

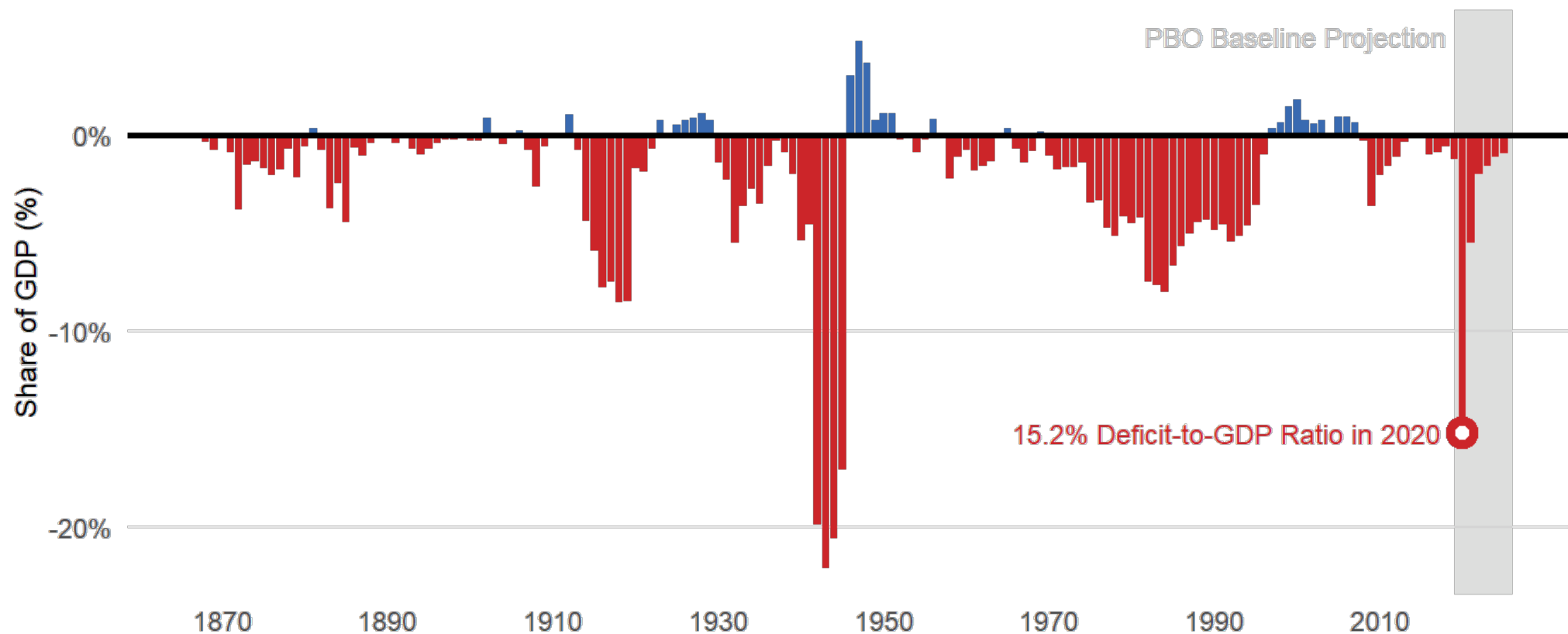
COVID's Impact on Provincial and Federal Government Finances & Next Steps

Trevor Tombe (University of Calgary)

ESNA Economic Outlook Conference
December 2021

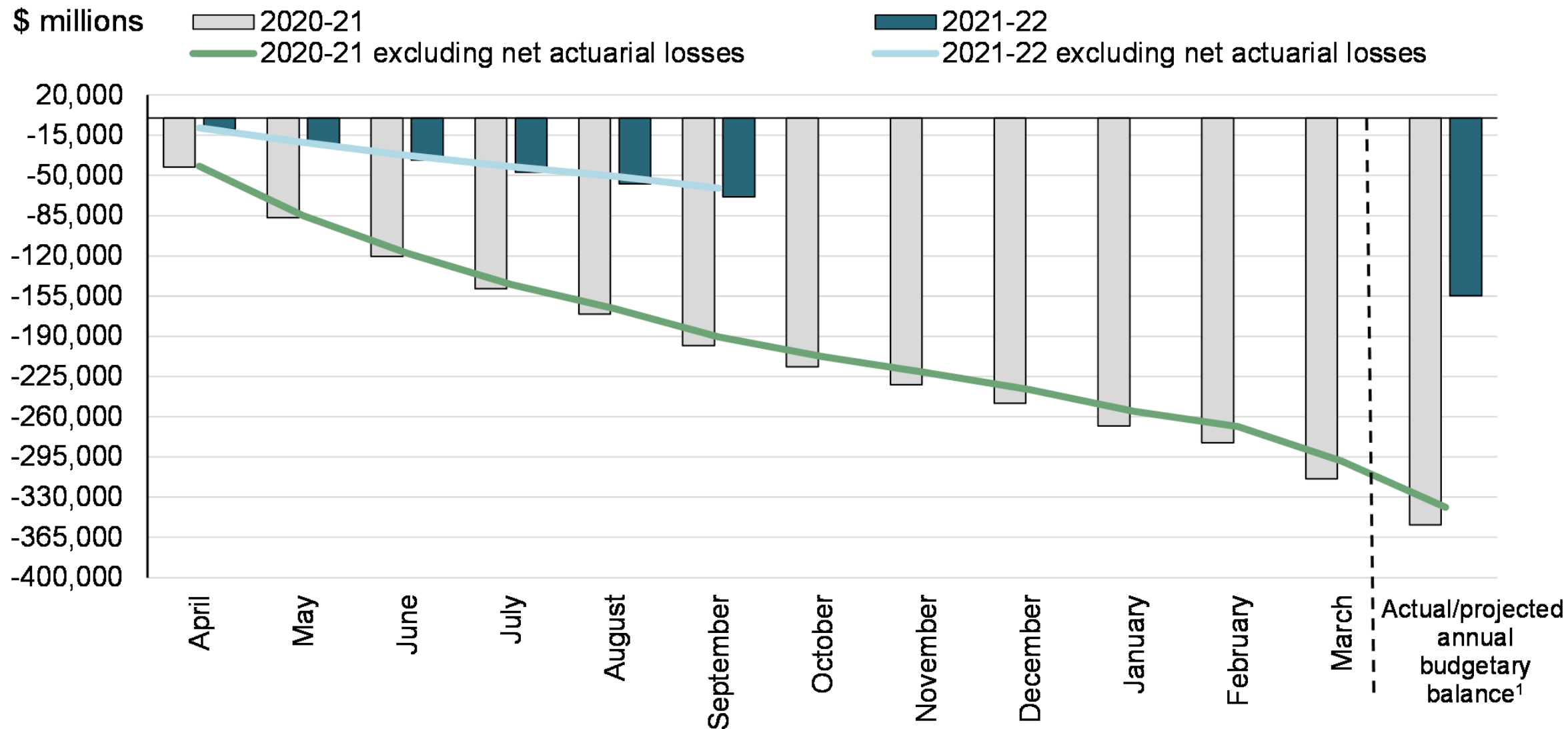
Federal Budget Balances, 1867-2025 (F)

Sources: Historical Statistics of Canada, 1867-1965; Fiscal Reference Tables, 1966-2018; Budget 2021, updated using PBO pre-election baseline projection.



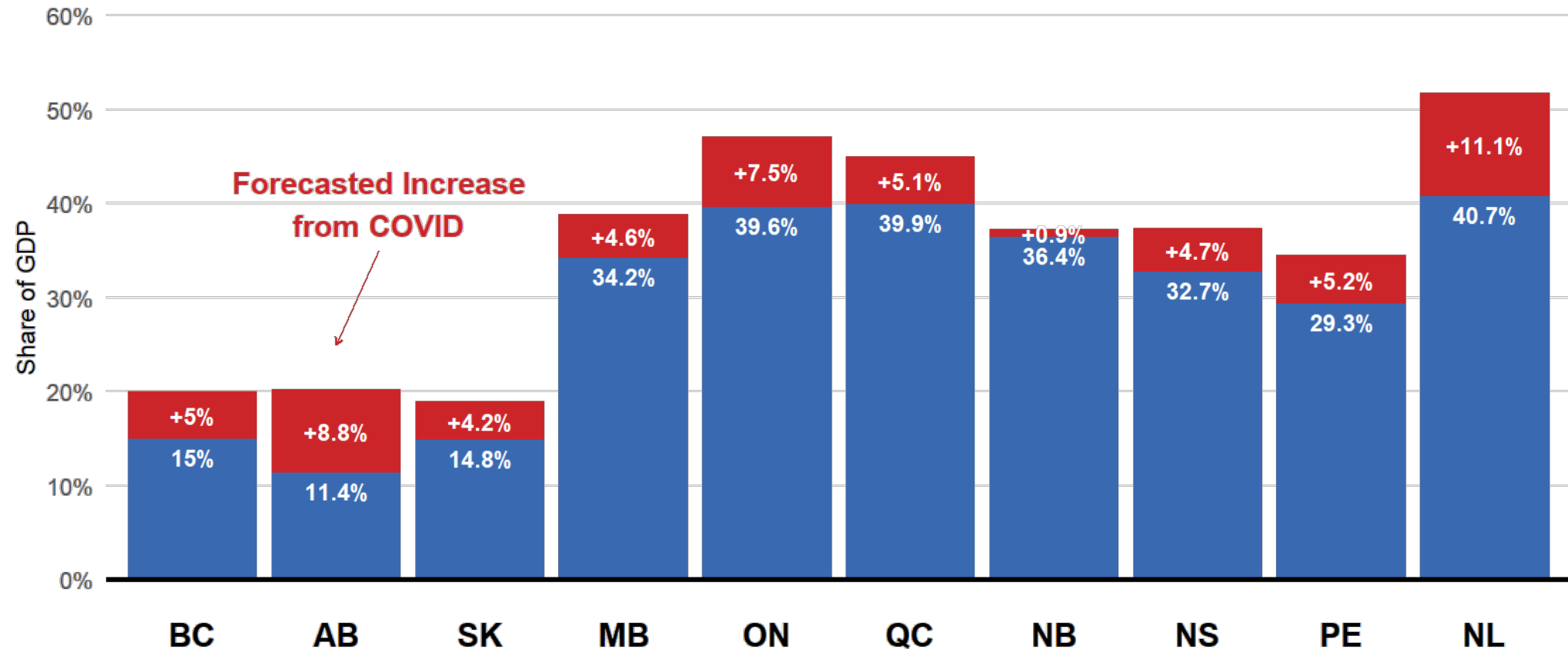
Graph by @trevortombe

Federal Fiscal Monitor (Sept 2021)



