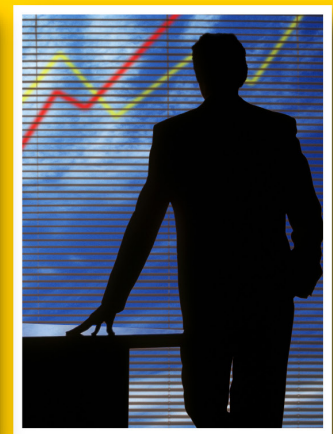


The Implications of an Aging Population for Government Finances in British Columbia

by Jake Fuss and Nathaniel Li



SUMMARY

■ Seniors currently compose 19.2 percent of British Columbia's population, and their share of the province's population will continue to grow and reach nearly 26.0 percent by 2043.

■ This will drive increases in health care spending and slow growth in revenues, while imposing adverse effects on the provincial economy. The risk of future recessions, rising interest rates, and other unexpected events will only compound problems further.

■ Health care expenditures are estimated to increase by approximately 4.2 percent annually

from now until 2040/41. Put differently, BC's health care spending will increase from 7.6 percent of GDP in 2019 to 8.6 percent in 2040.

■ The aging population will exacerbate challenges for BC government finances and projections suggest the province will not see a balanced budget before 2040 at the current trajectory.

■ BC is expected to run primary deficits (excluding interest costs) equivalent to between 0.2 and 0.7 percent of GDP, absent a change in spending or tax policy.

Introduction

Over the last decade, academics and pundits have frequently mentioned the economic and fiscal implications of an 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. At the same time, Canada's aging population is expected to lead to slower-growing revenues and rising expenditures on health care in particular. Without a change in policy, these trends will exacerbate provincial government financial challenges and increase their deficits.

This report is one of five in a series about the financial pressures facing provincial governments due to the aging population. These bulletins are intended to be short summaries rather than exhaustive analyses, and will not explore debt ratios in detail or make specific policy recommendations. Instead, the purpose of this 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.

British Columbia is one example of a province that will find that its aging population will result in noteworthy changes in its economy and government finances. This bulletin will explore the long-term projections for BC's finances after incorporating the effects of the aging population. The first section examines how the province's population may be affected by changing demographics. The middle sections outline the current fiscal situation in British Columbia 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 for the fiscal situation in BC through 2040.

Demographic changes and implications

British Columbia's population growth rate is determined by its birth rate, death rate, and net migration.¹ Over several decades, the province's fertility rate has dropped, and British Columbians are no longer having enough children to replace the existing population given current mortality rates. In recent years, net immigration has played a much bigger role in driving population growth for British Columbia than it did in past decades.

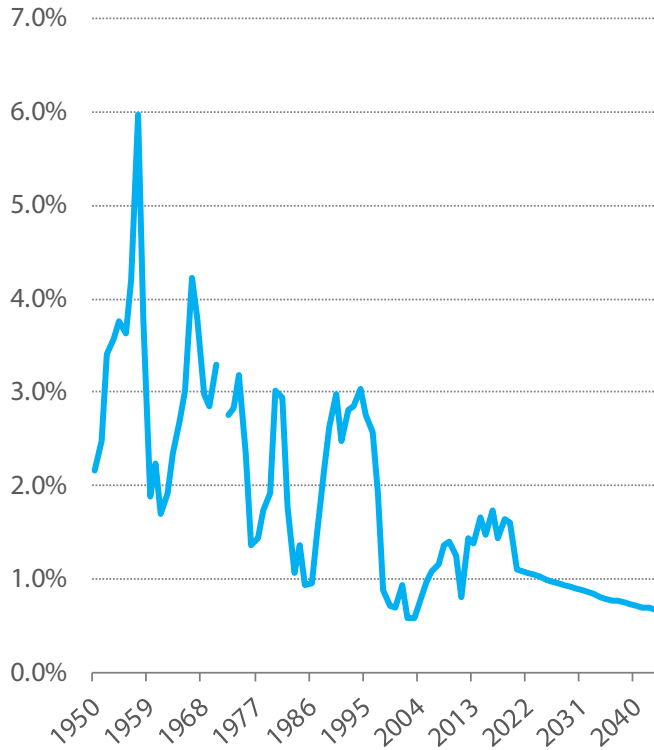
Despite this increase in net immigration, however, there has been a slowdown in population growth. For instance, the average annual population growth rate for BC in the 1950s and 1960s was 3.1 percent (Statistics Canada, 2021a). This is nearly triple the average annual population growth of 1.2 percent over the most recent 20-year period from 2001 to 2020 (Statistics Canada, 2021b). But population growth is expected to slow down further in the future. Based on Statistics Canada's medium growth projection for British Columbia,² the annual population growth rate is expected to be around or less than 1.0 percent from now until 2043 (see Figure 1).³

