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The Implications of an Aging Population for Government Finances in Alberta

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SUMMARY

- Seniors currently compose 13.8 percent of Alberta's population, and their share of the province's population will continue to grow and reach 19.0 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 would only compound problems further.
- Health care expenditures are estimated to increase by approximately 5.6 percent annually from now until 2040/41. Put differently, Alberta's health care spending will increase from 6.3 percent of GDP in 2019 to 7.0 percent in 2040.
- The aging population will exacerbate challenges for Alberta government finances and projections suggest the province will not see a balanced budget before 2040 at the current trajectory.
- Alberta is expected to run primary deficits (excluding interest costs) equivalent to between 1.0 and 2.0 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.

Alberta 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 Alberta'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 Alberta 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 Alberta through 2040.

Demographic changes and implications

Alberta'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 Albertans are no longer having enough children to replace the existing population given current mortality rates. More recently, net immigration has played a much bigger role in driving population growth for Alberta than it did in past decades.[2]

Despite this increase in net immigration, however, there has been a slowdown in population growth. For instance, the average annual population growth rate for Alberta in the 1950s and 1960s was 2.9 percent (Statistics Canada, 2021a). This is more than the average annual population growth of 2.0 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 Alberta,[3] the annual population growth rate is expected to be around 1.6 to 1.9 percent from now until 2043 (see Figure 1).[4]

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

[2] There are exceptions in certain years. For instance, Alberta experienced negative net migration from 2015/16 to 2018/19.

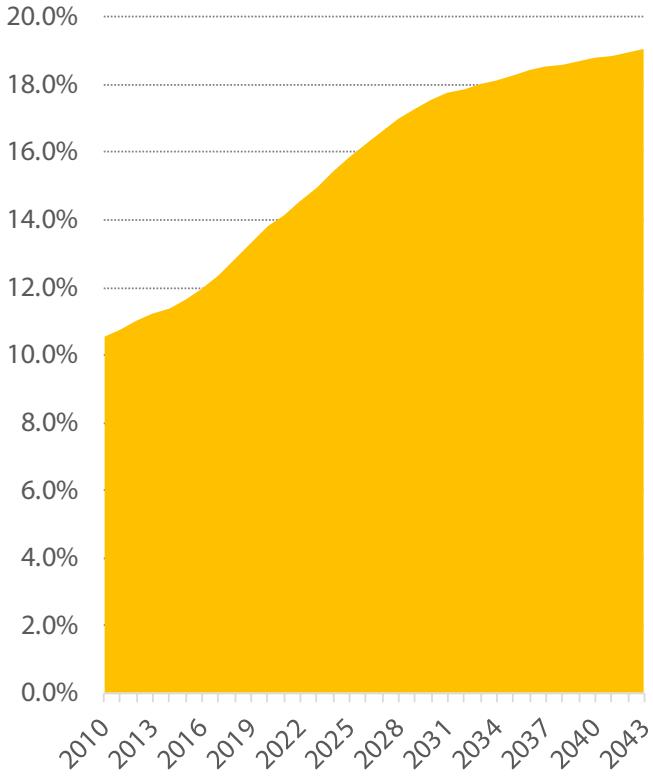
[3] This is based on Statistics Canada M1 projection for population growth. The medium-growth (M1) scenario expects the total fertility rate will reach 1.59 children per woman in 2042/2043 and remains constant thereafter; interprovincial migration is based on the trends observed between 1991/1992 and 2016/2017; the immigration rate reaches 0.83 percent in 2042/2043 and remains constant thereafter.

