is the case in other municipalities. Conversely, in the four other regions public sector employment is far more important in a relative sense. Because Public Sector salaries by definition come from either federal, provincial or local taxes, a high reliance by a region on this form of employment can lead to significant vulnerability if tax revenues decline, or government spending priorities shift.

LQ analysis shows that there is significant diversity among the regions in terms of economic activity. The continued dependence of the province on natural resource extraction and first stage processing is clear, especially in the four more rural regions. However, a significant share of employment in St John's remains strongly linked to natural resource extraction, because a considerable number of workers in the city are employed in firms that are connected to the natural resource sector, but in ways other than first stage processing. Manufacturing, other than first stage resource processing, is a small source of employment for the province as a whole, and especially outside the Avalon Peninsula. Small increases in the number of manufacturing firms would not only add direct employment, but the multipliers associated with manufacturing are large, and manufacturing, either displaces imported goods, or potentially can increase exports both from the region and provincially. The West Coast and Central regions are particularly reliant on tourism/hospitality employment. While these two regions host many of the major tourism attractions in the province, the sector is a problematic economic base. Much of the employment is low-wage, seasonal and offers few paths for career advancement. It is also problematic in terms of demand as the recent COVID-19 lock-downs have demonstrated.

Table 4 provides a more detailed perspective on the relative role of different industries in the regions. Instead of the large aggregated sectors employed to this point, the table uses more common industry definitions. With this finer lens, the differences among regions become even more apparent, with much higher levels of specialization becoming evident, particularly outside the Avalon Peninsula. In the Avalon region, there are no industries with an LQ above 1.4, and only 2 with an LQ above 1.2. However, on the South Coast there are 3 industries with LQs above 2, while on the West Coast there are 3 above 1.3. In the Central Region there are 5 LQs above 1.3 and in Labrador there are 3 above 1.4. Notably, on the Avalon, Public Administration has an LQ .51 despite it being the home for a large share of both provincial and federal agencies, while in all other regions the Public Administration LQ is above 1.3, with it being above 2 in both the South Coast and Labrador regions.

Finally, the nature and importance of public sector employment requires some qualification. Newfoundland and Labrador receives a significant share of government revenue in the form of net transfers from the Government of Canada. In the standard export-base model, government is defined as a non-export activity, under the assumption that not only do most government services go to local people, but that government is funded to a great extent by taxes on those local people. When governments receive a considerable share of their funds from an external source, then government can be thought of as a basic or tradable sector, since it brings external revenue into the region. Similarly, high LQs showing a large relative share of employment in municipal government in regions, other than the Avalon, are largely funded by transfers from

the provincial government and not by local taxes. While these transfers are providing a large increment to employment across the province, this employment is highly dependent on the continued flow of transfers. Either, reductions in transfers from the Government of Canada, or possibly more likely, reduced provincial funding for: public administration, school, hospital and other public services in municipalities would have a major negative impact on employment in all regions.

Table 4: **LQ BY 2 DIGITS NAICS CODE AND REGION**

	Avalon	South Coast	West Coast	Central	Labrador
Agriculture, Forestry, Fishing and Hunting	0.58	3.18	1.70	1.65	0.71
Mining, quarrying, and oil and gas extraction	1.38	0.27	0.05	0.16	1.63
Utilities	0.87	0.96	0.93	1.01	2.50
Construction	1.07	0.56	0.96	0.90	0.90
Manufacturing	0.76	2.24	1.35	1.39	0.86
Wholesale Trade	1.08	0.57	1.09	0.57	1.46
Retail Trade	0.84	1.16	1.29	1.38	0.94
Transportation and Warehousing	1.02	1.20	0.82	0.96	1.12
Information and Cultural Industries	1.17	0.35	0.91	0.79	0.36
Finance and Insurance	0.96	1.50	1.14	0.98	0.77
Real Estate and Rental and Leasing	1.07	0.54	1.09	0.85	0.85
Professional, Scientific, and Technical Services	1.32	0.32	0.66	0.41	0.34
Management of Companies and Enterprises	1.19	0.63	0.64	0.61	1.04
Administrative and Support, Waste Management, and Remediation Services	1.20	0.43	0.82	0.67	0.56
Educational Services	1.24	0.30	1.05	0.37	0.50
Health Care and Social Assistance	0.91	0.93	1.22	1.43	0.46
Public Administration	0.61	2.1	1.30	1.43	2.55
Arts, Entertainment, and Recreation	1.13	0.75	1.22	1.20	0.80
Accommodation and Food Services	0.95	0.75	1.22	1.20	0.80
Other Services (Except Public Administration)	0.94	1.35	0.97	1.21	0.94

