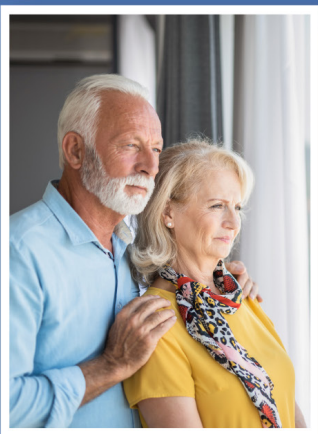


The Implications of an Aging Population for Government Finances in Atlantic Canada

by Jake Fuss and Alex Whalen



SUMMARY

- Seniors currently compose a large share of Atlantic Canada's population, and will constitute an even greater share of the region's population in the years ahead.
- This will drive increases in health care spending and slow the growth in revenues, while imposing adverse effects on the provincial economies. The risk of future recessions, rising interest rates, and other unexpected events will only compound problems further.
- Health care expenditures are estimated to increase annually by 4.2 percent in New Brunswick, 4.7 percent in Nova Scotia, 5.1 percent in

Newfoundland & Labrador, and 5.6 percent in Prince Edward Island until 2040/41.

- The aging population will exacerbate challenges for provincial government finances in the form of persistent deficits. Projections suggest that at the current trajectory the province will not see a balanced budget before 2040.
- The situation is the most severe in Newfoundland & Labrador, which projects a primary deficit of 5.3 percent of GDP in 2040 (excluding interest costs). By 2040, estimates indicate that all three Maritime Provinces will have primary deficits, to the tune of 2.3 percent of GDP in Prince Edward Island, 1.1 percent in New Brunswick, and 1.7 percent in Nova Scotia.

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Introduction

Academics and pundits alike have spent much time discussing Atlantic Canada's relatively old and aging population. Long-term projections suggest that in the coming decades a lower proportion of Canadians will participate in the labour force and the country will experience relatively low rates of economic growth. While all of Canada is dealing with these challenges, Atlantic Canada faces some of the most difficult conditions. At the same time, Canada's aging population is expected to result in slower-growing revenues and rising expenditures, particularly for health care. This will exacerbate challenges for provincial government finances and increase deficits if there is no change in policy.

This report is one of five bulletins in a series about the financial pressures facing provincial governments due to an aging population. These bulletins are intended to be short summaries, rather than exhaustive analyses, and do not explore debt ratios in detail or make specific policy recommendations. Instead, the purpose of this essay series is to inform Canadians of the effects that our aging population will have on government expenditures, and to a lesser extent, deficits, in their respective province or region.

The four Atlantic Provinces serve as a strong example of a region with an aging population that will experience noteworthy changes for its economy and government finances. This report will explore long-term projections for finances in Newfoundland & Labrador, Nova Scotia, New Brunswick, and Prince Edward Island after incorporating the effects of an aging population. The first section examines how each province's population may be affected by changing demographics. The middle sections outline the current fiscal situation in each province and the impact of the aging population on provincial finances. These sections will primarily focus on

health care spending. Finally, the fourth section includes a long-term projection of the fiscal situation in the region through 2040.

Demographic changes and implications

The population growth rate for any province is determined by its birth rate, death rate, and net migration.¹ Over several decades, the fertility rate has dropped, and Atlantic Canadians are no longer having enough children to replace the existing population given current mortality rates. Compounding these issues is the fact that Atlantic Canada has lost more people than it has gained over the long-term through migration. Recently, the region has seen increased immigration levels, but it remains to be seen whether those newcomers will stay (Whalen, Li, and Eisen, 2021).