[4] Population projections for Alberta come directly from Statistics Canada. For brevity purposes, we do not disaggregate the different elements (i.e. interprovincial migration, immigration, etc.) contributing

Figure 1: Alberta's Population Growth, 1950-2043

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

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



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

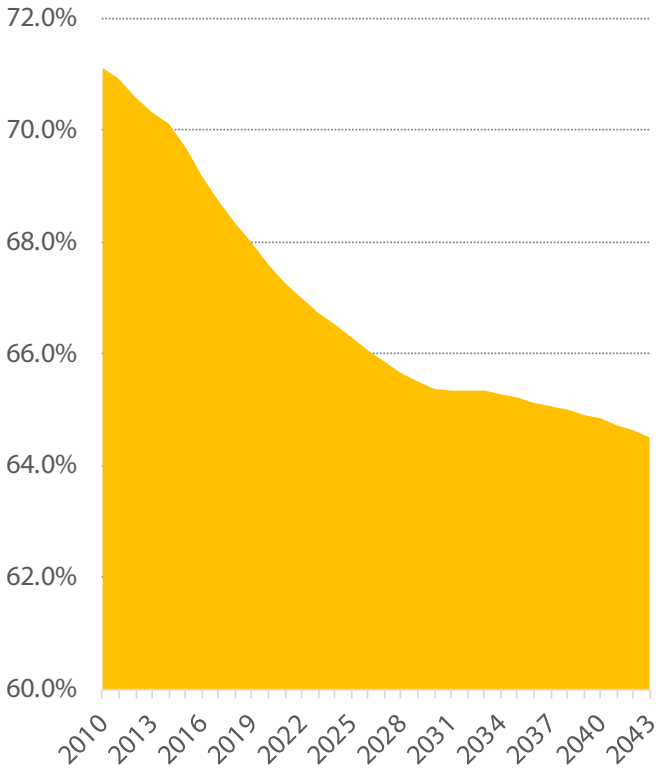
At the same time, life expectancy for people in Alberta is projected to continue increasing. A slower population growth rate combined with increasing life expectancy means that seniors will comprise a larger share of Alberta's future population. Figure 2 identifies the actual and projected seniors' share of Alberta's population from 2010 to 2043. Over the last decade, the share of the population aged 65 and older has increased from 10.5 percent (2010) to 13.8 percent (2020) and is expected to continue rising.

The rate of growth will be highest from now until 2030, at which point the share of the population over age 65 will reach 17.6 percent. After 2030, 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 19.0 percent of Alberta's overall population will be 65 years or older by 2043.

Figure 3 demonstrates how the share of Alberta's population aged 15 to 64 (encompassing the working age population) is projected to evolve. Working-age Albertans accounted for 71.1 percent of the total population in 2010 (Sta-

to their projections. See Statistics Canada (2021c) for more information.

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



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

tistics Canada, 2021b). Since then, the working-age share of the population has decreased and fell to 67.6 percent 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 Alberta's population. The proportion is projected to reach roughly 64.5 percent by 2043 (Statistics Canada, 2021c).

Alberta's current fiscal situation

In 2021/22, Alberta will run its thirteenth budget deficit in the last fourteen years (Government of Alberta, 2021). Budget 2021[5] suggests Alberta will run one of the largest deficits in provincial history at $18.2 billion in 2021/22, in part due to increased COVID spending and the pandemic's effect on revenues, which is equivalent to 5.4 percent of provincial gross domestic product (GDP) (Government of Alberta, 2021). Deficits are expected to persist at least until 2023/24.

All of these deficits mean substantially more debt will be added to the government's books. According to budget forecasts, provincial net debt (total debt minus financial assets) in 2023/24 will reach $102.1 billion (Government of Alberta, 2021). Alberta's debt-to-GDP ratio will reach 26.6 percent if the current plan comes to fruition, its highest level since the 1930s (Tombe, 2021).