Regional Employment Characteristics

More generally, other than in the St John's metropolitan area, and to a lesser extent, in the vicinity of Corner Brook, the local economies of municipalities are both, small in terms of total size, and limited in terms of the number of activities. As a result, municipalities have small numbers of employers and produce a narrow range of goods and services. An important consequence is that increased employment in any particular firm has only a limited impact on the local economy because the additional jobs do not lead to additional employment in other local firms. In these small, specialized economies, it is difficult to develop forward and backward linkages among local firms and this leads to small multiplier effects. Our analysis suggests that for most industries enumerated at the 5-digit NAICS level, other than those in the Avalon region, it would take more than 10 direct jobs to induce one additional local job, i.e. a multiplier of 1.1 or less. In the Avalon region, multipliers are commonly around 1.2, which implies 5 direct jobs will lead to 1 additional local job in the local economy.

Table 5 provides a sample of multipliers for industries that are common to virtually all 5 regions and are common in many municipalities. While the multipliers are uniformly small in magnitude, there is considerable variability across regions. In general, multipliers are somewhat larger for the Avalon Peninsula than in other regions, because it has a much greater variety of business types allowing more local purchases within the region. In contrast, most interfirm supply chain purchases by firms in other regions are routed through St. John's or to out-of-province firms.

Table 5**: LOCAL EMPLOYMENT MULTIPLIERS FOR SELECTED 5 DIGIT NAICS INDUSTRIES**

	Avalon	South Coast	West Coast	Central	Labrador
Forestry and Logging	1.04	1.02	1.25	1.32	1.08
Fishing, Hunting, and Trapping	1.22	1.17	1.22	1.20	1.16
Oil and Gas Extraction	1.21	1	1	1	1
Construction	1.26	1.12	1.24	1.18	1.10
Seafood Product Preparation and Packaging	1.57	1.80	2.00	1.79	1.82
Other Miscellaneous Manufacturing	1.05	1	1.02	1.01	1.01
Food and Beverage Stores	1.35	1.13	1.18	1.15	1.09
Elementary and Secondary Schools Plus Other Educational Services	1.07	1.03	1.04	1.04	1.05
Community Colleges and C.E.G.E.P.s	1.06	1.10	1.15	1.11	1.08
Hospitals	1.15	1.11	1.18	1.15	1.10
Local, Municipal, & Regional Public Administration	1.26	1.17	1.28	1.22	1.19
Aquaculture	1.02	1.33	1.39	1.32	1

Note that for primary industries (Forestry and Logging, or Fishing, Hunting and Trapping), and for first stage processing, (for example, Seafood Processing), the multipliers are somewhat larger than for service industries. These are typically the largest multipliers in the regions, other than the Avalon. Were primary production and first stage processing treated as separate industries, they would have higher individual multipliers, but since they form a tightly-linked single cluster, it is more appropriate to treat them as a single industrial group. Major public sector employers: schools, hospitals and local governments, have relatively low multipliers suggesting that while expanding these sectors may improve access to public services, it will not stimulate additional local employment, although sub-provincial public administration has the largest multipliers, particularly in the South Coast, West Coast and Central regions.

Finally, as shown in Figure 4 below, employment in the province is dominated by the service sectors, both private and public. Conversely, employment in export oriented tradables categories – primary industries and first stage process, hospitality and tourism, and manufacturing is a much smaller share of total employment. In particular, Manufacturing and Hospitality and Tourism provided a very small share of provincial employment. However, these three industry groups, plus transfers of funds into the province from the Government of Canada and other sources generate the revenue to purchase goods and services from outside the province and pay external debts. The figure also shows the dominance of the Avalon Peninsula region in all categories of employment, which is unsurprising since it accounts for a bit over 62% of all employment in the province. Employment in the Avalon Peninsula exceeds the cumulative employment for the other four regions in all categories but Hospitality/Tourism.