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

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 remains constant thereafter; interprovincial migration is based on the trends observed between 1991/1992 and 2016/2017; the immigration rate reaches 0.83 percent in 2042/2043 and remains constant thereafter.

³ Population projections for BC come directly from Statistics Canada. For brevity purposes, we do not disaggregate the different elements (i.e., interprovincial migration, immigration, etc.) contributing to their projections. See Statistics Canada (2021c) for more information.

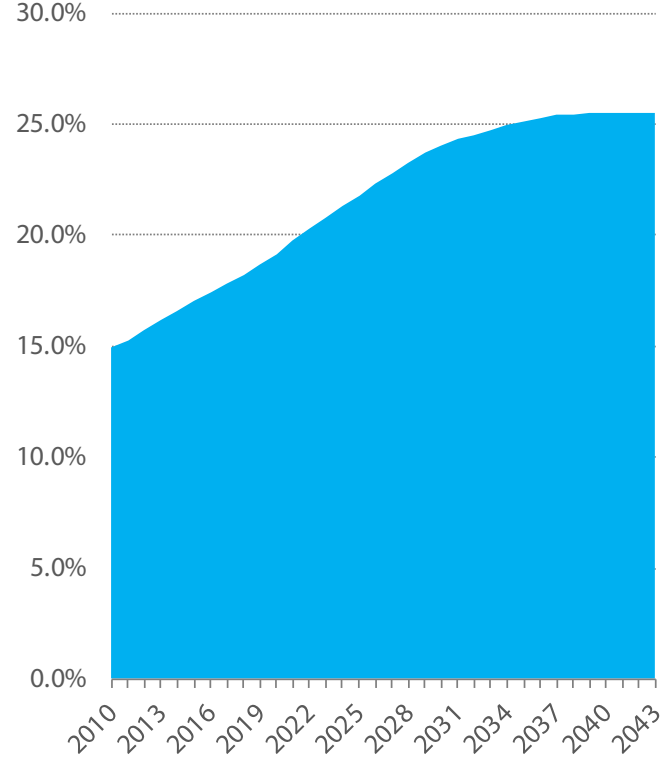
Figure 1: British Columbia's Population Growth, 1950-2043



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

At the same time, life expectancy for people in British Columbia is projected to continue increasing. A slower population growth rate combined with increasing life expectancy means that seniors will comprise a larger share of BC's future population. Figure 2 identifies the actual and projected seniors' share of British Columbia's population from 2010 to 2043. Over the last decade, the share of the population aged 65 and older has increased from 14.9 percent to 19.2 percent and is now expected to continue rising. The rate of growth will be highest from now until the mid-2030s, at which point the share of the population over age 65 will have