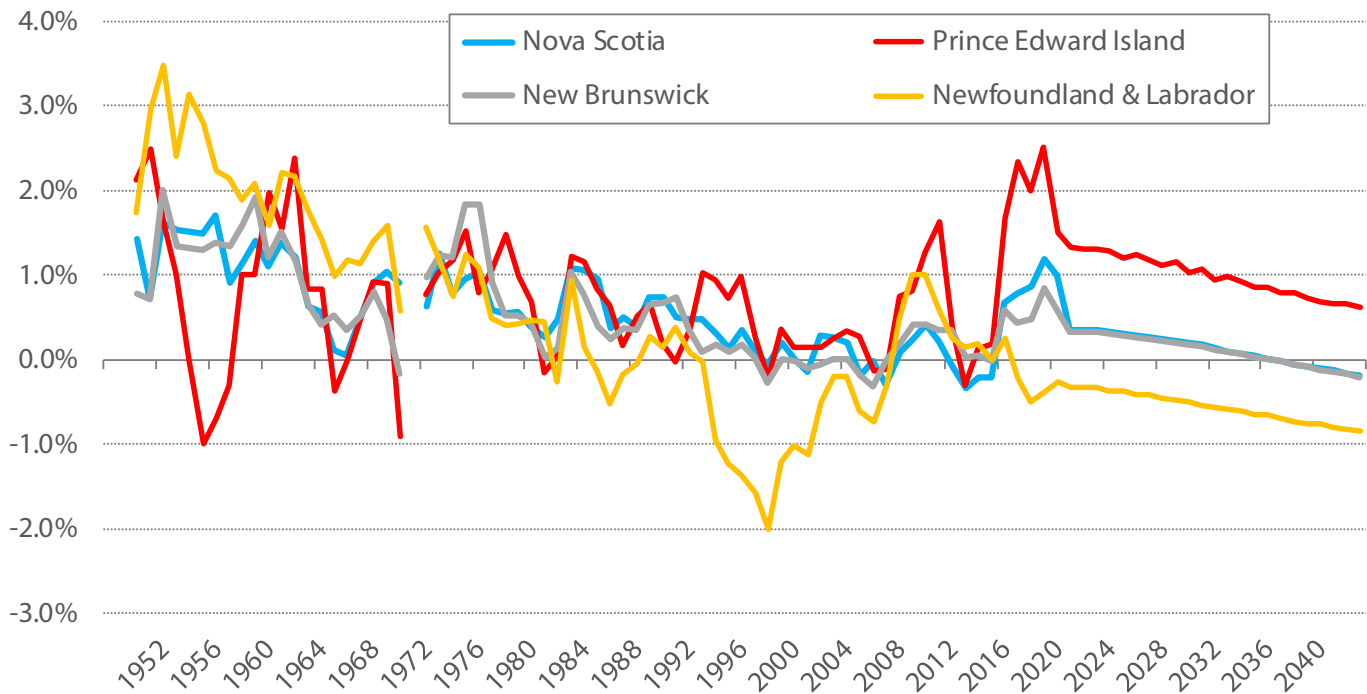
The result of these factors is a slowdown, and in some cases a complete halt, to population growth. For instance, the average annual population growth rate (across the four provinces) in the 1950s and 1960s was 1.2 percent (Statistics Canada, 2021a). Even with a recent uptick in population growth, this historical number is four times the average annual population growth of 0.3 percent over the most recent 20-year period from 2001 to 2020 (Statistics Canada, 2021b). Furthermore, population growth is expected to slow down further in the future. Based on Statistics Canada's medium growth projection,² the annual population growth rate

¹ Net immigration is the difference between in migration and out migration in the jurisdiction.

² This is based on Statistics Canada M1 projection for population growth. The medium-growth (M1) scenario expects the total fertility rate will reach 1.59 children per woman in 2042/2043 and remain constant thereafter; interprovincial migration is based on the trends observed between 1991/1992 and

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Figure 1: Population Growth in the Atlantic Provinces, 1950-2043



Sources: Statistics Canada (2021a, 2021b, 2021c); calculations by authors.

from now until 2043 is expected to be -0.2 percent in Newfoundland & Labrador, 0.1 percent in both New Brunswick and Nova Scotia, and 1.0 percent in Prince Edward Island (see Figure 1).

At the same time, life expectancy for people in Atlantic Canada is projected to continue increasing. A slower population growth rate combined with increasing life expectancy means that seniors will comprise a larger share of Atlantic Canada's future population. Figure 2 identifies the actual and projected seniors' share of the population in each Atlantic province from 2010 to 2043. Over the last decade, the share of the population aged 65 and older

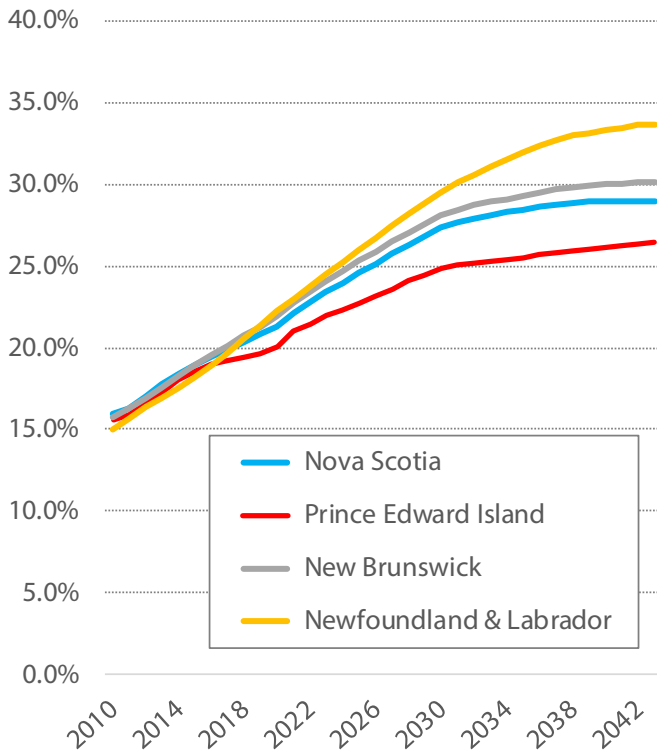
across the region has increased from 15.6 percent to 20.8 percent and is expected to continue rising. The rate of growth will be highest from now until the mid-2030s, and is expected to hit Newfoundland & Labrador the hardest. After the mid-2030s, the rate of growth in the seniors' share of the population in Atlantic Canada is projected to slow, but the actual share will continue to grow, such that by 2043 the share of the overall population 65 years or older will range from a low of 26.4 percent in Prince Edward Island to 33.7 percent in Newfoundland & Labrador.

While Figure 2 shows an older population, Figure 3 demonstrates how the share of the population aged 15 to 64 (in other words, the working-age population) is projected to evolve.

2016/2017; the immigration rate reaches 0.83 percent in 2042/2043 and remains constant thereafter.