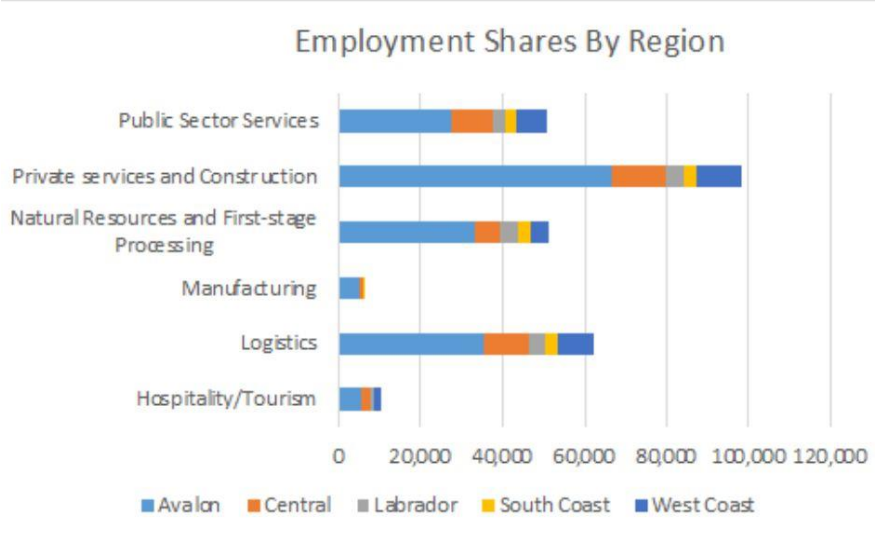

Figure 4

Projected Labour Force Conditions

While it is impossible to know how the economy of the province will evolve in the future, a simple benchmark is to assume that it will require as many workers as it did in the recent past to produce identical quantities of goods and services. Labour force and employment levels are projected using RANLab demographic models under two assumptions about participation rates and unemployment rates. The first scenario uses historical data for each region that reflect actual regional participation rates and unemployment levels to develop region specific participation and employment forecasts for 2025, 2030 and 2035. This scenario assumes that, in the future, the same share of potential workers will stay out of the labour force, as is currently the case, even as the number of workers shrinks due to demographic decline. It further assumes that unemployment rates in each region will remain at current levels.

The second scenario recognizes that current participation rates and unemployment rates in most of Newfoundland and Labrador are worse than the Canadian average. One labour market policy response to deal with fewer workers could be to increase participation rates and reduce unemployment rates, by some combination of skill development, higher wages and reduced unemployment benefits. To capture this effect we assume that the province achieves the 2016 Canadian average level for both labour force participation rates and unemployment rates.

Unfortunately, the most current final labour force and employment statistics that are currently available at the sub-provincial level are for 2016. However, initial population estimates are available for 2021 and these are used for our projections for 2025 through 2035 in both scenarios. To derive labour force and employment estimates, we continue to use 2016 data on participation rates and employment rates. The estimates use either 2016 local data on participation rates and unemployment rates (Table 5) or Canadian averages (Table 6), both of which have the advantage of not reflecting COVID disruptions. The same rates are used to create forecast levels based on RAnLab projections of population that are driven by the 2021 population estimates. Clearly, if COVID caused major permanent shifts in labour force participation rates and employment rates, our projections will not be accurate. And, if COVID effects are permanent, we are likely overstating the future size of the labour force, since COVID reduced both the size of the labour force and participation rates, as well as increasing unemployment. However, for this analysis, we assume that over time, the effects of COVID on the labor force will dissipate and both participation rates and employment rates will return to something near historical norms.

Table 6 makes clear that, in most regions, both the labour force and employment will fall by large relative amounts from current levels, with only the Avalon region being buffered over the interval. Table 7 shows that rates of decline in the labour force and employment are lower if the province can find ways to increase participation rates in all regions to the Canadian average and also reduce unemployment rates in all regions to the Canadian average. Note that the benefits of this policy are less in the Avalon region since it already near Canadian average

levels. Tables 8 and 9 simply restate the results of Tables 6 and 7 as cumulative percentage changes from the 2021 initial levels. This helps to clarify the regional differences in the magnitude of the changes over time in the size of the labour force and level of employment from our 2021 estimates.

Table 6: **PROJECTED LABOUR FORCE AND EMPLOYMENT BY REGION, 2025-2035, PROJECTIONS BASED ON LOCAL HISTORICAL RATES**

	Avalon		South Coast		West Coast		Central		Labrador	
	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment
2016 (Final)	141,870	126,905	16,130	12,090	35,925	27,850	48,515	37,605	14,430	12,265
2021 (Initial)	135,810	121,411	12,516	9,339	31,034	23,953	41,725	32,207	13,372	11,358
2025	136,416	121,952	10,819	8,052	28,497	21,961	38,520	29,657	12,990	11,012
2030	136,637	122,143	8,624	6,398	25,336	19,520	34,295	26,358	12,472	10,543
2035	136,738	122,371	6,716	4967	22,523	17,364	30,415	23,385	11,874	10027