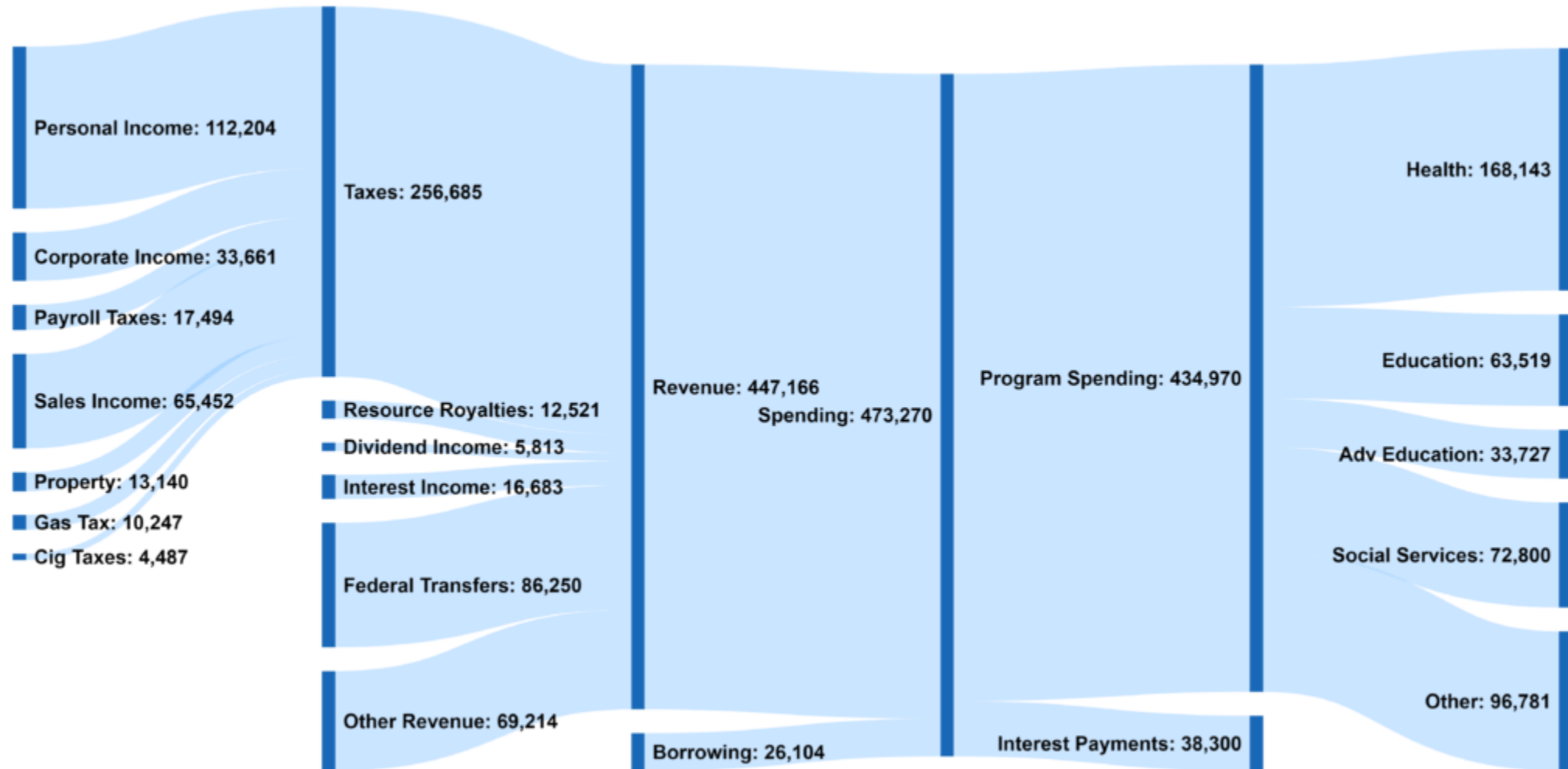
Provincial Government Net Debt Ratios

Source: Various provincial budgets for 2019/20 and fiscal-updates for 2020/21*.



Graph by @trevortombe.

Aggregate of All Provinces for 2019/20



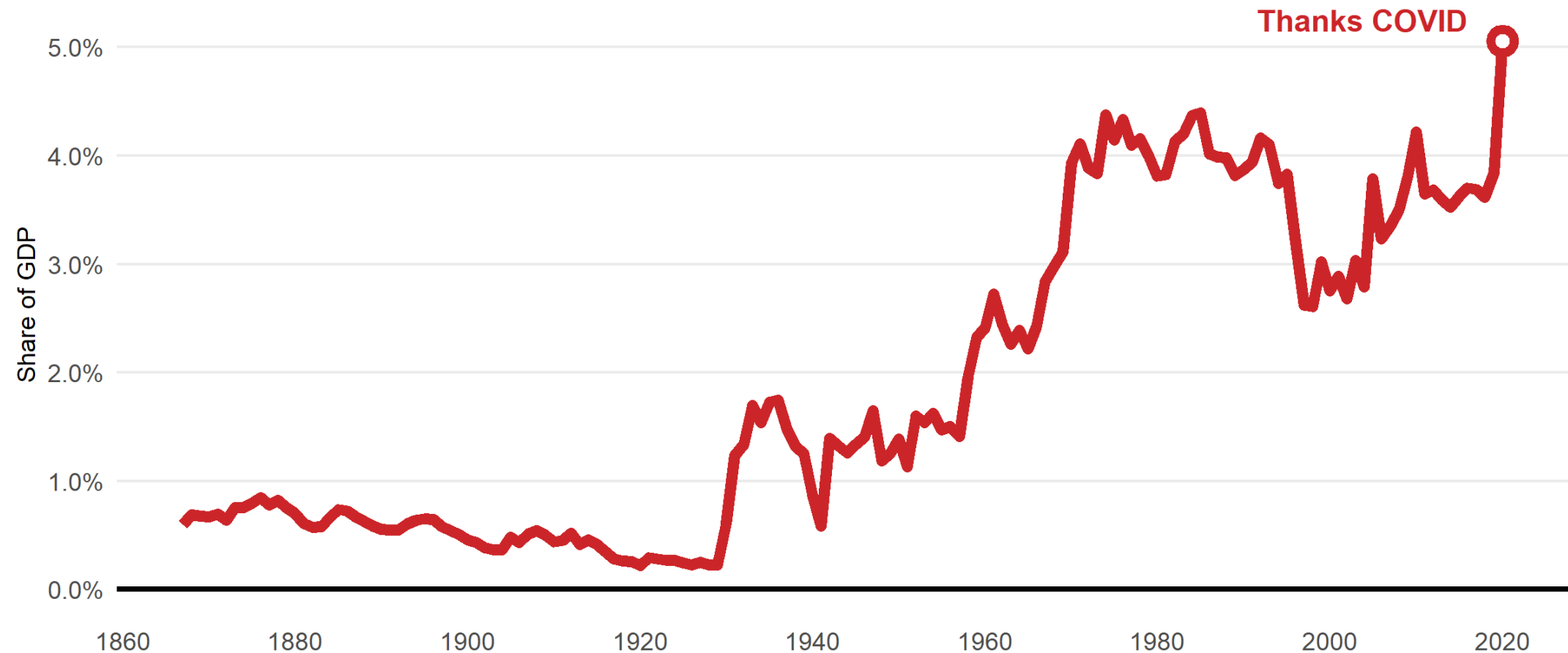
How COVID Affected PT Budgets

Table: Provincial and Territorial Government Revenues and Expenditures (\$ millions)

| | 2019/20 | 2020/21 | % Change |
|---------------------------|----------------|----------------|----------------|
| Personal Income Taxes | 106,926 | 110,103 | +3.0% |
| Corporate Income Taxes | 32,187 | 34,790 | +8.1% |
| Consumption Taxes | 101,929 | 92,228 | -9.5% |
| Payroll Taxes | 30,611 | 29,638 | -3.2% |
| Property Taxes | 13,161 | 14,161 | +7.6% |
| Transfers | 99,204 | 122,555 | +23.5% |
| Other Revenue | 71,007 | 63,465 | -10.6% |
| Total Revenue | 455,025 | 466,940 | +2.6% |
| Total Expenditures | 471,421 | 526,784 | +11.7% |
| Budget Deficits | 16,396 | 59,844 | +265.0% |

Federal Transfers as a Share of Canada's GDP

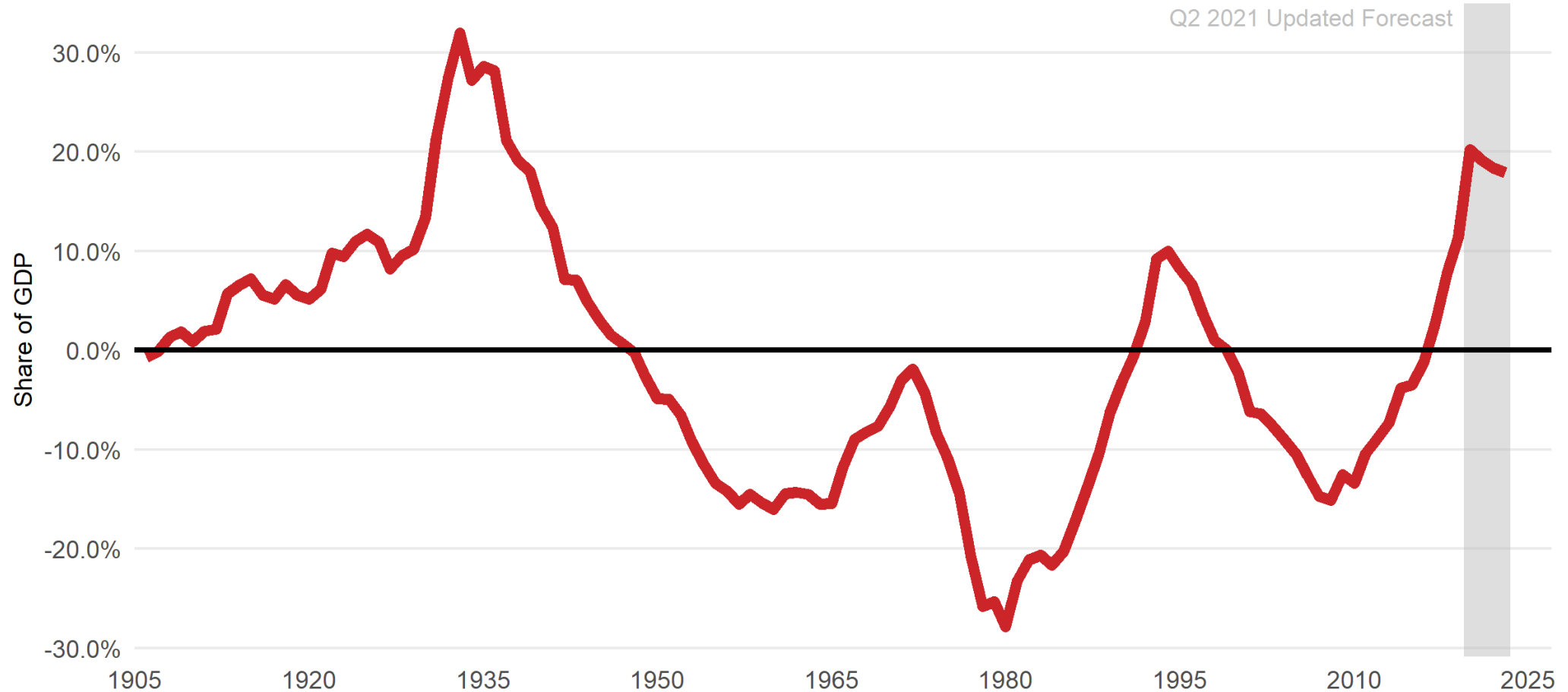
Source: own calculations from Finances of the Nation transfers database