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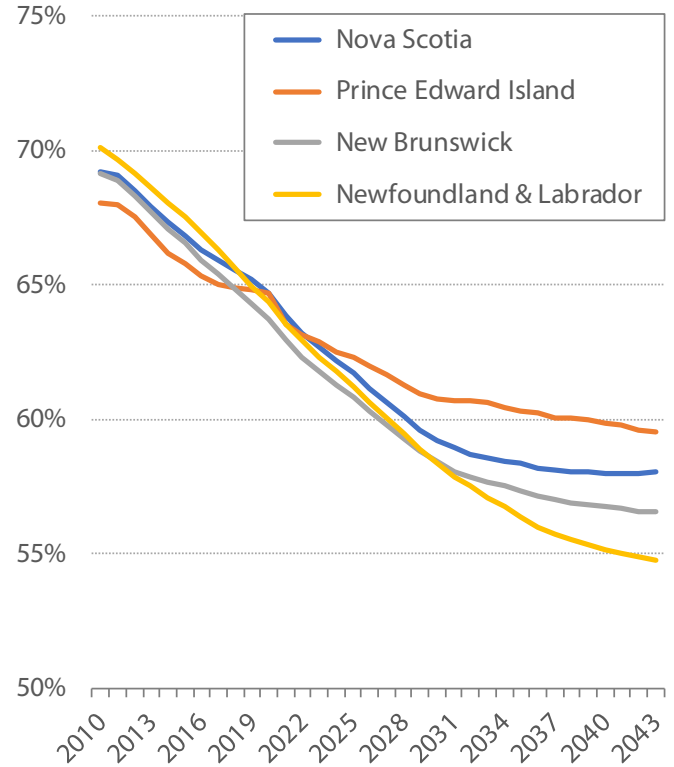
Figure 2: Atlantic Provinces' Share of Population over 65 Years Old, 2010-2043



Sources: Statistics Canada (2021b, 2021c); calculations by authors.

Working-age Atlantic Canadians accounted for between 68.1 percent (PEI) and 70.1 percent (Newfoundland & Labrador) of the total population in each province during 2010 (Statistics Canada, 2021b). Since then, the working-age share of the population has fallen in all four provinces to a proportion between 63.7 percent (New Brunswick) and 64.7 percent (Nova Scotia and PEI) in 2020 (the latest year of available data). As the baby boomers continue to retire, the working-age share is expected to decline further and gradually fall well below two-thirds of Atlantic Canada's population over the next couple decades. For instance, the proportion is

Figure 3: Atlantic Provinces' Share of Population 15-64 Years Old, 2010-2043



Sources: Statistics Canada (2021b, 2021c); calculations by authors.

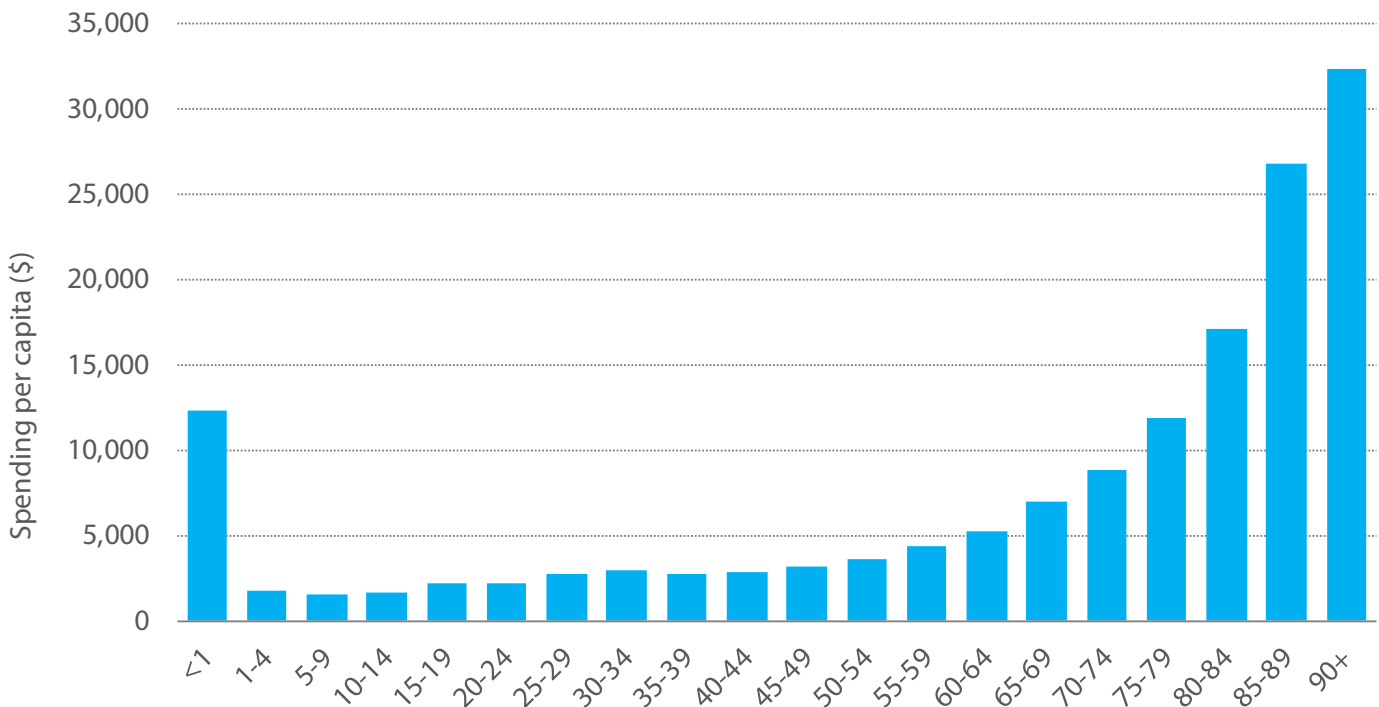
projected to reach an average of 57.2 percent across the region by 2043, including a projected low of 54.8 percent in Newfoundland & Labrador (Statistics Canada, 2021c).