Figure 2: Share of British Columbia's Population over 65 Years Old, 2010-2043

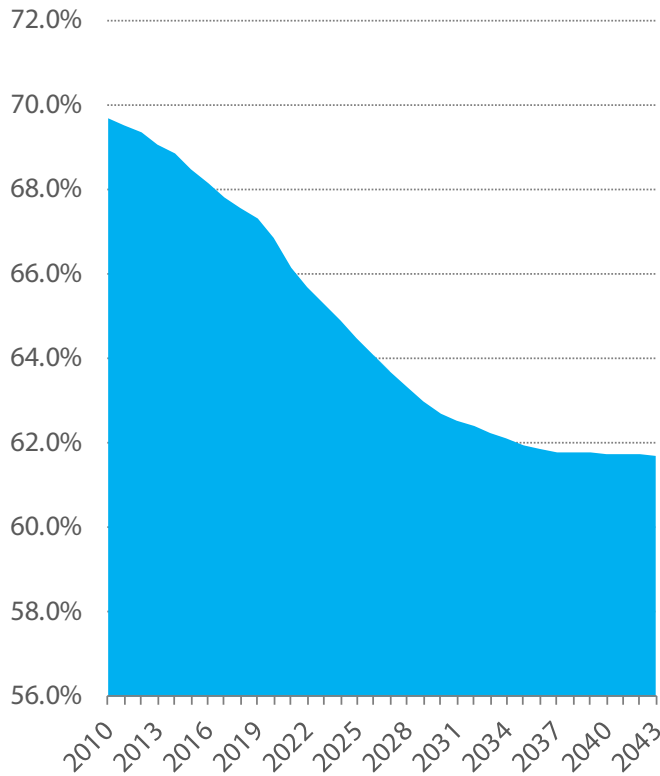


Sources: Statistics Canada (2021b, 2021c); calculations by authors.

reached more than 25 percent. After the mid-2030s, the rate of growth in the seniors' share of the population is projected to slow down but the actual share will continue to grow such that almost 26 percent of British Columbia's overall population will be 65 years or older by 2043.

Figure 3 demonstrates how the share of the BC population aged 15 to 64 (encompassing the working age population) is projected to evolve. Working-age British Columbians accounted for 69.7 percent of the total population in 2010 (Statistics Canada, 2021b). Since then, the working-age share of the population has decreased

Figure 3: Share of British Columbia's Population Aged 15 to 64, 2010-2043



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

and fell to 66.9 percent in 2020 (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 the B.C. population over the next couple decades. For instance, the proportion is projected to reach an amount below 62 percent by 2043 (Statistics Canada, 2021c).

British Columbia's current fiscal situation

British Columbia will run its second consecutive operating deficit in 2021/22, largely due to increased COVID spending and the pandemic's effect on revenues (MOF, 2021). Budget

2021 suggests the province will run a \$9.7 billion deficit in 2021/22, which is equivalent to 3.1 percent of provincial gross domestic product (GDP) (MOF, 2021). Deficits are expected for at least another two fiscal years, but the government has provided no balanced budget date.