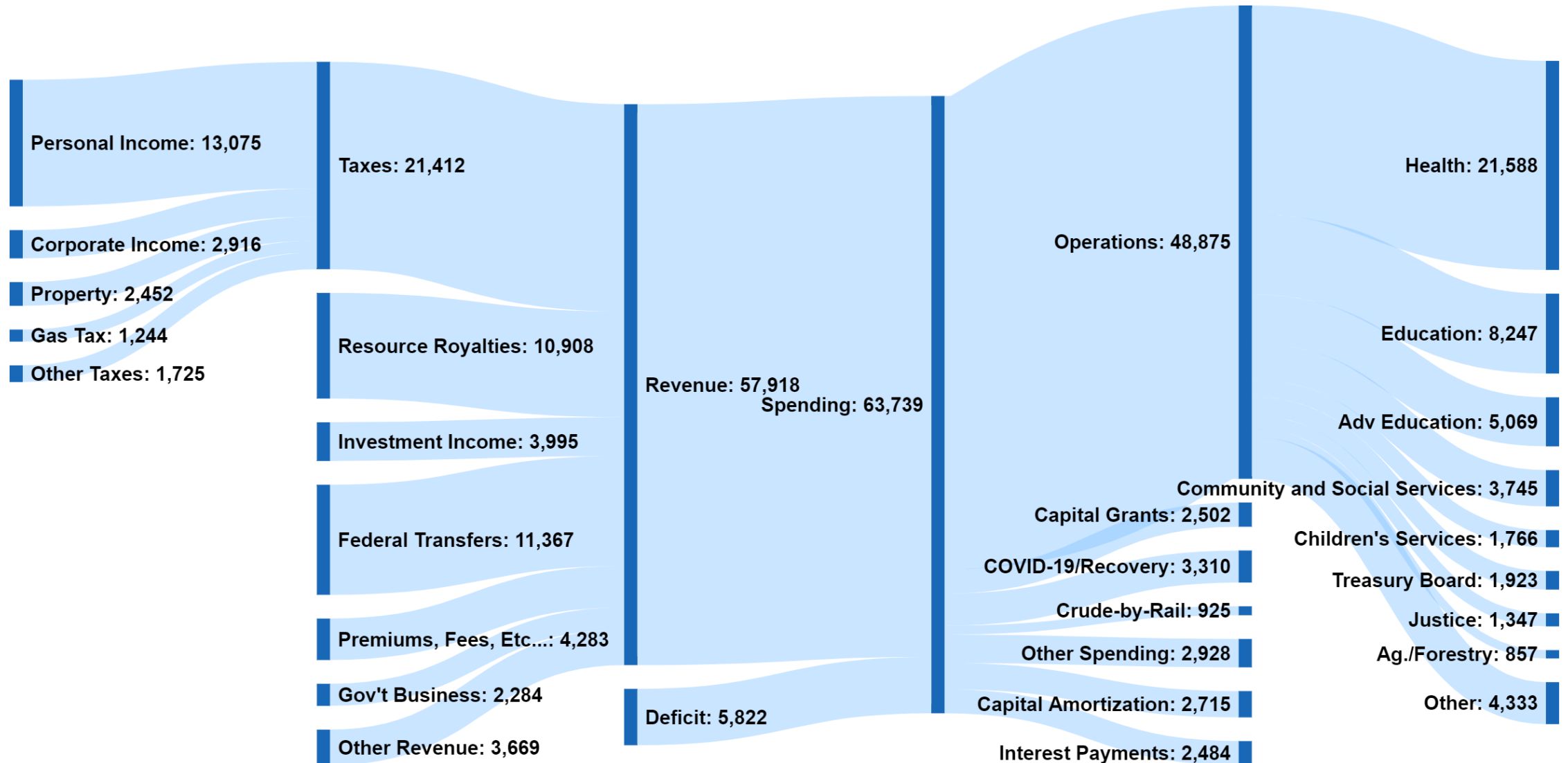
Alberta's Unique Challenges And Its Recent Gains from COVID

Alberta Net Debt to GDP

Pre-1980 Alberta GDP is based on my own calculations using provincial income data from Boothe (1995).



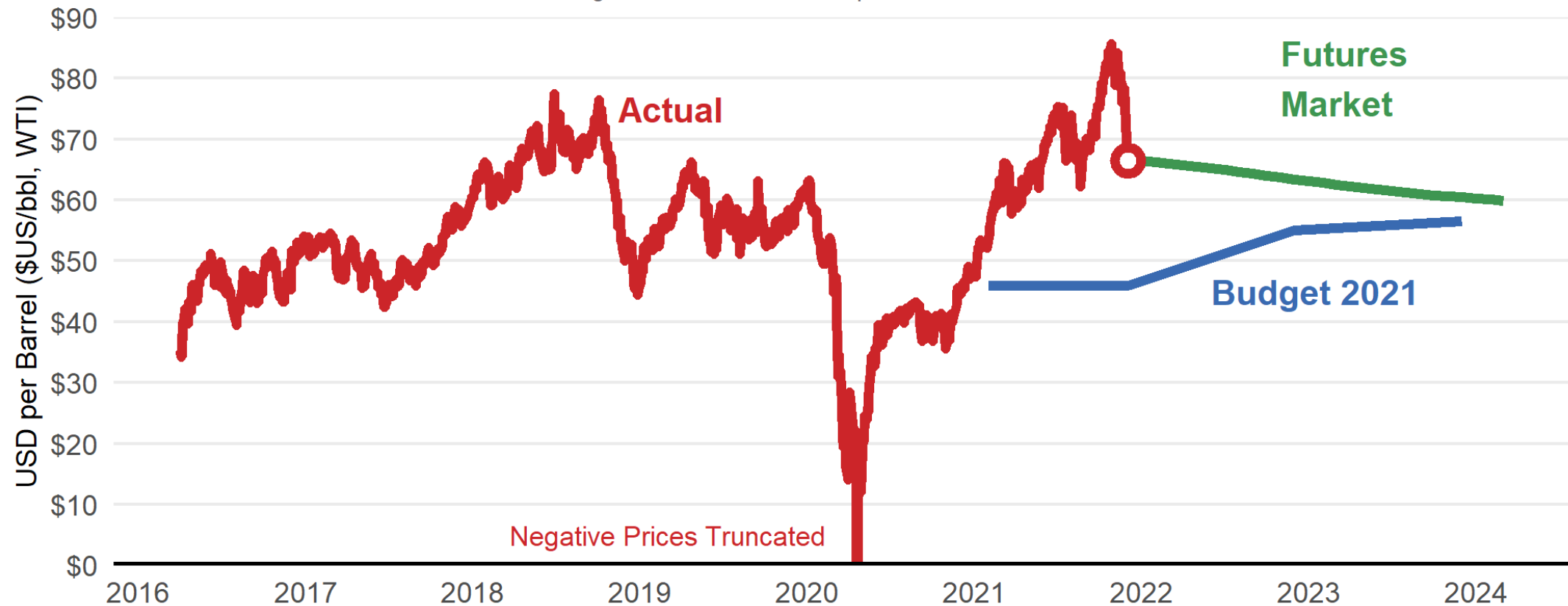
Alberta's Budget Forecast for 2021/22 (\$M)



Recovery from COVID Increased Oil Prices

Past and Expected Future Oil Prices

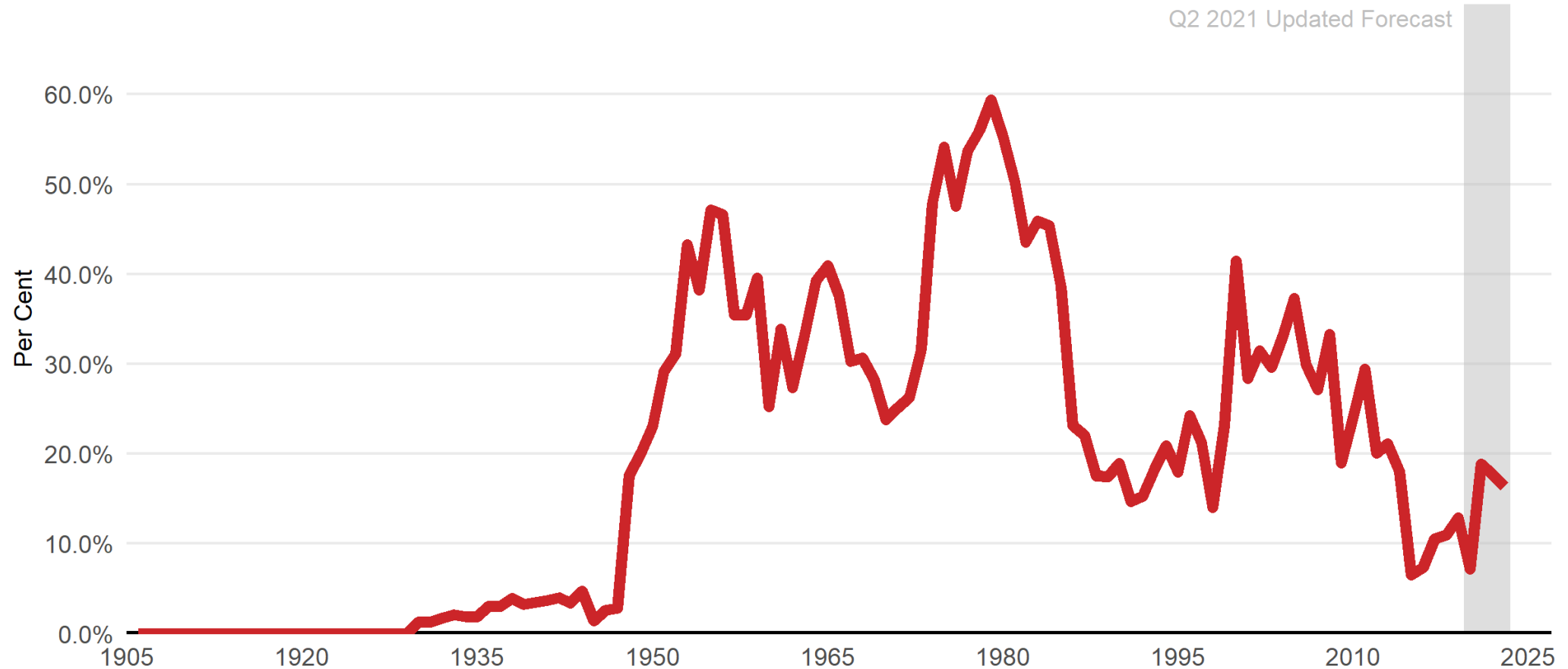
Sources: Own calculations from Alberta Budget 2021 and CME Group data. To market close on Dec 2, 2021.



Alberta Resource Revenue as Share of Total

Displays the share of Alberta government revenue that comes from non-renewable resource revenue.

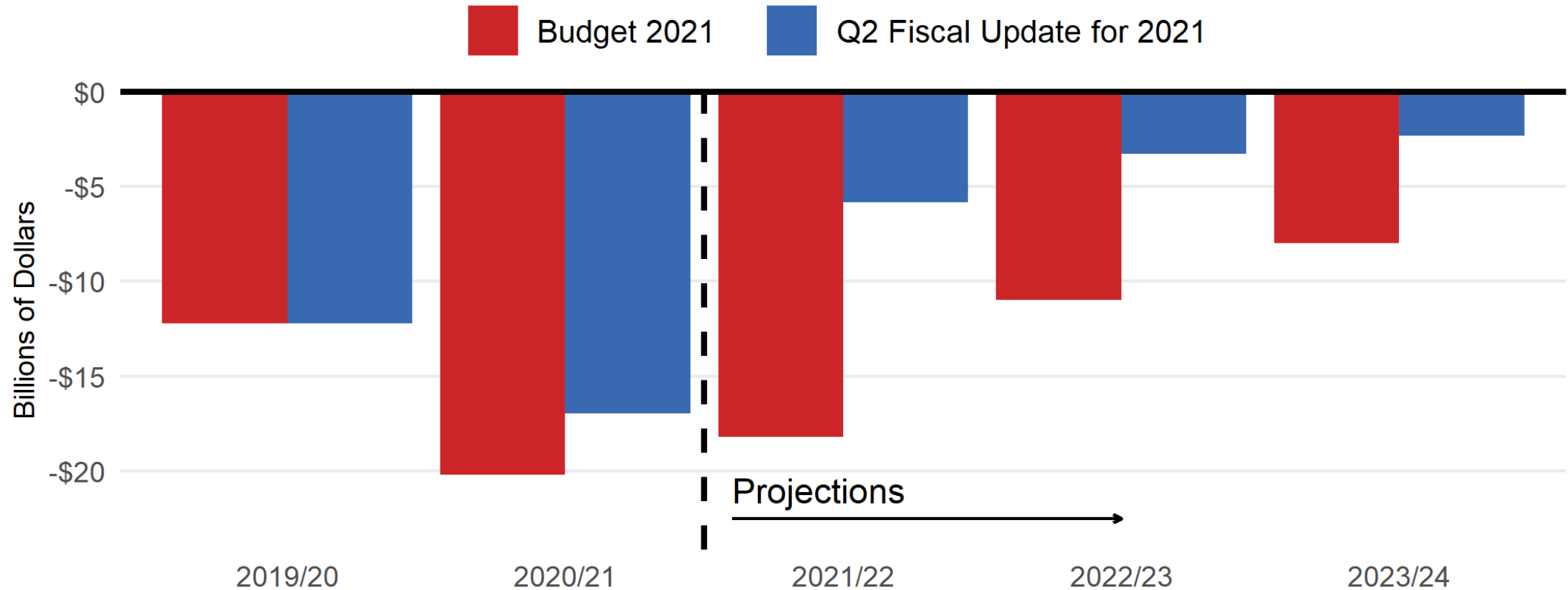
Sources: Boothe (1995) for 1905-1985; Kneebone and Wilkins (2017) for 1985-2014; and various Alberta budgets since.