Table 7: **PROJECTED LABOUR FORCE AND EMPLOYMENT BY REGION, 2025-2035, PROJECTIONS BASED ON CANADIAN AVERAGE RATES**

	Avalon		South Coast		West Coast		Central		Labrador	
	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment
2016 (Final)	141,870	126,905	16,130	12,090	35,925	27,850	48,515	37,605	14,430	12,265
2021 (Initial)	141,773	131,008	14,655	13,591	35,063	32,461	47,997	44,476	13,961	12,897
2025	142,542	131,704	12,814	11,882	32,363	29,956	44,641	41,335	13,572	12,534
2030	142,682	131,835	10,368	9,608	28,901	26,746	39,993	37,006	13,040	12,028
2035	142,712	131,978	8,202	7,594	25,744	23,822	35,612	32,932	12,407	11,439

The two tables both show that in all regions there was a decline in the size of the labour force between 2016 and 2021, but employment actually increased in the Avalon region over this

period, while it declined in all other regions. This phenomenon motivated our interest in the potential for our scenario 2. It suggests that the Avalon region has already been able to make greater use of a shrinking workforce. It is this sort of increase in utilization that is needed more generally in the province if production is not to decline as the population falls. Crucially, when projected employment levels in Table 6 and 7 are compared they suggest that if the province were able to increase its labour force participation rate to the Canadian average and reduce its unemployment rate to the Canadian average in all regions, there would be a significant decrease in the speed in which employment falls, even as the workforce ages and shrinks.

Tables 8 and 9 restate the results of Tables 6 and 7, respectively, as cumulative percentage changes from 2021. Each column for the years 2025 through 2035 shows the total percentage change in either the labour force or employment by region since 2021. By looking at cumulative percentage changes the differing regional magnitudes of the effects of demographic decline become clearer.

Table 8: **PROJECTED LABOUR FORCE AND EMPLOYMENT BY REGION, PERCENTAGE CHANGE FROM 2021, LOCAL HISTORICAL RATES**

	Avalon		South Coast		West Coast		Central		Labrador	
	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment
2025	0.4%	0.4%	-13.6%	-13.8%	-8.2%	-8.3%	-7.7%	-7.9%	-2.9%	-3.1%
2030	0.6%	0.6%	-31.1%	-31.5%	-18.4%	-18.5%	-17.8%	-18.2%	-6.7%	-7.2%
2035	0.7%	0.8%	-46.3%	-46.8%	-27.4%	-27.5%	-27.1%	-27.4%	-11.2%	-11.7%

Table 9: **PROJECTED LABOUR FORCE AND EMPLOYMENT BY REGION, PERCENTAGE CHANGE FROM 2021, CANADIAN AVERAGE RATES**

	Avalon		South Coast		West Coast		Central		Labrador	
	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment
2025	0.5%	0.5%	-12.6%	-12.6%	-7.7%	-7.7%	-7%	-7.1%	-2.8%	-2.8%
2030	0.6%	0.6%	-29.3%	-29.3%	-17.6%	-17.6%	-16.7%	-16.8%	-6.6%	-6.7%
2035	0.7%	0.7%	-44%	-44.1%	-26.6%	-16.8%	-25.8%	-26%	-11.1%	-11.3%

In summary, the four tables show the following:

- In general, using Canadian average participation rates, instead of rates derived from observed conditions in each region, results in slightly lower rates of decline for both the labour force and employment from 2021 conditions.
- The Avalon region is largely stable, with a slight increase in both labour force and employment that reflects continued in-migration and limited demographic decline.
- Labrador shows a modest decline in both the size of the labour force and employment that is relatively constant over time, leading to a roughly 11% decrease in its labour force by 2035 with a similar magnitude reduction in employment.
- Both the West Coast and Central regions face a roughly 8% drop in their labour force and employment by 2025 and a cumulative 26% decrease by 2035.
- The South Coast faces over a 12% decrease in 2025 and a 44% decrease from 2021 levels by 2035 for both its labour force and employment numbers.

To demonstrate better the different outcomes, from moving to a situation where the province has labour force participation rates and employment rates that are at the Canadian average, we use Table 10. The table uses data from Tables 6 and 7 to show the period-by-period regional differences in labour force and employment between the two scenarios expressed as percentage chance from scenario 1 to scenario 2. To illustrate, in the Central region in 2025 Table 6 shows a labour force of 41,725 while Table 7 shows it to be 47,997. For the Central region, Table 10 then shows a 15.9% larger labour force, which is the percentage difference between the two previous values.