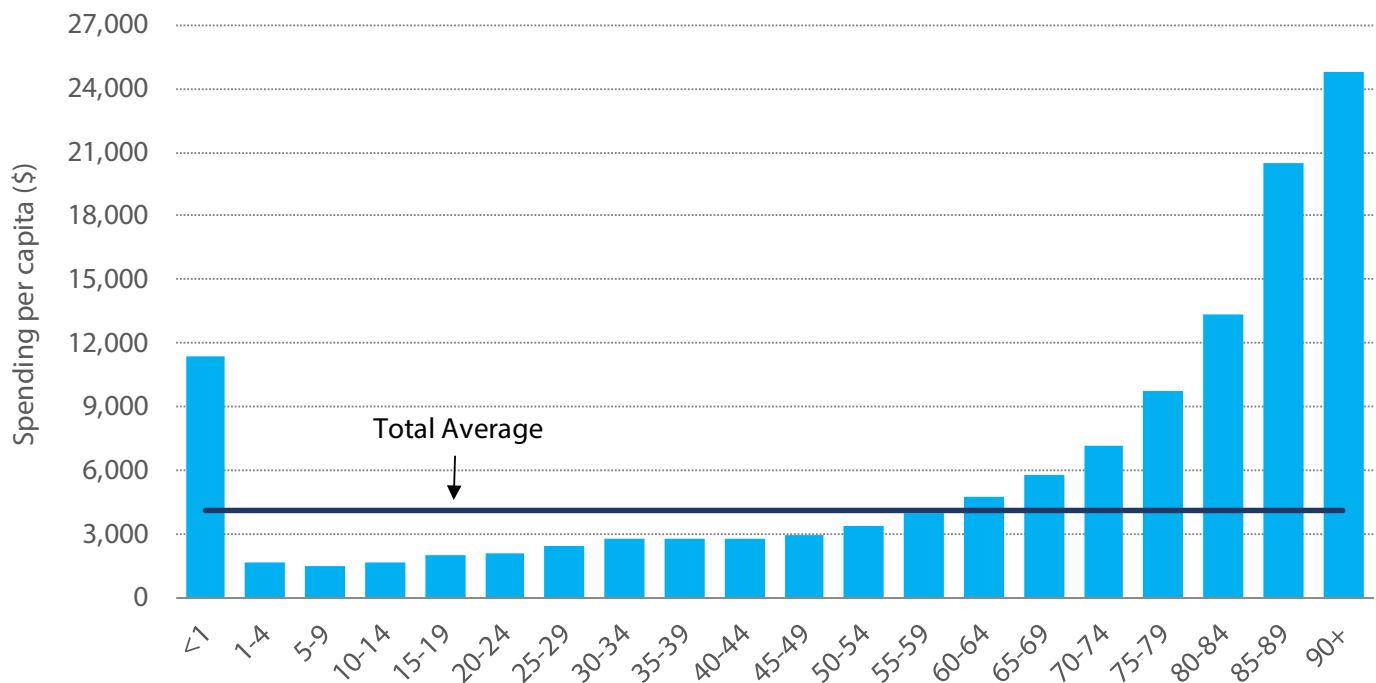
These deficits don't capture the full extent of BC's debt accumulation. Indeed, the province separates annual spending (the operating budget) from long-term spending on items such as new schools and highways (the capital budget). All told, net debt (total debt minus financial assets) will more than double from \$45.4 billion in 2019/20 to \$94.1 billion by 2023/24 (MOF, 2021). The province's net debt-to-GDP ratio is also expected to reach 22.9 percent at the end of the current fiscal year (MOF, 2021). Notably, however, this debt-to-GDP ratio would be the second lowest rate among all provinces in Canada behind only Saskatchewan.

Program spending is projected to equal \$64.8 billion this year and revenues are expected to total \$58.9 billion (MOF, 2021). Specifically, real per-person program spending has increased by 10.1 percent since 2019. Provincial health care spending in 2021/22 is forecasted as \$26.1 billion, which constitutes approximately 40.3 percent of all program spending (MOF, 2021). In contrast, K-12 education and post-secondary education account for less than a quarter (23.7 percent) of the province's program spending.

Impact of the aging population on British Columbia's 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

Figure 4: British Columbia's Health Care Expenditures per Capita by Age Group, 2018



Source: CIHI, 2020.

medical attention (Jackson et al., 2017). For instance, figure 4 shows British Columbians aged 65 or older accounted for 43.1 percent of all provincial health care expenditures in 2018 (the latest year of available data) despite accounting for only approximately 18.2 percent of the provincial population (CIHI, 2020; Statistics Canada, 2021). In contrast, British Columbians under the age of 25 accounted for just 13.5 percent of all provincial health care spending while constituting a much larger share (26.4 percent) of the population. Clearly, the proportion of elderly British Columbians has a direct effect on the level of health care spending in the province.