Alberta is (Maybe) Close to Balancing Soon

Projected Alberta Government Budget Deficits

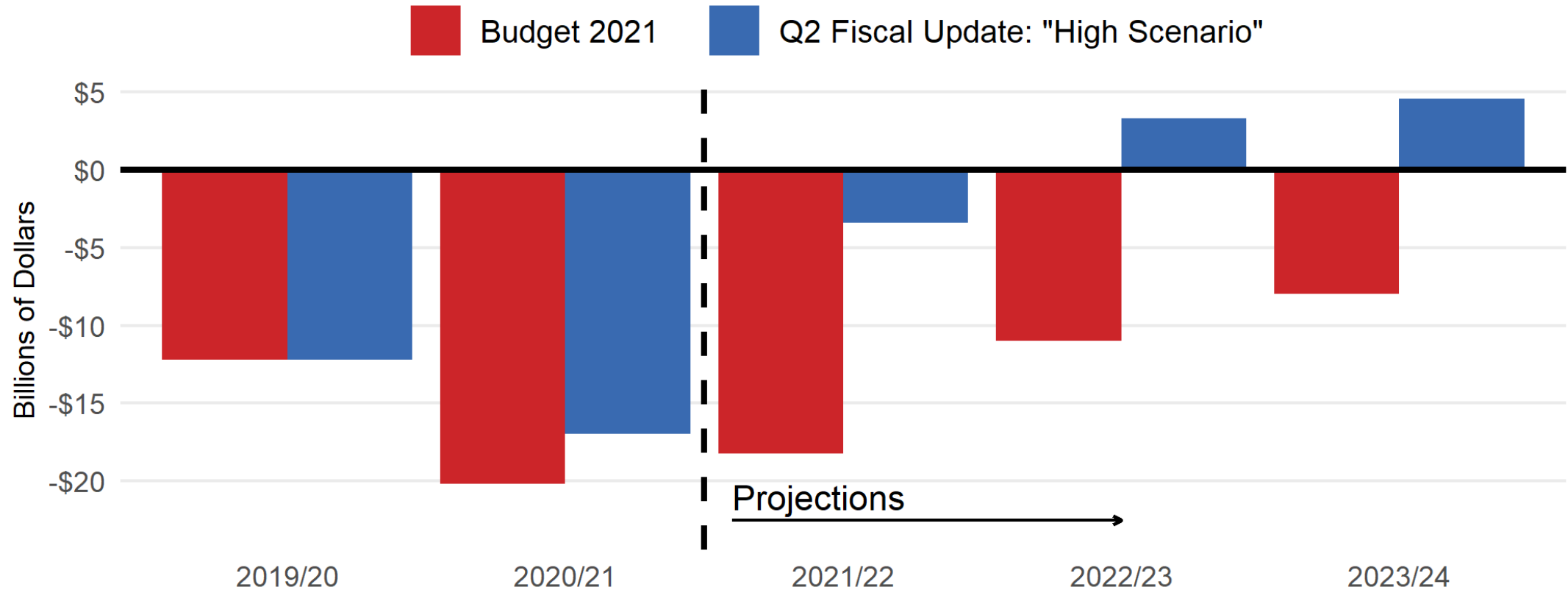
Source: own calculations from Budget 2021 and Q2 Fiscal Update



Alberta is (Maybe) Close to Balancing Soon

Projected Alberta Government Budget Deficits

Source: own calculations from Budget 2021 and Q2 Fiscal Update's "high scenario".

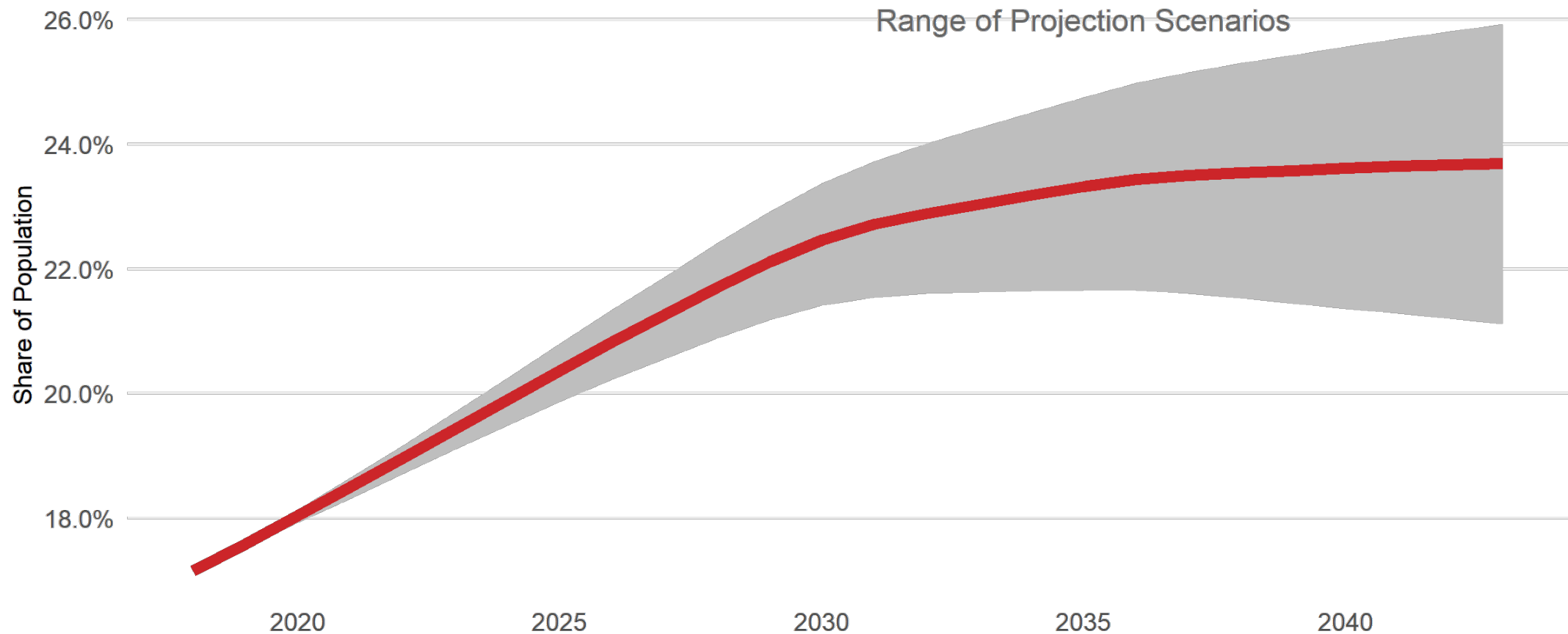


Longer-Term Post-COVID Fiscal Challenges

Canada's Aging Population

Share of Canada's Population Age 65+

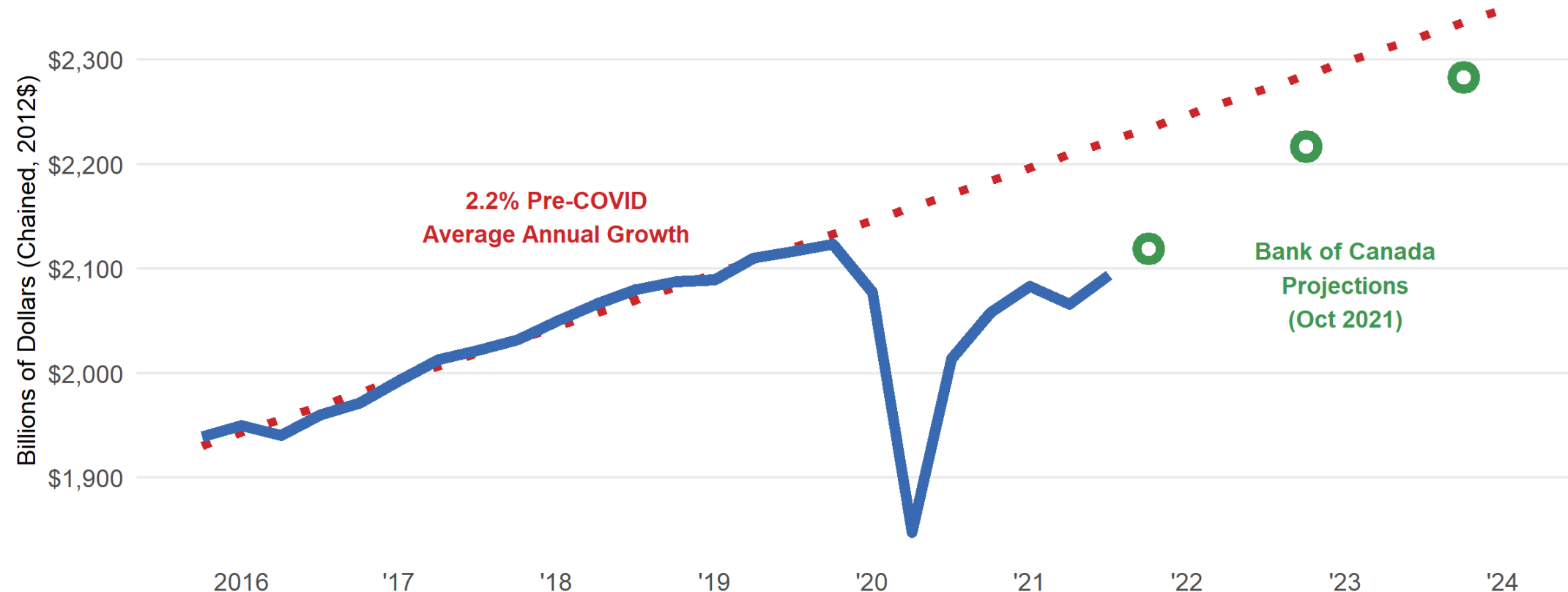
Source: own calculations from Statistics Canada data table 17-10-0057



Permanently Lower Growth Trajectory?