Table 10: **ESTIMATED BENEFIT IF CANADIAN AVERAGE RATES OCCUR – PERCENTAGE DIFFERENCES BETWEEN TABLES 5 AND 6**

	Avalon		South Coast		West Coast		Central		Labrador	
	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment	Labour-force	Employ-ment
2025	4.5%	8.0%	18.4%	47.6%	13.6%	36.4%	15.9%	39.4%	4.5%	13.8%
2030	4.4%	7.9%	20.2%	50.2%	14.1%	37%	16.6%	40.4%	4.6%	14.1%
2035	4.4%	7.9%	22.1%	52.9%	14.3%	37.2%	17.1%	40.8%	4.5%	14.1%

The table shows that while the gains in the size of the labour force are significant, they are dwarfed by the percentage gains in employment. This suggests that while maintaining the size

of the provincial labour force is important, it may be even more important to employ fully a larger share of whatever labour force is available. Clearly relying solely on provincial averages to understand labour force dynamics is highly misleading since such averages are dominated by the Avalon Peninsula, which has a labour force that is larger than the other four regions combined. It is important to remember that what Table 9 is showing is a slowing of the effects of demographic decline under scenario 2, and not a reversal. Further, while the labour force and employment are relatively higher in all regions, in terms of the actual numbers of workers, they are smaller than in 2021 in all regions but the Avalon. While it is certainly possible that Newfoundland and Labrador could maintain the level of output achieved in 2016 with a smaller labour force, this would require major increases in productivity and a potentially large shift in the industrial composition of provincial output. This would have to take place as demands for additional employment in health care and care for the elderly are emerging due to demographic decline. Moreover, the Avalon region and Labrador are best positioned to experience increases in productivity due to their current economic specializations, and these are the two regions projected to face the smallest impacts from a shrinking provincial labour force. Although these two regions collectively account for about half of provincial GDP they are not big enough to buffer the effects of falling output in the other three regions that is driven by fewer workers.

Although these results are highly hypothetical they show the broad magnitude of the challenge the province faces in maintaining current levels of output over the medium term. In particular, they demonstrate that a regional approach to managing demographic decline will be essential to minimize adverse effects. In the short term, it will be vital to increase the share of the working age population that is employed on a full-time basis to allow time for investments that can increase productivity and reduce underemployment. Augmenting the labour force by increased immigration and extending the working age of those eligible for retirement along with other efforts to augment the number of workers will also be important. Even with these changes, several regions in the province will face large challenges in maintaining output while accommodating a much larger share of senior citizens who will need additional public support.

Strategies for Development

Currently, Newfoundland and Labrador experiences both resource dependency and the particular development problems of most small and peripheral regions in the advanced economies (OECD 2016, Freshwater 2019). Small populations lead to truncated and specialized economies that must export in order to generate the revenue to import all the goods and services they require that are not produced locally. Remote locations that are far from larger external markets face the additional challenge of long supply chains and high transportation costs for both imports and exports that can further reduce competitiveness. Collectively, being small and remote tends to limit the increasingly important factors of a labour force that has a wide range of skills and capabilities, research and development activity, and broad and robust financial markets that can offer a range of debt and equity instruments. Consequently, while, economic diversification is the typical recommendation for reducing resource dependency it is a challenge for nations, and even more so for provinces and states.

A useful approach that has been endorsed by the members of the European Union is the idea of Smart Specialization Strategies (S3). The driving force of this approach to "smart development" was a concern in the European Union in the 1990s that it was falling behind other parts of the world in terms of productivity and innovation (Foray, David and Hall, 2011). Originally conceived as a national strategy based on modern growth theory concepts, it was quickly turned into the basis for an EU wide regional growth strategy. However, the transformation failed to fully consider that within a country, differences among regions are of greater magnitude than are the still significant differences in conditions and opportunities across countries. In particular, while metropolitan regions could easily adopt a smart specialization strategy, based on innovation that largely takes place in the leading technology driven goods and services sectors, this was a highly improbable event outside the largest city regions (McCann and Ortega-ArgIles, 2013). Most smaller population regions lack the core capacities necessary to generate an ongoing stream of new knowledge, and also lack the resources to convert these new ideas into new goods and services and bring them to market. In the case of Newfoundland and Labrador, only the Avalon Peninsula satisfies the typical S3 focus on metropolitan regions.