Atlantic Canada's current fiscal situation

In 2021/22, all Atlantic provinces except for New Brunswick³ are currently in a deficit posi-

³ As of the October 2021 fiscal update, New Brunswick posted a \$408.5 million surplus for 2020-21 and may also end 2021-22 with a surplus (DOF, 2021b). This is an improvement from previous fiscal expec-

Figure 4: Atlantic Canada's Health Expenditures Per Capita by Age Group, 2018



Source: CIHI, 2020.

tion, partly due to increased COVID spending and the pandemic's effect on revenues.⁴ Further, all four provinces are planning to run deficits-until 2024/25 at least. While the Maritime provinces have fared somewhat better than the rest of the country during the pandemic in that they have run smaller deficits, they also had less fiscal room to maneuver in the first place.

Recent research demonstrated that the Atlantic provinces as a whole are facing a precarious fiscal position (Eisen, Whalen, and Palacios,

tations. However, it does not materially change the longer-term challenges (such as aging) discussed throughout this study.

⁴ See the government budgets in the references section for more information.

2021). Even prior to the pandemic, the four had some of the highest debt burdens, highest interest rates on that debt, and the largest reliance on federal transfers in the country. Further, there is little room to raise taxes, as the overall tax burden in each province is among the highest in the country. Add these factors to the aging population and a picture of fiscal peril clearly emerges.

The fiscal situation is currently the most challenging in Newfoundland & Labrador, which projects an \$826 million deficit this year (Newfoundland & Labrador, 2021). This will add to a provincial debt burden of more than \$33,000 per person, which is already the highest in Canada. While the Maritime Provinces are in somewhat better shape, only New Brunswick is

projected to shrink its debt-to-GDP ratio in the short term (RBC, 2021).

Impact of aging population on provincial health care spending

Provincial finances will experience the primary effect of the aging population—mainly through the needed increases in health care spending. Specifically, the elderly use more health care resources since they are more vulnerable to illnesses and chronic diseases that require acute medical attention (Jackson et al., 2017). For instance, Atlantic Canadians aged 65 or older accounted for 67.6 percent of all provincial health care expenditures in 2018 (the latest year of available data) despite only amounting to approximately 20.4 percent of the population (CIHI, 2020; Statistics Canada, 2021b) (see figure 4). In contrast, Atlantic Canadians under the age of 25 accounted for just 14.2 percent of all provincial health care spending while constituting a much larger share (25.5 percent) of the population. Clearly, the proportion of elderly Atlantic Canadians has a direct effect on the level of health care spending in the region.

Changes in provincial health care spending can generally be broken down into several categories: demographic factors (population growth and aging), inflation (general and health-specific inflation), and other unexplained factors.⁵ Calculating provincial health care expenditures involves making assumptions about population factors in particular. In this bulletin, we use the M1 population projections from Statistics Canada and data from CIHI (2020) for average expenditures for different age groups in the region to simulate how health care expenditures will grow over time.

⁵ See Xu et al. (2011) for more information about the determinants of health expenditures by country.

We assume that general inflation will have a similar impact on health care spending as it will on the rest of the provincial economies. Projections for general inflation come from short-term projections from private forecasters and the Conference Board of Canada's long-term forecast for provincial inflation. In addition to general inflation, provincial health care spending is affected by health-sector price inflation which has been above the rate of general inflation in recent decades. The Canadian Institute for Health Information notes inflation in health care typically outpaces increases in the CPI due to "increases in remuneration, as employers and governments compete for a limited pool of human resources (CIHI, 2011). For this reason, we will continue to assume that provincial health care expenditures will grow in excess of general inflation and instead will grow by something we refer to in the bulletin as "health-specific inflation."

There are other, generally less well-known factors, unexplained by inflation and demographic factors, that contribute to the growth in health care expenditures. Some of these include government policy, technological change, and income elasticity. However, there is a great deal of uncertainty over the magnitude of these effects (i.e., the value for elasticity).⁶ For simplicity, we make the same assumption as Barua et al. (2017), that growth in health expenditures due to unexplained factors should be based on observed historical data without separating out the possible contribution of income elasticity of health care spending.⁷ While this is conceptually

⁶ See Kneebone (2012) for reasons why there is uncertainty over the appropriate elasticity to use in Canada.