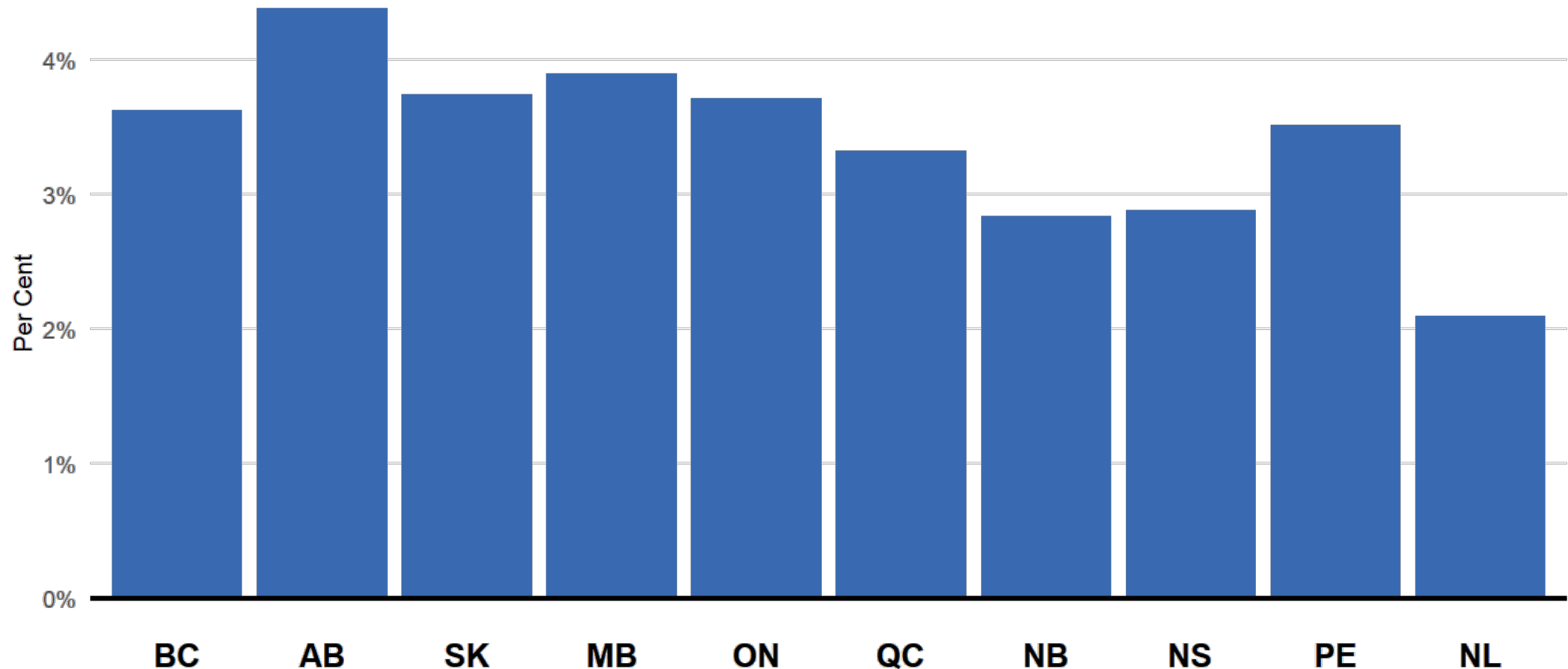
Lower for Longer? Canada's Real GDP Growth, Actual vs Pre-COVID Trend

Source: Own calculations from Statistics Canada data table 36-10-0104-01.



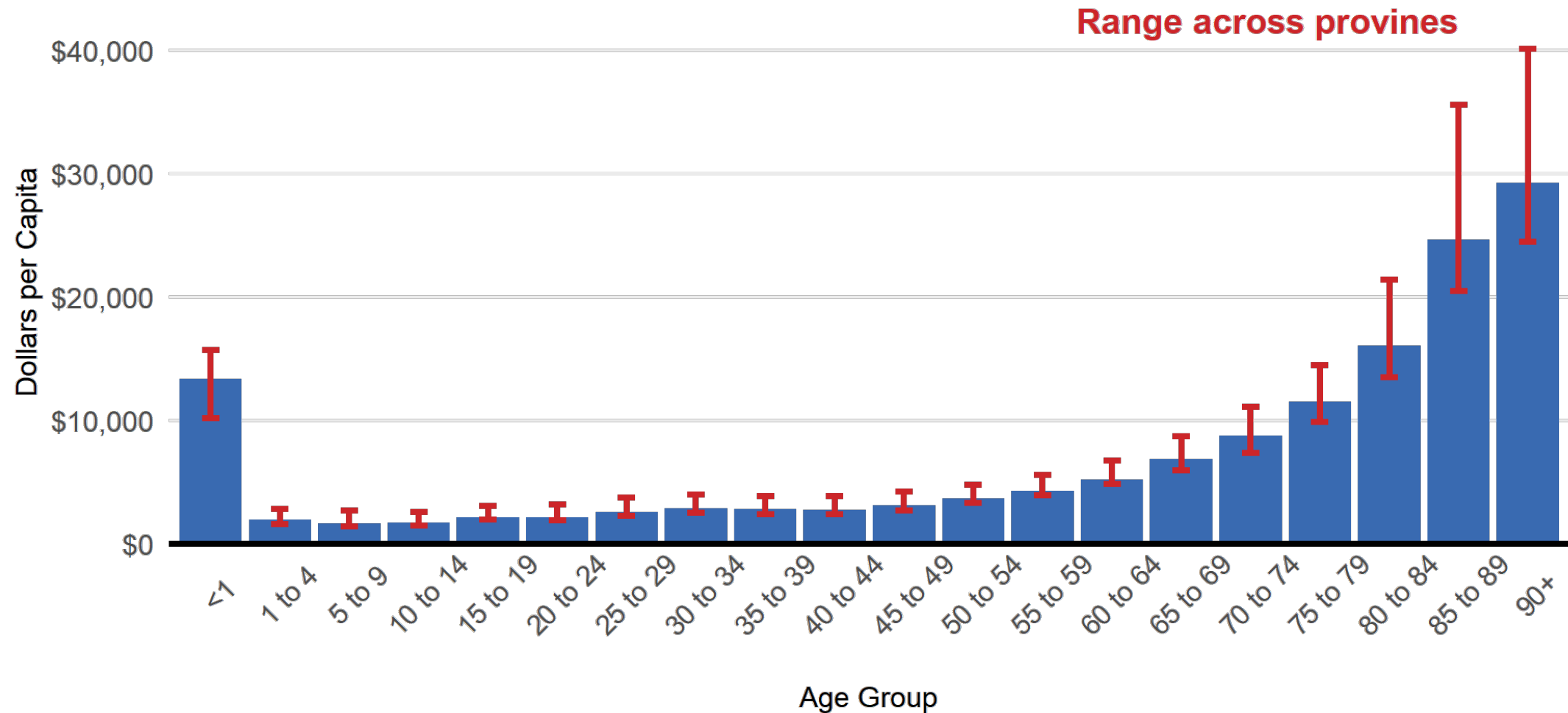
Average Nominal GDP Growth to 2044

Source: own calculations from Tombe (2020, CTJ), Finances of the Nation, Unpublished Sept 2021 update.

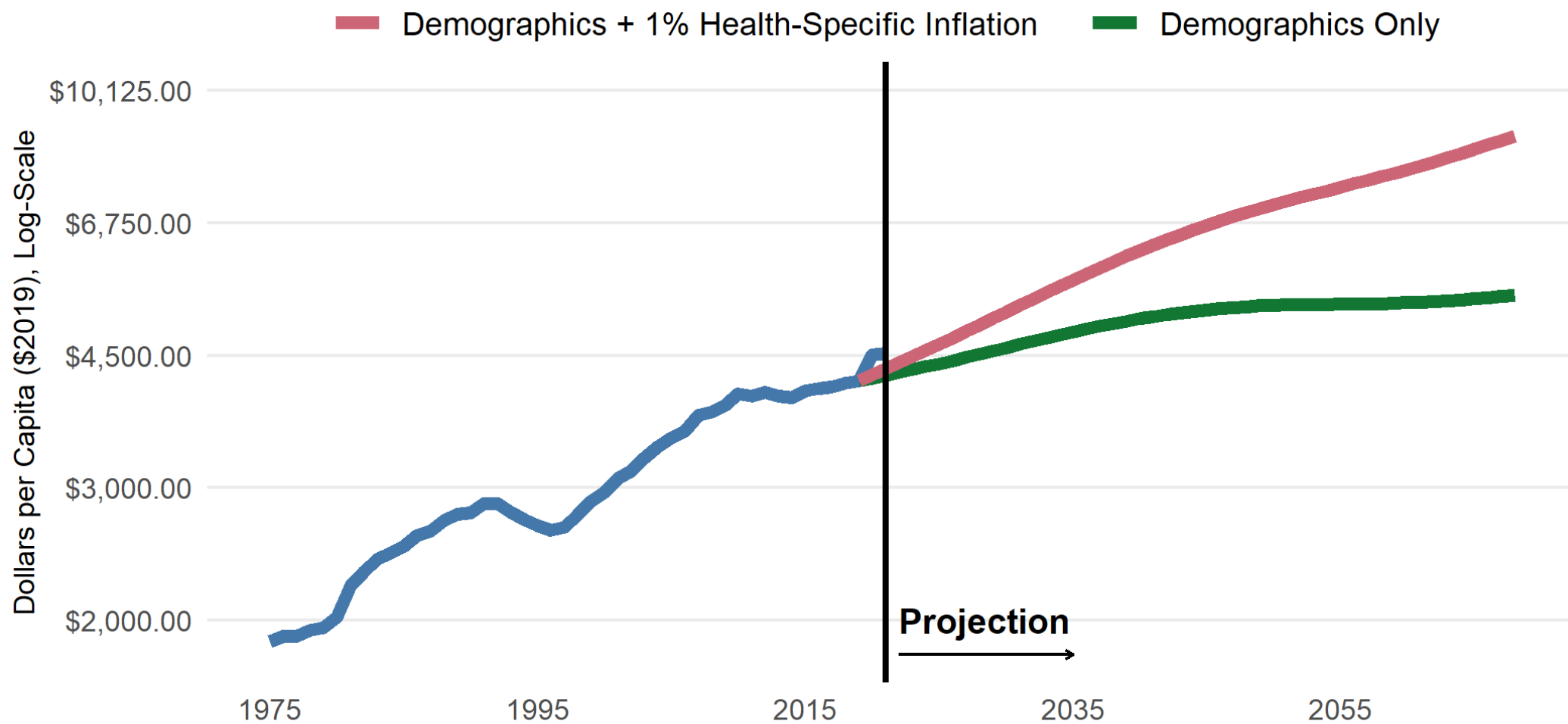


Health Spending by Age in Canada

Source: Own calculations from CIHI Health Expenditure Trends 2021. Government health spending only.