More recently, the S3 approach has been adapted to better suit opportunities in rural regions that lack the possibility for conducting their own formal innovation research and development (da Rosa Pires, et al., 2014; Naldi et al, 2015; Nilsson, 2006). The essential focus of S3 remains in the sense that introducing innovations that foster regional economic growth and stimulating entrepreneurs are important approaches. However, the nature and source of innovation is broadened beyond a focus on cutting-edge technologies that allow a region to leap-frog its peers and increase productivity. Instead, a region should focus on more incremental innovation that extends existing core strengths and adds complementary activities. Innovation is still important, but it need not be novel contributions to fundamental knowledge (Foray, David and Hall, 2011, p. 5). Adaptations of existing technologies to new uses in the region are endorsed, as are improvements in business organization and marketing that take advantage of more modern approaches that can better link rural firms to external markets. The focus starts from thinking about ways to make existing strengths stronger by applying appropriate technology. Stronger local firms are more competitive and have better opportunities for expansion. In time, this expansion can lead to other firms being introduced that complement the core sectors, which further expands employment and income and can create a cluster of activity.

In rural areas, a strong entrepreneurial base is critical to successful economic development. Most firms are small and rarely grow to a large size. Moreover, in all regions the churn rate of entry and exit of small firms is high. This means that the number of firm entries must exceed exits if the economy is to grow. For regions, the trick is to identify latent entrepreneurs, assess their opportunities for success, provide appropriate support for those with potential, and help them begin their business. A second key task is to encourage expansion of existing firms that have opportunities for growth. Connecting entrepreneurial support to innovation is a key part of this approach

The ideas underpinning S3 contradict the simple notion of diversification, which argues for introducing new activities that are independent of the existing economic base. By diversifying, it is argued a region reduces risk, since the fate of each sector is less connected to the others. But rural regions have small and shrinking labour forces and must compete for external markets. Realistically they can only do a few things well and these things are largely dictated by their geography and the resources they have available to them. By applying innovations to their existing competitive advantages, the risk of these current strength failing is reduced, and conversely, the possibility of growth is increased. Clearly, some care must be taken in assessing future opportunities for current dominant industries. For example, in an environment where the use of renewable energy will be supported and fossil energy will be discouraged it may not be wise in the long run to invest in strengthening the oil and gas sector. However, short-term investments in oil and gas may be a way to bridge a transition to a cleaner energy sector. And, while the decision to build the Muskrat Falls power plant and transmission line may still be controversial, its existence could offer new opportunities for economic development in the province.

Reorganizing Government to Support Future Growth

Our analysis shows that the public sector plays a large role in provincial employment, and in three of the five regions, it is very large. Since government inherently plays a supporting role in the economy finding ways to make it more effective in increasing both productivity and output in the tradable sector can make a significant contribution to provincial economic growth. In addition, both the current provincial fiscal crisis, and the upcoming need to reform government service delivery to deal with demographic decline also are arguments for considering significant reforms.

Currently Newfoundland and Labrador has two levels of government – a provincial government and settlements of various sizes that are chartered as incorporated municipalities comprising a second level of government. Municipalities have authorities delegated by the province and rely on provincial legislation and regulation to define their responsibility. In addition, there are other settled areas that are designated as unincorporated places, which have no direct form of local government and receive limited services provided directly by the province. The current structure of government has long been recognized as problematic, particularly in the more rural parts of the province where communities are small, often widely dispersed and lack any meaningful internal fiscal capacity. The result is a provincial government that is much larger in relative terms than in other Canadian provinces, in part because local governments in almost all cases are too weak to be an effective partner with the provincial government.

The essence of the problem is that, other than on the Avalon Peninsula in the immediate area of St. John's, and to a lesser extent in the region surrounding Corner Brook, individual municipalities are too small to be able to independently provide adequate public services, and, in many cases, have too small a local labour force to support a viable local economy. Weak local economies result in weak local revenue. In response, the province plays a large direct role in managing key public services such as health care, education, and emergency services that

provide essential local public services. Provincial transfers are required to support local government, making municipalities essentially clients of the provincial government, with little capacity to define and implement independent development strategies

Various attempts to address this problem have been made over the last 40 years. In each instance, the province identified regions that it saw as homogeneous, and then established a policy to coordinate provincial programs with the intent of providing an appropriate level of support to communities in each region. All attempts failed to fundamentally change the relationship between province and municipalities – and all failed to make significant change in the regions. In each instance, the provincial government of the time devised a top-down regional policy based on assembling packages of provincial support for regional development. In each instance, there was some success in some places, but within any given region, there was little evidence of significant improvements that could be attributed to the policy.