⁷ The income elasticity of health care spending refers to the relationship between growth in per

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Table 1 : Assumptions for Atlantic Canada

Growth Factor		Assumption		Average Annual Growth Rate (percent), NS	Average Annual Growth Rate (percent), PE	Average Annual Growth Rate (percent), NB	Average Annual Growth Rate (percent), NL
Inflation	General Inflation	Average private forecasters; Conference Board of Canada	Variable	2.0%	2.0%	2.0%	2.0%
	Health-specific inflation	Historical Observation (2010-2019 NS and PE, 2004-2019 NB and NL)	Constant	0.1%	0.3%	0.3%	0.2%
Demo-graphics	Population Growth	Statistics Canada (2021) Population Projections M1	Variable	0.1%	1.0%	0.1%	-0.6%
Other Factors		Historical Observation (2010-2019 NS and PE, 2004-2019 NB and NL)	Constant	1.3%	1.0%	0.5%	1.6%

Sources: Caranci, Burleton, Abdelrahman, and Sondhi (2021); CIHI (2020); Conference Board of Canada (2020a, 2020b, 2020c, 2020d); Desormeaux (2021); Grantham and Bognar (2021); Hogue and Freestone (2021); Statistics Canada (2021c); calculations by authors.

ally equivalent to assuming an income elasticity of zero, it does not mean the authors do not acknowledge the existence of income elasticity or that our model excludes this effect. Instead, our model simply does not separate out income elasticity from other unexplained factors (see Barua et al., 2017 for further explanation).

Health spending in each of the four Atlantic provinces is projected until 2040/41 based on the sum of the products of estimates for health care spending by age group and popu-

capita income and demand for health care services (Barua et al., 2017).

lation by age group. Health care spending values for 2020/21 to 2021/22 are assumed to be the same values as projected in the 2021 budgets for each province. For spending numbers in 2022/23 to 2040/41, health care spending is calculated by multiplying projected spending per age group (5-year increments) by a growth factor that reflects inflation and unexplained factors. We then multiplied these numbers by the projected population of each age-band to account for the demographic effects of an aging population. To summarize, provincial health care spending in year t can be illustrated using the following equation:

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$$HS_t = \sum_{k=1}^n \left[hc_{k,t-1} \left(\frac{CPI_t}{CPI_{t-1}} \right) \left(\frac{HSI_t}{HSI_{t-1}} \right) (1 + X_t) \right] Pop_{k,t}$$

Where t is the year, k is the five-year age band, n is the total number of age bands, HS is total provincial health spending, hc is health spending per capita, CPI is the consumer price index, HSI is health-specific inflation (based on historical data), X is other unexplained factors (based on historical data), and Pop is the population (based on Statistics Canada's M1 scenario). Table 1 lists the various assumptions used for the formula.

Other spending and revenue projections

There are additional assumptions that affect our calculations of the effects of the aging population. For instance, we assume that spending projections for elementary and secondary education increase conservatively in line with the provincial growth rate for the K-12 population (5- to 18-year-olds) plus inflation. Likewise, post-secondary education spending rises at the provincial rate of growth for the 19- to 24-year-old population plus inflation. All other program spending is estimated to simply grow at the rate of inflation plus total population growth.

Slower revenue growth is another potential consequence of the aging population. As the PBO (2021) noted, population aging will put downward pressure on growth in total hours worked in Atlantic Canada and cause slower growth in real GDP and real GDP per capita. The subsequent result is slower growth in revenues as well.⁸ To account for demographic effects, this bulletin follows a similar approach to

⁸ PBO (2021) gives more information about the various factors contributing to slower growth in revenues and real GDP.

Tombe (2020) and the PBO (2021) in estimating each province's annual growth in revenue until 2040. For simplicity, revenues from personal income taxes, corporate income taxes, sales taxes, payroll taxes, excise taxes, and natural resources taxes (where applicable) all grow in line with nominal GDP projections (Tombe, 2020; PBO, 2021).⁹

Property tax revenues and other own-source revenues are projected to grow with population plus inflation and gasoline tax revenues to grow with real GDP.¹⁰ Growth in tobacco tax revenues is expected to slow substantially and in this report is only anticipated to rise with inflation. Projections for inflation, nominal GDP, and real GDP growth for 2020 to 2022 come from private forecasters. From 2023 onwards, we follow the Conference Board of Canada's (2021) outlines for inflation and assume it will grow by 2.0 percent; we also assume that GDP growth will be equivalent to the Parliamentary Budget Officer's projections (PBO, 2021).

Transfers from the federal government differ according to the existing rules. Revenues for the Canada Health Transfer (CHT) and the Canada Social Transfer (CST) both grow conservatively at an annual rate of 3.0 percent. Equalization payments are assumed to grow at the rate of projected GDP growth.¹¹ We assume

⁹ In the case of Newfoundland & Labrador, growth in natural resource revenues are held below nominal GDP over the timeframe since this source is relatively volatile and unpredictable. To smooth the revenue pattern in the series, we simply assume resource revenues remain fairly steady from 2021/22 to 2040/41.

¹⁰ Our report assumes there will be no tax rate or tax policy changes during the period of analysis.

¹¹ For the projection of equalization payments in the three Maritime Provinces, total equalization is

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that other transfers from the federal government will keep pace with population growth plus inflation.