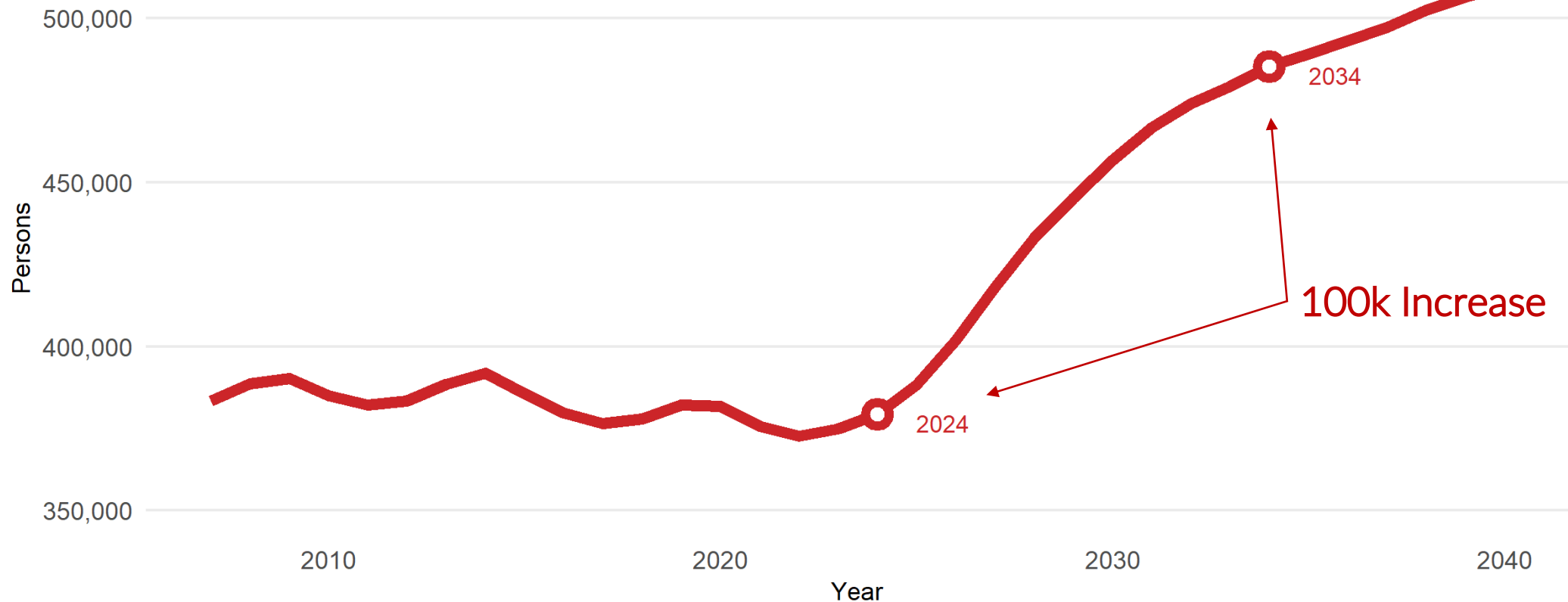
Health Cost Projections (All Provinces)



Other Demographic Pressures for Alberta

Alberta Population Projection of Age 18-24 Individuals

Source: own calculations from Government of Alberta population projections

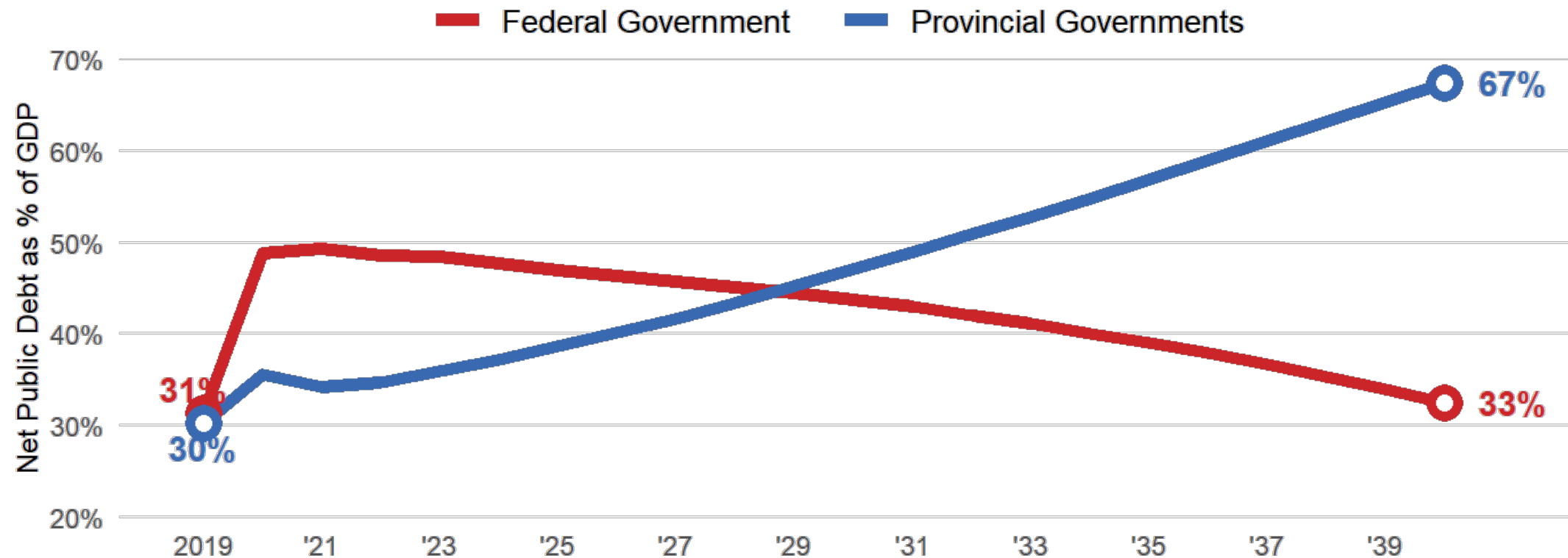


Graph by @trevortombe

Long-Run Projection of Provincial Finances

Provincial Finances are Not Sustainable

Displays projected government net debt levels from Tombe (2020), Finances of the Nation. Unpublished September 2021 update.



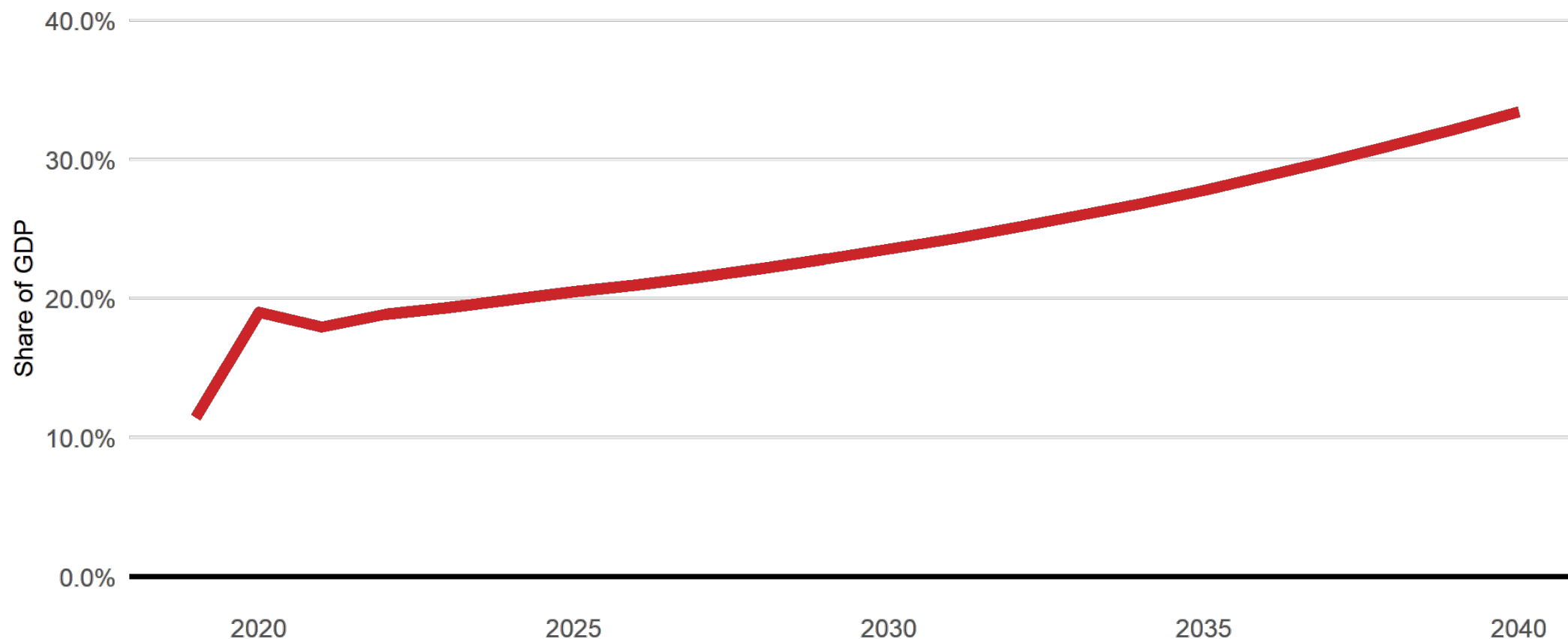
Source: Trevor Tombe, "Provincial Debt Sustainability in Canada: Demographics, Federal Transfers, and COVID-19" (2020) Canadian Tax Journal.
For an interactive simulator of projected public debt levels, see Finances of the Nation, <https://financesofthenation.ca/fiscal-gap-simulator/>

Fiscal Gap Analysis of Provincial Budgets in Canada

Alberta's "Fiscal Gap"

A Projection of Alberta Government's Net Debt to GDP

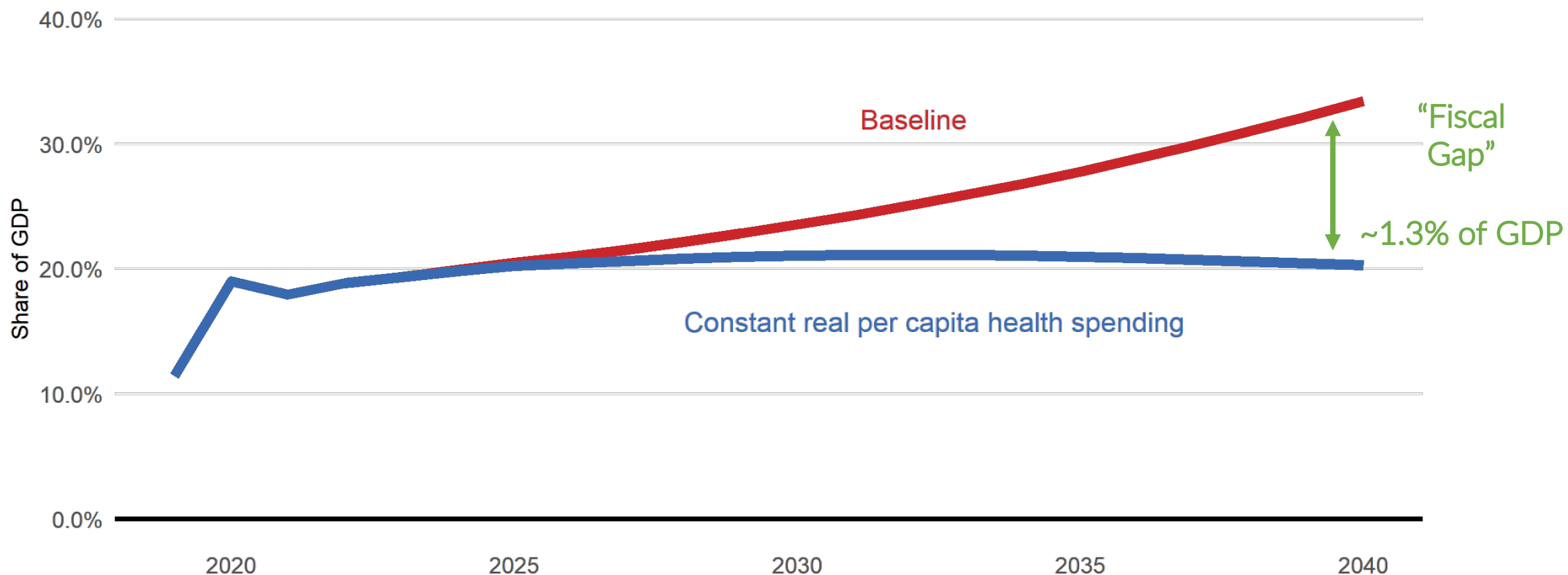
Source: own calculations from Tombe (2020, CTJ), Finances of the Nation, Unpublished Dec 2021 update.