One explanation for the lack of success is that almost all municipalities are too small to be effective partners with the province and that the province is too large, too diverse, and too dispersed for the provincial government to be able to identify a viable regional development policy and be able to successfully directly implement it. While the provincial government may have the capacity to effectuate change, it lacks the local knowledge to make effective changes. Similarly, most municipalities are positioned to identify opportunities, but lack the capability to act on them. In principle, nearby municipalities could voluntarily band together to pool their resources and collaborate on development strategies and shared infrastructure. Some evidence of this exists, but it is at best a partial solution and lacks a formal structure. Moreover, the potential for this sort of collaboration is highest when communities are in close proximity and form a single local labour market.

A Possible Solution: Introduce an Intermediate Level of Government

Past efforts to introduce regional policy in the province have failed and a plausible contributing reason is that neither the provincial government nor the municipalities are able to work effectively with each other on local economic development in rural territories. While Municipalities Newfoundland and Labrador is an effective voice for municipalities, and has introduced a broad array of programs that can support municipal actions, it cannot directly act for individual municipalities nor groups of municipalities. And, while the provincial government employs a large number of people across the province, either directly or in quasi-government entities, and delivers a broad array of services, it is not an effective catalyst of private sector activity. Moreover, the long history of failed regional development efforts by the province has left a legacy of doubt among local leaders about the commitment of the province to the issue.

Across Canada, and in most other OECD countries, whether they are federal or unitary states, there is an intermediate level of government, typically called a region or county. These regions generally completely cover the national or provincial territory, except in places where there are large areas that are essentially unsettled. Importantly they are permanent units of government with well-defined geographic boundaries and with specific powers that in Newfoundland and

Labrador are currently held by either the province or by municipalities. While it may seem inappropriate to suggest adding a new layer of government at a time when the province is facing severe fiscal challenges, there is a clear argument that this is in fact a sound approach.

Counties/regions can be large enough units of government to bridge the existing gaps between the province and individual municipalities. They could assume those responsibilities that vary across space – making them a challenge for the province, but that are too complex for an individual municipality to manage. In particular, given the large number of very small municipalities in the province this intermediate unit of government could manage services in both places too small to be able to support them locally and in the unincorporated areas the province now serves. Importantly counties/regions create another level of democracy that can create support for collective action among municipalities. Because they are a permanent level of government, there is a stronger reason for municipalities to commit to working with the new level of government than has been the case with prior regional policy approaches.

There is a growing recognition that successful local economic development is far more likely when it is embedded in a supportive system of government that has placed various responsibilities at appropriate levels. Certainly, adding a new level of government in a time of fiscal crisis may not be an obviously sensible idea. However, given the complex geography of Newfoundland and Labrador, the high level of economic stress outside St John's, demographic decline in most small municipalities and the challenge of supporting public services with the current approach, it is worth considering. While there will be additional costs, a significant amount of the cost of the county/region level of government will be a shift from existing provincial expenditures. If regions/counties are well designed they should be able to accomplish more with these funds because they are better positioned to capture scale economies than are individual municipalities, and are better positioned to tailor program delivery to the specific needs within a region than is the provincial government, which tends to provide uniform approaches across the entire province.

Conclusion

The current fiscal crisis facing the provincial government of Newfoundland and Labrador is serious, but its main consequence may be that it will constrain the capabilities of the province as it deals with a major workforce shortfall in the later part of this decade. Unfortunately, an emerging and larger crisis is being hidden while the province focuses on repairing its budget. Before the turn of the century, the main labour market problem in much of the province was a one of excess supply where the number of potential workers exceeded the number of available jobs. With ample labour, there was little incentive for firms to adopt labour saving technologies, and also little incentive for workers to acquire skills that employers would not pay for, unless they were prepared to leave their community.

Recently the combination of the long-term trends of failing birth rates, high levels of outmigration of younger people, and a limited ability to attract foreign immigrants have now established a pattern of demographic decline, where the number of new workers entering the

labour force is less than the number leaving for health or normal retirement reasons. The situation for the province is made more precarious because labour force participation rates are relatively low compared to other provinces, as is the share of the active labour force that is not working on a full-time basis. In this decade the combination of a smaller workforce and the need to employ more workers in care for seniors will make it more important to ensure that workers have the skills that employers require, as will be, assuring that local labour markets are able to match individual skills with appropriate employment opportunities.