Fiscal projections

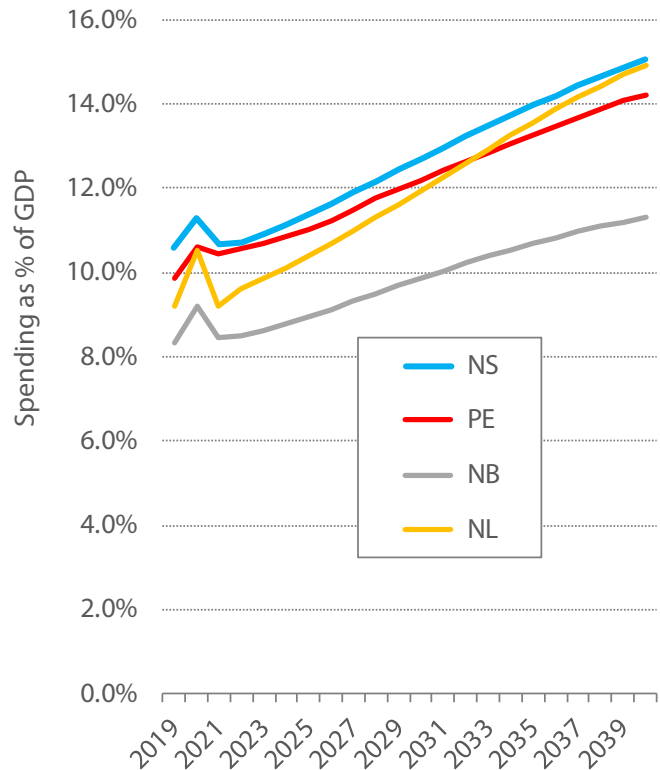
Based on the assumptions outlined in the previous section, our model suggests that from now until 2040/41, revenue will grow at an average rate of 2.5 percent in Newfoundland & Labrador, 2.9 percent in Nova Scotia and New Brunswick, and 3.6 percent in Prince Edward Island. Put differently, annual revenue growth in Atlantic Canada is expected to be slightly below annual nominal GDP growth in each province over the same time period. Meanwhile, program spending projections are split between health care and non-health related spending.

For non-health spending, the model projects that between 2021/22 and 2040/41, there will be spending growth of 1.9 percent (on average) in Nova Scotia, 2.3 percent in New Brunswick, 2.6 percent in Newfoundland & Labrador, and 3.0 percent in Prince Edward Island. Health care expenditures, on the other hand, are estimated to increase annually by 4.2 percent in New Brunswick, 4.7 percent in Nova Scotia, 5.1 percent in Newfoundland & Labrador, and 5.6 percent in Prince Edward Island until 2040/41.

Health care spending is expected to increase in relation to the size of the provincial economies as well. Specifically, health care spending is projected to increase in the region from roughly 8.3 to 10.6 percent of provincial GDP in 2019 (the last year before the pandemic), to between 11.3 per-

cent to 15.0 percent in 2040 (figure 5). This highlights the pressure the region's aging population will place on provincial budgets in the coming decades. Notably, health spending as a share of the economy rises in 2020 due to the temporary effects of COVID-19, then briefly declines as the economy recovers. Afterwards, health spending increases again as a share of GDP and eventually exceeds the pre-pandemic total.

Figure 5: Atlantic Canada's Health Spending Relative to the Economy (GDP), by Province, 2019-2040



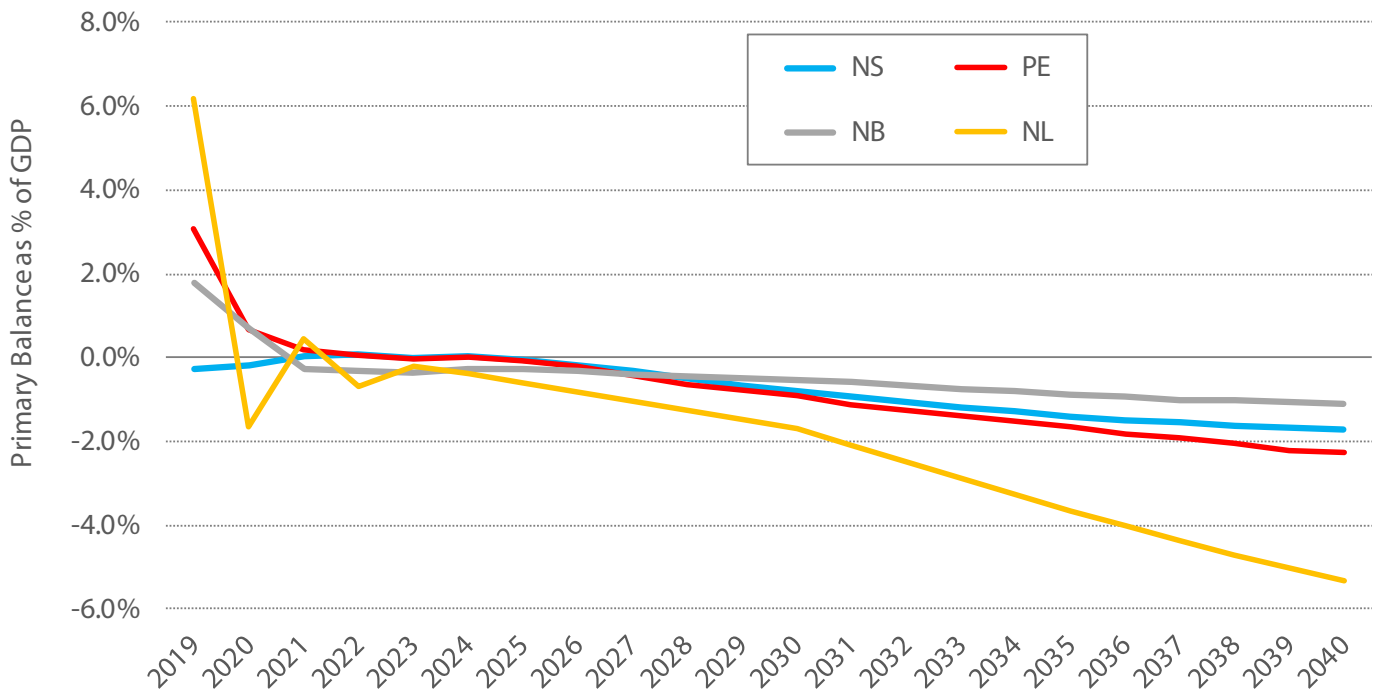
Sources: CIHI (2020); New Brunswick (2021a); Newfoundland & Labrador (2021); Nova Scotia (2021); Prince Edward Island (2021); calculations by authors.