Alberta's "Fiscal Gap"

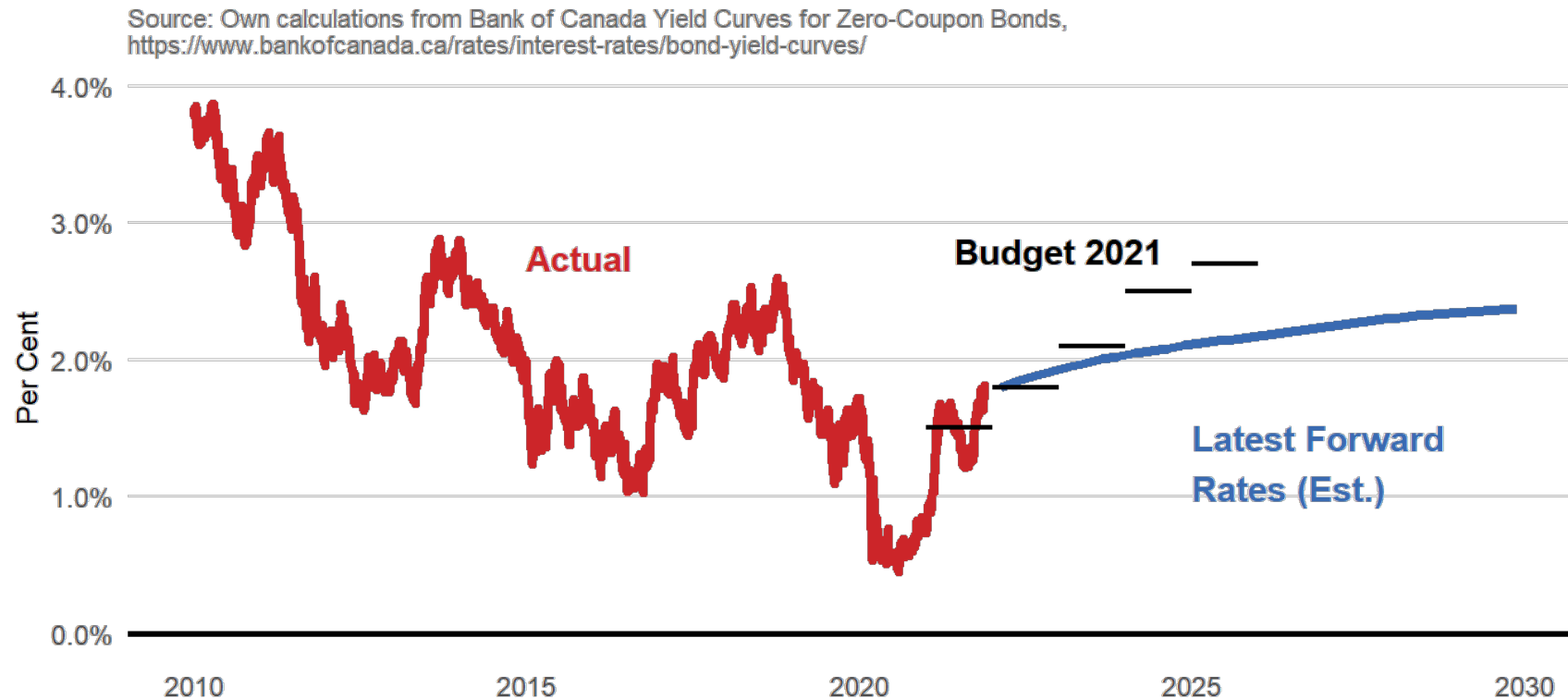
A Projection of Alberta Governments's Net Debt to GDP

Source: own calculations from Tombe (2020, CTJ), Finances of the Nation, Unpublished Dec 2021 update.



Quantifying the “Fiscal Gap”

- If $r < g$, any debt level is “sustainable”



Quantifying the “Fiscal Gap”

- If $r < g$, any debt level is “sustainable” (even “beneficial”)

Aside: The Fiscal Benefit of Public Debt?

- Raise public funds through taxes or higher debt?
- If $r < g$, debt delays *and lowers* the cost of raising funds

Example: Interest = 3%, Growth = 5%, Income = \$100

To raise \$10 today:

Option 1: Levy a 10% tax today

Option 2: Borrow \$10 today, and levy a 9.8% tax tomorrow, since

$$9.8\% = \frac{\$10 \times (1 + 3\%)}{\$100 \times (1 + 5\%)}$$

Quantifying the “Fiscal Gap”

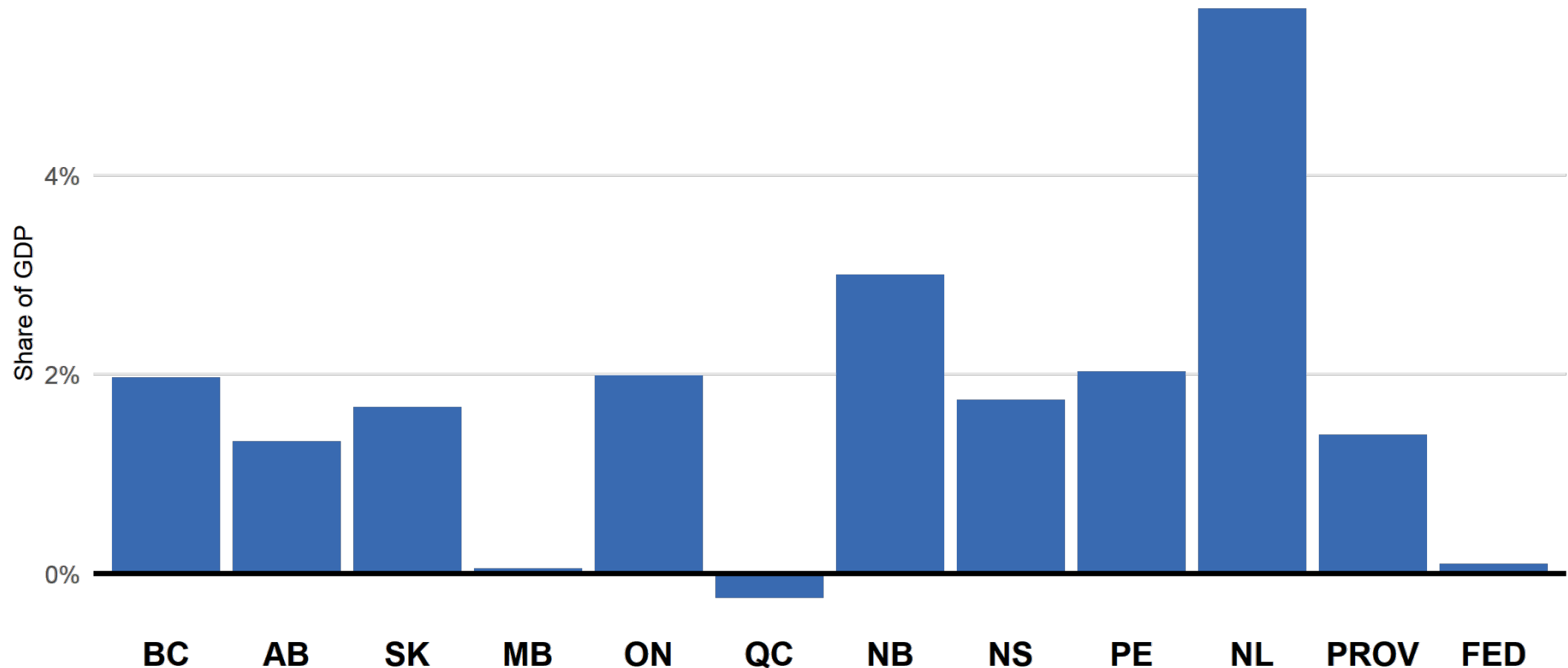
- If $r < g$, any debt level is “sustainable” (even “beneficial”)
- ... but may not be prudent
- Define a **fiscal gap** as the annual change in revenue or expenditures (as a share of GDP) required to achieve a particular net debt target in T years
- Target: same net debt ratio as 2019

Quantifying the “Fiscal Gap”

- Effective Discount Rate: $\varphi_t = \prod_{s=1}^t \left(\frac{1+r_s}{1+g_s} \right)$
- Sinking Fund Factor: $\sigma_T = \bar{\varphi}_T / T \varphi_T$
- Future Debt: $d_T = \varphi_T \times d_0 - \varphi_T \times (\sum_{t=1}^T \varphi_t^{-1} p_t)$
- Fiscal Gap: $f = (d_T - d_0) \times \sigma_T$
- Intuition: f accumulates enough to “repay” $d_T - d_0$ in T years

25-Year Fiscal Gaps in Canada

Source: own calculations from Tombe (2020, CTJ), Finances of the Nation, Unpublished Nov 2021 update.



Fiscal Risks

What level of public debt
“should” a province aim for?

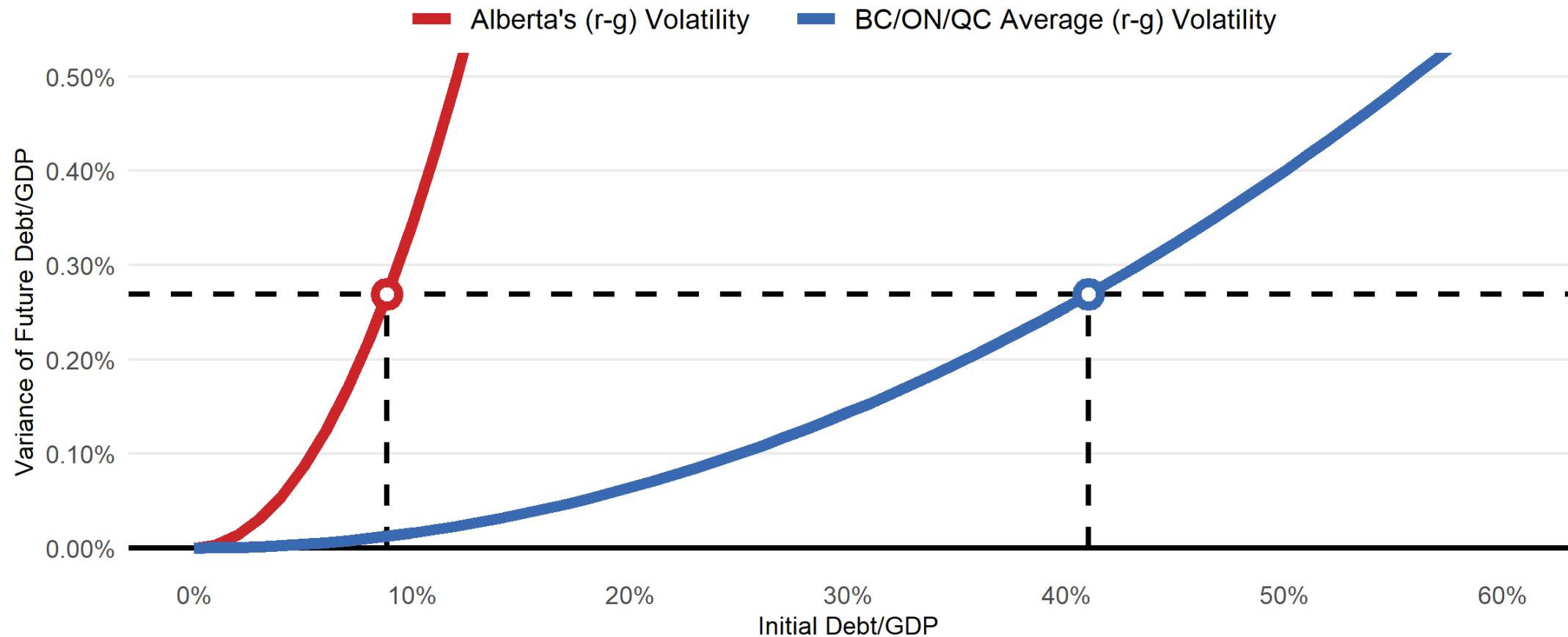
Quantifying “Fiscal Risk”