In addition, an aging population also places additional demands on society for support services, such as senior housing, geriatric care, and other forms of support for the elderly. Not only are these services expensive for society to provide, but they divert workers from other occupations that could boost economic growth. In a society with an expanding workforce, diverting more people to elderly care need not affect the ability to provide more manufactured products, harvest more fish, or develop new software, all of which can bring additional wealth to communities. But, when labour becomes scarce, having a person undertake any specific job may mean that there is a missing worker in another job opportunity.

The current economic structure of the province in terms of major sectors is biased toward a high dependence for employment on natural resource extraction and related first stage processing and on the public sector. Long run trends for employment in the resource extraction sectors are for a replacement of labour with capital in order to increase productivity and competitiveness. The other export oriented, or tradable sectors, manufacturing and tourism, play a considerably smaller role then natural resource extraction. Similarly, the other locally oriented sectors, logistics, and private services and construction, are smaller than the public sector. Two implications from this situation are that the current fiscal problems of the province may lead to reduced future public sector employment, and that it will be crucial to maintain natural resource revenues both to support employment in this important sector but also to provide revenue to the provincial government.

Much of the adaptation to demographic decline will have to take place in local labour markets through individual adjustments by workers and employers. However, government can play an important role in facilitating these adjustments, especially by providing improved coordination within and across labour markets and by supporting transitions. Were the provincial government in a sounder fiscal position it would have the resources to make investments that would allow adaptation to a new labour force reality. However, even if funds were readily available at the provincial levels more money alone would not likely be enough. Without introducing a system of effective regional government, adaptation will be more difficult. Municipalities, other than St John's, are too small to be able to provide planning and implementation of development strategies. The provincial government is too remote from local conditions to be effective in direct interventions and has difficulty in providing assistance tailored to local needs. Past efforts to implement regional strategies by the province have failed, largely because they were not grounded in local governance systems. Introducing a layer of intermediate regions, such as counties or formal regional governments, with devolved revenue and powers that can broker collaboration among municipalities would provide a useful

mechanism for facilitating adjustments appropriate to the needs of the different parts of the province.

References

Drache, D., 1982. “Harold Innis and Canadian Capitalist Development.” *CTheory*, 6 (1-2), pp.35 60.

Foray, D., David, P.A. and Hall, B.H., 2011. *Smart Specialisation from Academic Idea to Political Instrument: The Surprising Career of a Concept and the Difficulties Involved in its Implementation* (No. REP_WORK). EPFL.

Innis, H. [1930] 1999. *The Fur Trade: An Introduction to Canadian Economic History*. Toronto: University of Toronto Press.

Innis, H. [1940] 1954. *The Cod Fisheries: The History of an International Economy*. Toronto: University of Toronto Press.

Kotschwar, B. 2014. “Heading Off Resource Curse Outcomes.” In *North-South Rebalancing: The Role of Innovation, Technology Transfer, and Sharing of Best Practices* (pp. 5–7). German Marshall Fund of the United States. http://www.jstor.org/stable/resrep18981.5

McCann, P. and Ortega-Argilés, R., 2013. “Modern Regional Innovation Policy.” *Cambridge Journal of Regions, Economy and Society*, 6 (2), pp. 187-216.

Murtazashvili, I. and Piano, E.E., 2019. “More Boon than Bane: How the US Reaped the Rewards and Avoided the Costs of the Shale Boom.” *The Independent Review*, *24* (2), pp.249-272.

Naldi, L., Nilsson, P., Westlund, H. and Wixe, S., 2015. “What is smart rural development?” *Journal of Rural Studies*, 40, pp. 90-101.

Nilsson, P. and Etelä, N., 2006. *Norden: A Creative Powerhouse*. Available: https://www.diva portal.org/smash/record.jsf?pid=diva2:707096

Premier’s Economic Recovery Team. 2021. *The Big Reset: Report of the Premier’s Economic Recovery Team*. St. John’s NL. https://thebigresetnl.ca/

da Rosa Pires, A., Pertoldi, M., Edwards, J. and Hegyi, F.B., 2014. “Smart Specialisation and Innovation in Rural Areas.” *S3 Policy Brief Series*, 9, p. 2014.

Van der Ploeg, F. and Poelhekke, S., 2009. “Volatility and the Natural Resource Curse.” *Oxford economic papers*, *61* (4), pp.727-760.

Venables, A.J., 2016. “Using Natural Resources for Development: Why Has it Proven So Difficult? in *Journal of Economic Perspectives*, *30* (1), pp.161-84.

Watkins, M.H., 1963. “A Staple Theory of Economic Growth.” *Canadian Journal of Economics and Political Science/Revue Canadienne de Economiques et Science Politique*, *29*(2), pp. 141 - 158.