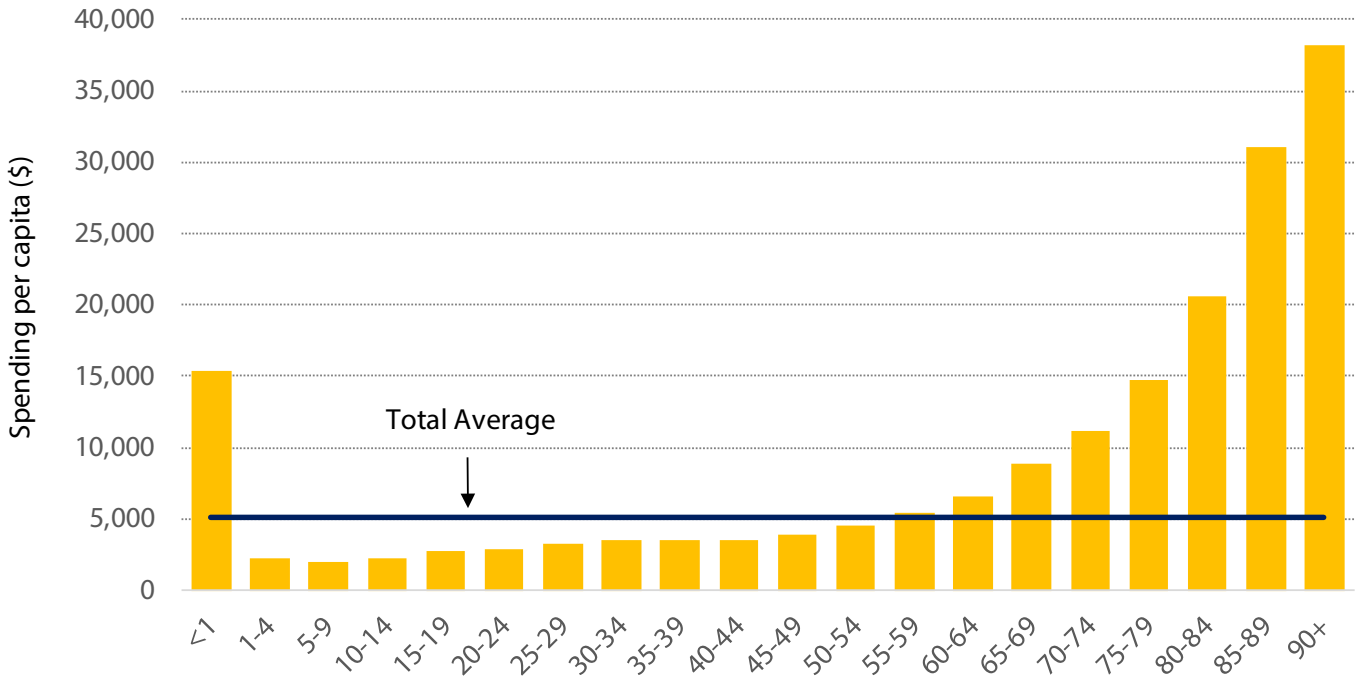
Program spending is projected to equal $59.2 billion this year and revenues are expected to total $43.7 billion (Government of Alberta, 2021). Provincial health care spending in 2021/22 is forecasted as $24.4 billion, which constitutes approximately 41.2 percent of all program spending. In contrast, K-12 education and post-secondary education account for approximately a quarter (25.1 percent) of the province's program spending.

Impact of the aging population on Alberta'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

[5] The most recently available data at the time of writing.

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



Source: CIHI, 2020.

medical attention (Jackson et al., 2017). Albertans aged 65 or older accounted for 36.9 percent of all provincial health care expenditures in 2018 (the latest year of available data) despite accounting for only approximately 12.8 percent of the provincial population (CIHI, 2020; Statistics Canada, 2021b). In contrast, Albertans under the age of 25 accounted for just 17.7 percent of all provincial health care spending while constituting a much larger share (31.1 percent) of the population. Clearly, the proportion of elderly Albertans has a direct effect on the level of health care spending in the province (see figure 4 for more data).

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.[6] Calculating Alberta'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 Alberta 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 Alberta's economy. Projections for general inflation come from short-term projections from private forecasters and the Conference Board of Canada's long-term

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

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 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).[7] 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.[8] 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, our model simply does not separate out income elasticity from other unexplained factors (see Barua et al., 2017, for further explanation).

Alberta'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 Alberta's 2021 Budget (see Alberta, 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 education increase conservatively in line with the provincial growth rate for the K-12 popula-

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

[8] 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).