Changes in provincial health care spending can generally be broken down into several categories: demographic factors (population growth and aging), inflation (general and health-spe-

cific inflation), and other unexplained factors.⁴ Calculating British Columbia's 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 British Columbia to simulate how health care expenditures will grow over time.

We assume that general inflation will have a similar impact on health care spending as it will on the rest of BC's economy. Projections for general inflation come from short-term projections from private forecasters and the Conference Board of Canada's long-term forecast for

⁴ See Xu et al. (2011) for more information about the determinants of health expenditures by country.

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 that 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).⁵ 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.⁶ While this is conceptually 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,

⁵ See Kneebone (2012) for reasons why there is uncertainty over the appropriate elasticity to use in Canada.

⁶ The income elasticity of health care spending refers to the relationship between growth in per capita income and demand for health care services (Barua et al., 2017).

our model simply does not separate out income elasticity from other unexplained factors (see Barua et al., 2017, for further explanation).

British Columbia’s health spending is projected until 2040/41 based on the sum of the products of estimates for health care spending by age group and population by age group. Health care spending values for 2020/21 to 2023/24 are assumed to be the same values as projected in British Columbia’s 2021 Budget (see MOF, 2021). We calculated health care spending for 2024/25 through 2040/41 by multiplying projected spending per age group (in five-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:

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

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

Table 1 : Assumptions for British Columbia

Growth Factor		Assumption		Average Annual Growth Rate (percent)
Inflation	General Inflation	Average private forecasters; Conference Board of Canada	Variable	2.0%
	Health-specific inflation	Historical Observation (2004-2019)	Constant	0.5%
Demographics	Population Growth	Statistics Canada (2021) Population Projections M1	Variable	0.9%
Other Factors		Historical Observation (2004-2019)	Constant	0.1%

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

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 British Columbia and cause slower growth in real GDP and real GDP per capita. The subsequent result is slower growth in revenues as well.⁷ To account for demographic effects, this bulletin follows a similar approach to

Tombe (2020) and the PBO (2021) in estimating British Columbia's annual growth in revenue until 2040. Revenues for personal income taxes, corporate income taxes, sales taxes, payroll taxes, excise taxes, and natural resources all grow in line with nominal GDP projections (Tombe, 2020; PBO, 2021).⁸

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. 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

⁷ A decomposition of the factors that affect GDP and revenue growth is beyond the scope of this brief bulletin series. Please see PBO (2021) for more information about the various factors contributing to slower growth in revenues and real GDP.

⁸ Our report assumes there will be no tax rate or tax policy changes during the period of analysis.

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. For simplicity and to reflect its current status as a non-recipient, equalization payments are assumed to be zero for British Columbia over the entire period. We assume that other transfers from the federal government will keep pace with population growth plus inflation.