cent to 15.0 percent in 2040 (figure 5). This highlights the pressure the region's aging population will place on provincial budgets in the coming decades. Notably, health spending as a share of the economy rises in 2020 due to the temporary effects of COVID-19, then briefly declines as the economy recovers. Afterwards, health spending increases again as a share of GDP and eventually exceeds the pre-pandemic total.

We also calculate a "primary balance" for each province, which demonstrates what each gov-

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Figure 6: Primary Balance in Atlantic Provinces, as a Percent of GDP, 2019/20 to 2040/41



Sources: New Brunswick (2021a); Newfoundland & Labrador (2021); Nova Scotia (2021); Prince Edward Island (2021); calculations by authors.

ernment's fiscal balance would be in the absence of debt interest costs. In other words, the primary balance compares provincial revenues to program expenditures. If revenues exceed program spending, the province is said to be in "primary surplus," whereas a "primary deficit" arises when program spending exceeds revenues. Throughout the entire period from 2021 to 2040, we project that Newfoundland & Labrador, New Brunswick, and Nova Scotia, will be running primary deficits due to a structural imbalance between revenues and program spending in each province (figure 6). Prince Edward Island's structural deficit does not occur until 2025, but is projected to continue through to 2040. The situation is most severe in Newfoundland & Labrador, which projects a primary

deficit of 5.3 percent of GDP in 2040 (excluding interest costs). Projections show the three Maritime Provinces with primary deficits of 2.3 percent of GDP in Prince Edward Island, 1.1 percent in New Brunswick, and 1.7 percent in Nova Scotia.

Simply put, these projections indicate that absent policy changes, the governments of the Atlantic provinces are likely not on track to balance their budgets before 2040, as they deal with upward pressure on health care spending and relatively modest revenue growth. The risk of rising debt interest payments will further compound these challenges by consuming more revenue, thus making it increasingly difficult for them to balance their budgets any time soon.

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Conclusion

Atlantic Canada's provincial finances will be in a precarious situation in the years ahead due to the economic effects of both an aging population and COVID-19. These problems will be most severe in Newfoundland & Labrador all four Atlantic provinces will experience difficulties. Seniors will continue to constitute a growing share of the population in Atlantic Canada, which will drive increases in health care spending and slow revenue growth while imposing adverse economic effects on the provinces. Moreover, absent a change in current policy, the aging population will exacerbate the problem of persistent deficits that will continue to challenge the region's government finances. In fact, current projections suggest the region will not see another balanced budget until after 2040. The risk of future recessions, rising interest rates, and other unexpected events will only compound problems further. Ultimately, Atlantic Canada's governments will have to implement new policies in order to avoid a serious deterioration in their financial health.

References

- Barua, Bacchus, Milagros Palacios, and Joel Emes (2017). *The Sustainability of Health Care Spending in Canada 2017*. Fraser Institute. <<https://www.fraserinstitute.org/studies/sustainability-of-health-care-spending-in-canada-2017>>, as of November 1, 2021.
- Canadian Institute for Health Information [CIHI] (2011). *Health Care Cost Drivers: The Facts*. Canadian Institute for Health Information.
- Canadian Institute for Health Information [CIHI] (2020). *National Health Expenditure Trends, 2020*. Canadian Institute for Health Information. <<https://www.cihi.ca/en/national-health-expenditure-trends>> as of November 1, 2021.
- Caranci, Beata, Derek Burleton, Omar Abdelrahman, and Rishi Sondhi (2021, June 18). *Provincial Economic Forecast: Rising Tide Lifts All Boats*. TD Economics. <https://economics.td.com/domains/economics.td.com/documents/reports/pef/ProvincialEconomic-Forecast_jun2021.pdf>, as of November 1, 2021.
- Conference Board of Canada (2020a). *Provincial Outlook Long-Term Economic Forecast: New Brunswick–2020*. Conference Board of Canada. <<https://www.conferenceboard.ca/e-library/abstract.aspx?did=10591>>, as of November 9, 2021.
- Conference Board of Canada (2020b). *Provincial Outlook Long-Term Economic Forecast: Newfoundland and Labrador–2020*. Conference Board of Canada. <<https://www.conferenceboard.ca/e-library/abstract.aspx?did=10587>>, as of November 9, 2021.
- Conference Board of Canada (2020c). *Provincial Outlook Long-Term Economic Forecast: Nova Scotia–2020*. Conference Board of Canada. <<https://www.conferenceboard.ca/e-library/abstract.aspx?did=10592>>, as of November 9, 2021.
- Conference Board of Canada (2020d). *Provincial Outlook Long-Term Economic Forecast: Prince Edward Island–2020*. Conference Board of Canada. <<https://www.conferenceboard.ca/e-library/abstract.aspx?did=10589>>, as of November 9, 2021.
- Eisen, Ben, and Alex Whalen, and Milagros Palacios (2021). *Atlantic Canada's Precarious Public Finances*. Fraser Institute. <<https://www.fraserinstitute.org/sites/default/files/atlantic-canadas-precarious-public-finances-exec-sum.pdf>>, as of November 9, 2021.