Table 1 : Assumptions for Alberta

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	0.6%
Demographics	Population Growth	Statistics Canada (2021) Population Projections M1	Variable	1.7%
Other Factors		Historical Observation (2004-2019)	Constant	1.0%

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.

tion (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 Alberta and cause slower growth in real GDP and real GDP per capita. The subsequent result is slower growth in revenues as well.[9] To account for demographic effects, this bulletin follows a similar approach to Tombe (2020) and the PBO (2021) in estimating Alberta'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).[10]

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 will be equivalent to the Parliamentary Budget Officer's projections (PBO, 2021).

[9] A breakdown 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.

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

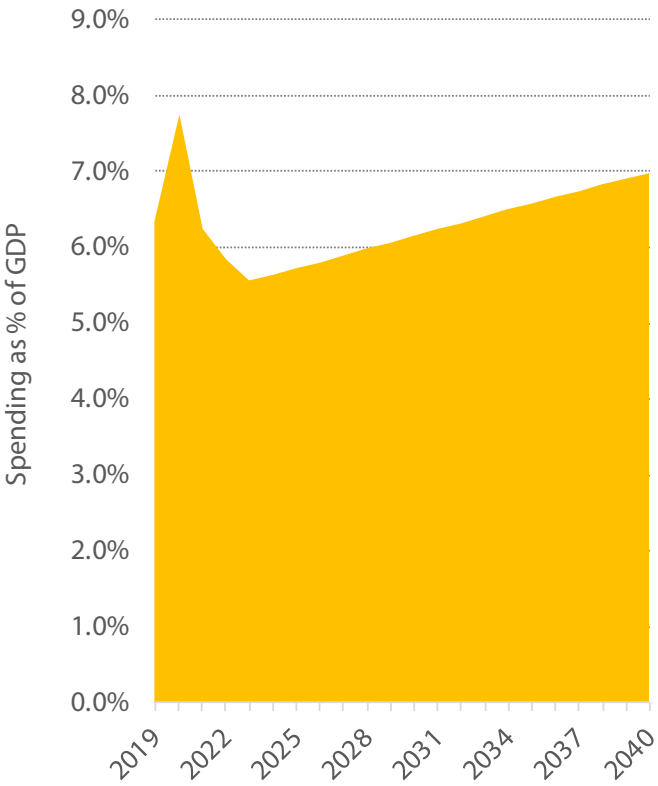
Transfers from the federal government differ according to the existing rules. Revenues for the Canada Health Transfer (CHT) and the Canada Social Transfer (CST) both grow conservatively at an annual rate of 3.0 percent. For simplicity and to reflect its current status as a non-recipient, equalization payments are assumed to be zero for Alberta 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 Alberta's revenue will grow at an average annual rate of 4.5 percent from now until 2040/41. Put differently, annual revenue growth in Alberta is expected to be below average annual nominal GDP growth (5.6 percent) in the province over the same time period. Annual provincial revenue is projected to more than double (in nominal terms) over the next two decades from $43.7 billion in 2021/22 to approximately $101 billion in the last year of projections. In total, annual program spending is projected to increase nominally from approximately $56.0 billion in 2021/22 to $119.4 billion by 2040/41–an increase of 113 percent. All program spending outside of health care is estimated to grow by an annual average of 2.7 percent between 2021/22 and 2040/41.

Health care expenditures are estimated to increase by approximately 5.6 percent annually from now until 2040/41. This represents a nominal increase of 181.1 percent from $23.0 billion in 2021 to $64.7 billion in 2040. Relative to the size of the Alberta economy, our projections suggest that health care spending by the province will increase from 6.3 percent in 2019 (the last year before the pandemic) to 7.0 percent in 2040 (figure 5). This highlights the pressure Alberta's aging population will place on its budget in the coming decades. Notably, health spending as a share of the economy reaches a peak in 2020 (7.8 percent) due to the temporary effects of COVID-19, then briefly declines as the economy recovers.[11] Afterwards, health spending is expected to increase again as a share of