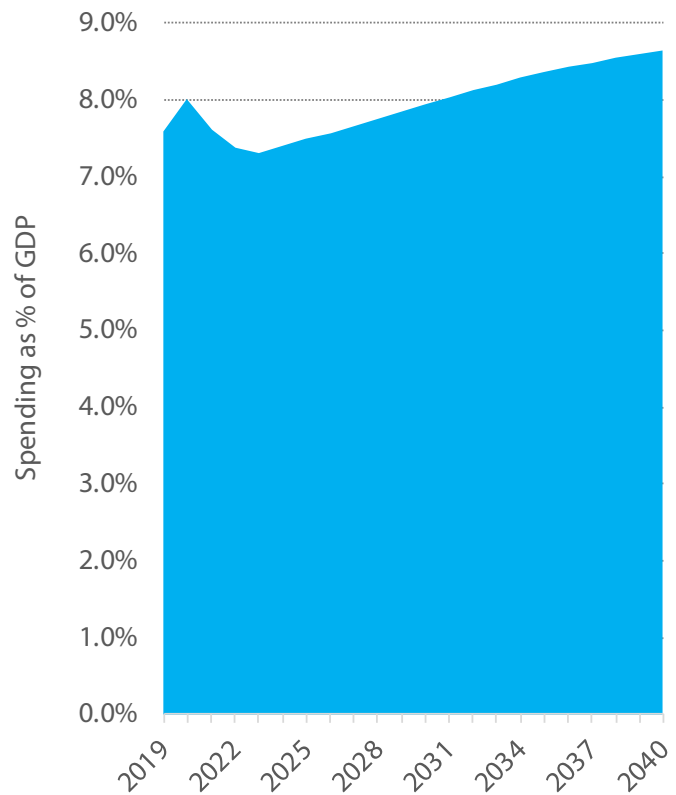
Fiscal projections

Based on the assumptions outlined in the previous section, our model suggests that British Columbia's revenue will grow at an average annual rate of 3.3 percent from now until 2040/41.⁹ Put differently, annual revenue growth in British Columbia is expected to be below the average annual nominal GDP growth (3.8 percent) in the province over the same time period. Annual provincial revenue is projected to nearly double (in nominal terms) over the next two decades from \$58.9 billion in 2021/22 to approximately \$109.8 billion in the last year of projections. In total, annual program spending is projected to increase nominally from approximately \$64.8 billion in 2021/22 to \$114.5 billion by 2040/41—an increase of 76.7 percent. All program spending outside of health care is estimated to grow by an annual average of 2.1 percent between 2021/22 and 2040/41.¹⁰

⁹ Revenue growth of 7.4 percent is expected in 2022, which skews the average rate of growth higher than it otherwise would be.

¹⁰ Total program spending growth is anticipated to be low in 2022 and 2023, which skews the average rate of growth lower than it otherwise would

Figure 5: British Columbia's Projected Health Spending Relative to the Economy (GDP), 2019-2040