Implications of an Aging Population for Atlantic Canada's Finances

- Desormeaux, Marc (2021). *Scotiabank's Provincial Outlook: Third Wave Delays but Won't Stop Provincial Recovery*. Scotiabank Economics. <<https://www.scotiabank.com/ca/en/about/economics/economics-publications/post.other-publications.the-provinces.scotiabank-s-provincial-outlook--june-16--2021.html>>, as of November 1, 2021.
- Grantham, Andrew, and Tom Bognar (2021). *Provincial Fiscal Outlook: Easy Beats? Economics Provincial Forecast*. CIBC Economics. <<https://economics.cibccm.com/cds?id=d25059dc-5b66-4a39-b1d2-83c3696a6c28&flag=E>>, as of November 8, 2021.
- Hogue, Robert, and Carrie Freestone (2021). *Provincial Economic Outlook – June 2021*. RBC Economics. <<https://thoughtleadership.rbc.com/provincial-economies-reaching-the-other-side-of-the-valley/>>, as of November 8, 2021.
- Jackson, Taylor, Jason Clemens, and Milagros Palacios (2017). *Canada's Aging Population and Implications for Government Finances*. Fraser Institute. <<https://www.fraserinstitute.org/studies/canadas-aging-population-and-implications-for-government-finances>>, as of November 8, 2021.
- Kneebone, Ronald (2012). *How You Pay Determines What You Get: Alternative Financing Options as a Determinant of Publicly Funded Health Care in Canada*. SPP Research Papers 5, 21. School of Public Policy, University of Calgary. <<https://www.policyschool.ca/wp-content/uploads/2016/03/r-kneebone-althealthpayfinal.pdf>>, as of November 8, 2021.
- New Brunswick, Department of Finance and Treasury Board [DOF] (2021a). *Budget 2021*. Government of New Brunswick.
- New Brunswick, Department of Finance and Treasury Board [DOF] (2021b). *One Time Federal Support Drives Surplus*. Government of New Brunswick. <https://www2.gnb.ca/content/gnb/en/departments/finance/news/news_release.2021.10.0719.html>, as of October 20, 2021.
- Newfoundland and Labrador, Ministry of Finance [MOF] (2021). *Budget 2021*. Government of Newfoundland and Labrador.
- Nova Scotia, Department of Finance and Treasury Board [DOF] (2021). *Budget 2021*. Government of Nova Scotia.
- Parliamentary Budget Officer [PBO] (2021). *Fiscal Sustainability Report 2021*. Office of the Parliamentary Budget Officer. <<https://www.pbo-dpb.gc.ca/en/blog/news/RP-2122-010-S--fiscal-sustainability-report-2021--rapport-viabilite-financiere-2021>>, as of November 8, 2021.
- Prince Edward Island, Ministry of Finance [MOF] (2021). *Budget 2021*. Government of Prince Edward Island.
- RBC Economics (2021). *Canadian Federal and Provincial Fiscal Tables*. RBC Economics. <http://www.rbc.com/economics/economic-reports/pdf/canadian-fiscal/prov_fiscal.pdf>, as of November 8, 2021.
- Statistics Canada (2021a). *Table 17-10-0029-01: Estimates of Population, by Age Group and Sex, Canada, Provinces and Territories*. Government of Canada. <<https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=1710002901>>, as of November 1, 2021.
- Statistics Canada (2021b). *Table 17-10-0005-01: Population Estimates on July 1st, by Age and Sex*. Government of Canada. <<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000501>>, as of November 1, 2021.
- Statistics Canada (2021c). *Table 17-10-0057-01: Projected Population, by Projection Scenario*,

Implications of an Aging Population for Atlantic Canada's Finances

Age and Sex, as of July (x 1,000). Government of Canada. <<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710005701>>, as of November 1, 2021.

Tombe, Trevor (2020). *Provincial Debt Sustainability in Canada: Demographics, Federal Transfers, and COVID-19*. Finances of the Nation. *Canadian Tax Journal* 68,4: 1083-1122. <https://financesofthenation.ca/wp-content/uploads/2021/01/1083_2020CTJ4-FON.pdf>, as of November 1, 2021.

Whalen, Alex, Nathaniel Li, and Ben Eisen (2021). *Voting with Their Feet: Migration in Atlantic Canada*. Fraser Institute. <<https://www.fraserinstitute.org/studies/voting-with-their-feet-migration-in-atlantic-canada>>, as of November 8, 2021.

Xu, Ke, Priyanka Saksena, and Alberto Holly (2011). *The Determinants of Health Expenditure: A Country-level Panel Data Analysis*. Working Paper (December). World Health Organization. <https://www.who.int/health_financing/documents/report_en_11_deter-he.pdf>, as of November 1, 2021.



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