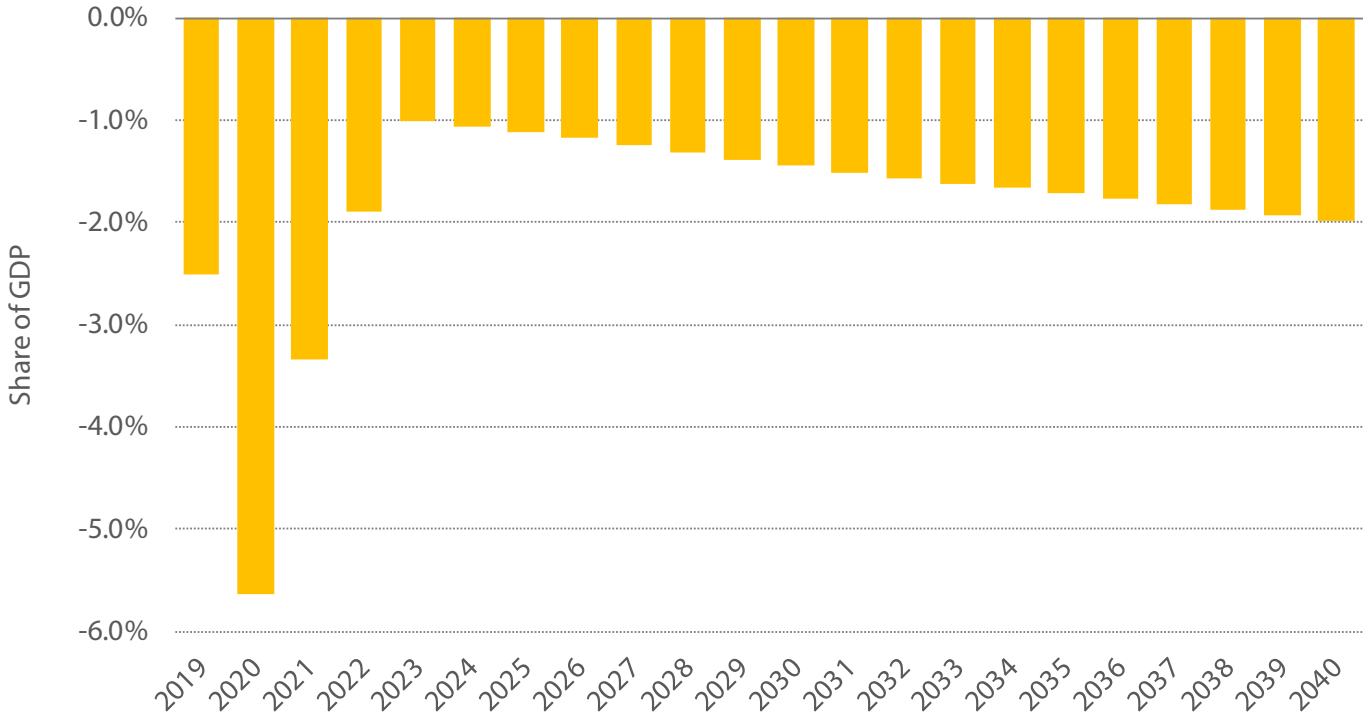
Figure 5: Alberta's Projected Health Spending Relative to the Economy (GDP), 2019-2040



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

[11] In 2020, provincial GDP declined at the same time as health spending grew. This caused a noticeable surge in health spending as a share of Alberta's GDP.

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



Sources: MOF (2021); calculations by authors.

GDP and eventually exceed the pre-pandemic total.

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 period from 2021 to 2040, we project that Alberta 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 Alberta government could be running primary deficits roughly equivalent to 1.0 to 2.0 percent of GDP until at least 2040. Our primary deficit estimates for Alberta are comparable to the projections made by the PBO (2021) and are more conservative than estimates from Tombe (2020), which pegs the average annual primary deficit in the province as 4.2 percent of GDP by 2030.

Simply put, these projections signal that the Alberta 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

Alberta'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 Alberta'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 Alberta's government finances. In fact, at its current trajectory, Alberta 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, Alberta's government will have to implement new policies in order to avoid a serious deterioration in its financial health.

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