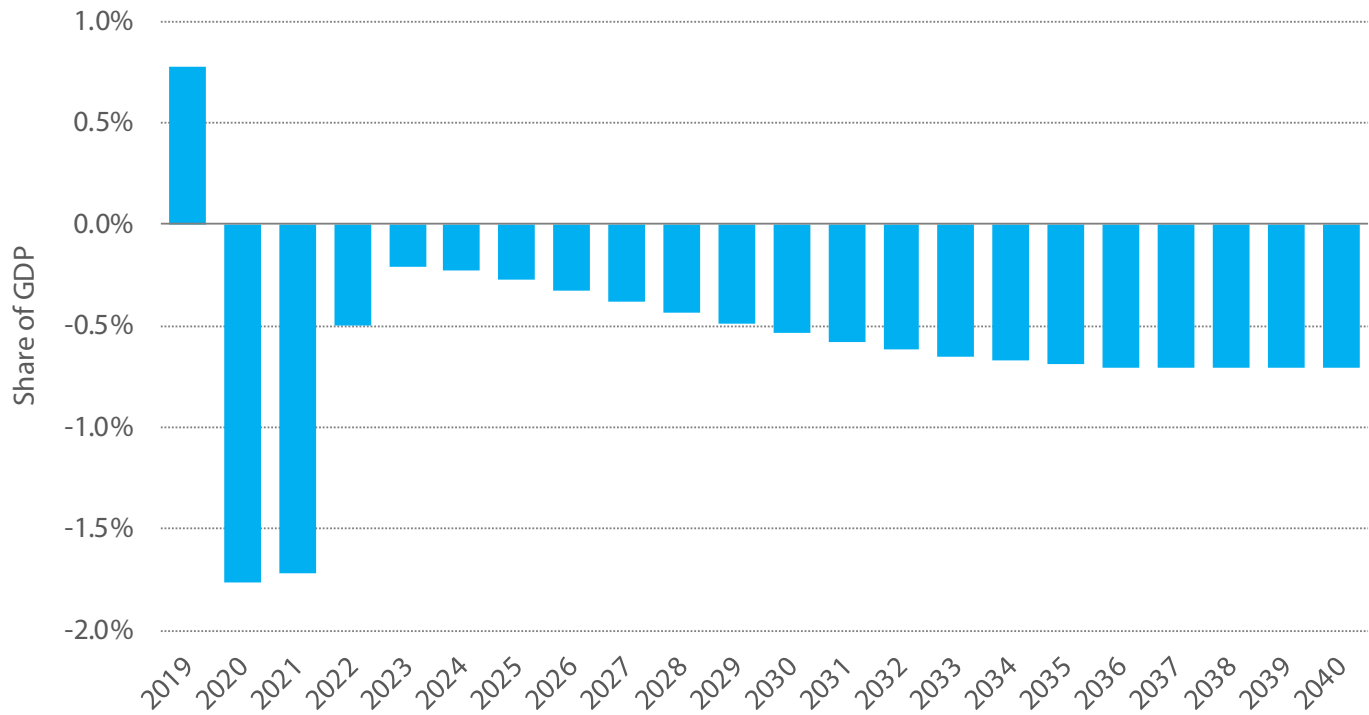


Sources: CIHI (2020); MOF (2021); calculations by authors.

Health care expenditures are estimated to increase by approximately 4.2 percent annually from now until 2040/41. This represents a nominal increase of 119.4 percent from \$26.1 billion in 2021 to \$57.3 billion in 2040. Relative to the size of the British Columbia economy, our projections suggest that health care spending by the province will increase from 7.6 percent in 2019 (the last year before the pandemic) to

be. Total growth in program spending is, however, expected to be higher than or equivalent to revenue growth after 2023.

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



Sources: MOF (2021); calculations by authors.

8.6 percent in 2040 (figure 5). This highlights the pressure British Columbia’s aging population will place on its budget in the coming decades. Notably, health spending as a share of the economy reaches a temporary peak in 2020 due to the effects of COVID-19, then briefly declines as the economy recovers. Afterwards, health spending is expected to increase again as a share of GDP and eventually surpass the previous high.

We also calculate a “primary balance” for the province, which demonstrates what the government’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 2021 to 2040 period, we project that British Columbia will have a primary deficit due to a structural imbalance between revenues and program spending (figure 6). While the primary deficit declines from its peak in 2020, the BC government could be running primary deficits roughly equivalent to 0.2 to 0.7 percent of GDP until at least 2040. While our primary deficit estimates for British Columbia are different from those of the Parliamentary Budget Officer, these numbers are comparable to Tombe’s (2020) average annual primary deficit projected for BC in 2030 (0.6 percent of GDP) and 2050 (1.5 percent of GDP).

Simply put, these projections signal that the BC government is likely not on track to balance its budget before 2040 as it deals 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 to balance the budget any time soon.

Conclusion

British Columbia's finances will be in a precarious situation in the years ahead due to the economic effects of both the province's aging population and COVID-19. Seniors will continue to constitute a growing share of British Columbia's population, which will drive increases in health care spending and slow revenue growth while imposing adverse economic effects on the province. Moreover, absent a change in current policy, the aging population will exacerbate the problem of persistent deficits that will continue to challenge BC's government finances. In fact, at its current trajectory, BC may 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, British Columbia's government will have to implement new policies in order to avoid a serious deterioration in its 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.
- British Columbia, Ministry of Finance [MOF] (2021). *Budget 2021*. Government of British Columbia.
- 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 (2020). *Provincial Outlook Long-Term Economic Forecast: British Columbia–2020*. Conference Board of Canada. <<https://www.conferenceboard.ca/e-library/abstract.aspx?did=10585>>, as of November 8, 2021.
- 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->

Implications of an Aging Population for BC Government Finances

[83c3696a6c28&flag=E](https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=1710002901)>, 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.

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.

Statistics Canada (2021a). *Table 17-10-0029-01: Archived – 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](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, 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.

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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