- **Source 1:** volatility in budget balances
 - Creates uncertainty over the size of the fiscal gap
 - In Alberta’s case, 95% confidence interval around its fiscal gap is 1.2 percentage points given historical budget volatility
- **Source 2:** volatility in economic fundamentals
 - If primary budgets balance, then future debt is $d_T = \varphi_T \times d_0$
 - So volatility in r and g creates volatility in future debt
 - Higher debt today $d_0 \rightarrow$ higher future debt volatility!
- For details, see the new e-book from SPP: “[Alberta’s Economic and Fiscal Future](#)”

Comparing Fiscal Risk and Current Debt

Comparing Variance of Debt/GDP Levels (25-Year Horizon)

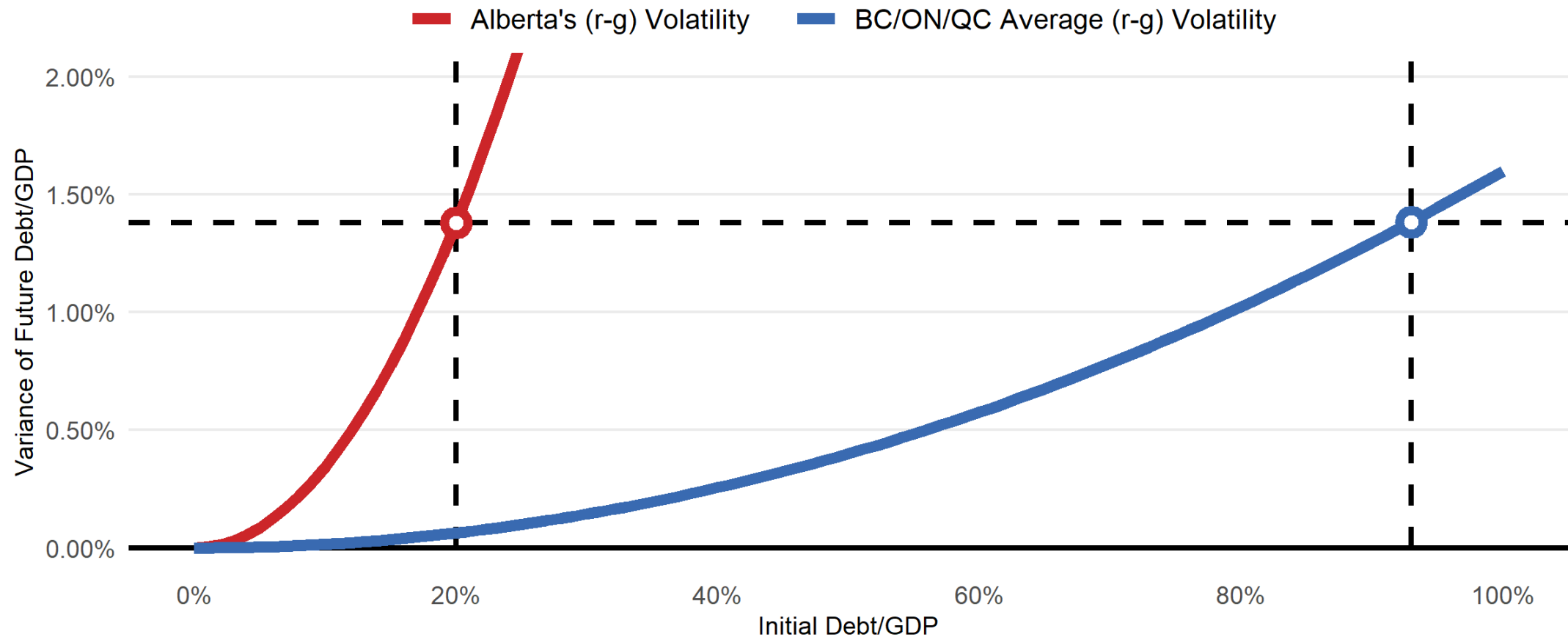
Note: volatility in the interest-growth differentials is from Hanniman and Tombe (2020)



Comparing Fiscal Risk and Current Debt

Comparing Variance of Debt/GDP Levels (25-Year Horizon)

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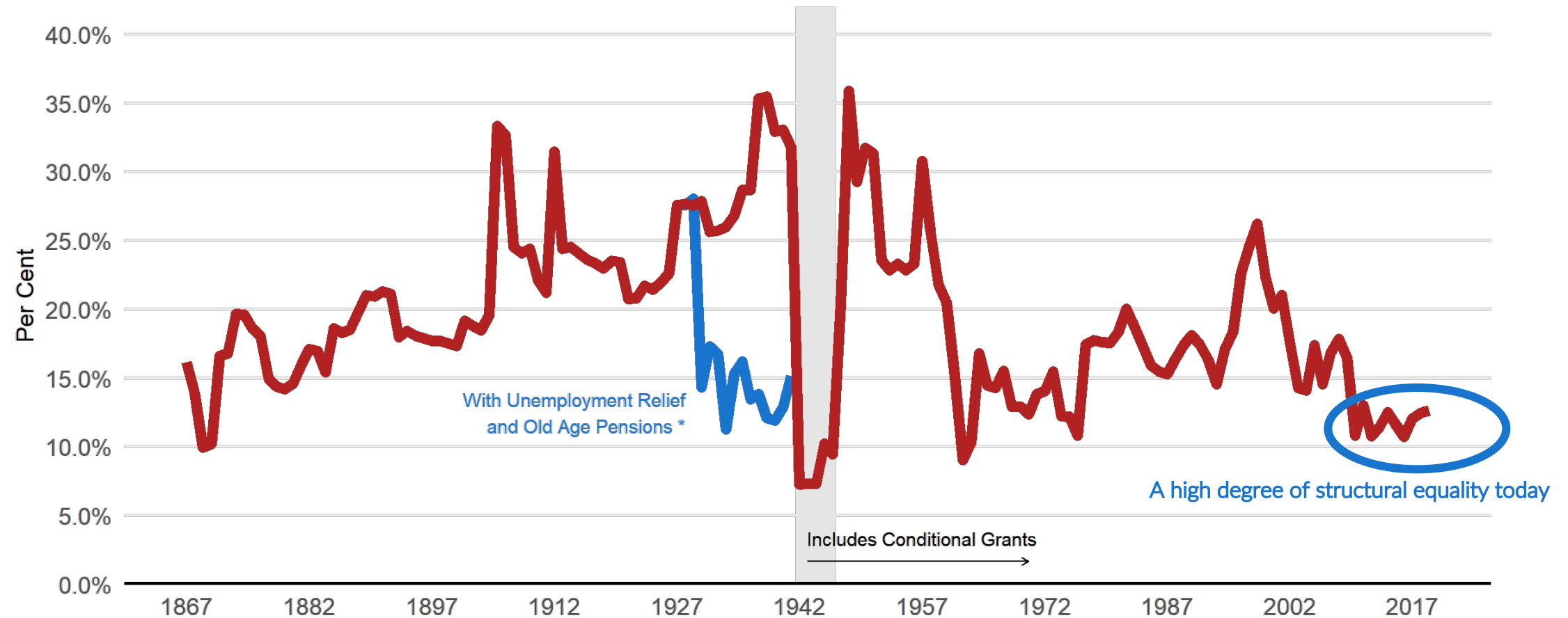


Prospects for Federal Transfer Reform to Address Provincial Fiscal Challenge

Federal Transfers Currently Very Equal

Inequality in Federal Transfers Across Provinces

Source: own calculations from Tombe (2018, CTJ), Finances of the Nation, Unpublished Sept 2021 update.



Reforms to Fiscal Federalism in Canada

- Increased CHT growth
- Demographic-based allocation rules
- A new transfer program based on demographics
- Alternative Equalization formula (very relevant for NL)

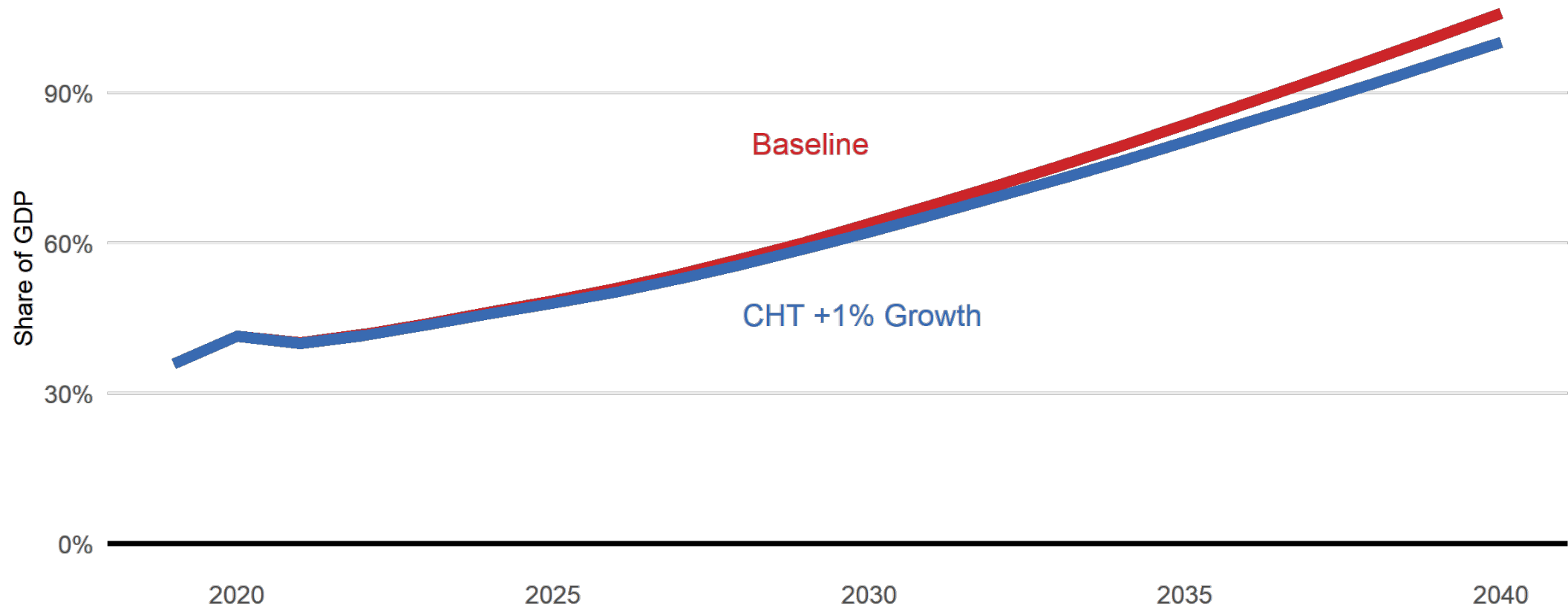
Reforms to the Canada Health Transfer

- Increased annual growth rates
 - +1 p.p. per year
 - +2 p.p. per year
- Allocate based on demographics
 - Share of 65+ population, rather than total population
 - A more complex formula to centralize demographic costs

Reforms to the Canada Health Transfer

A Projection of Atlantic Canada's Net Debt to GDP

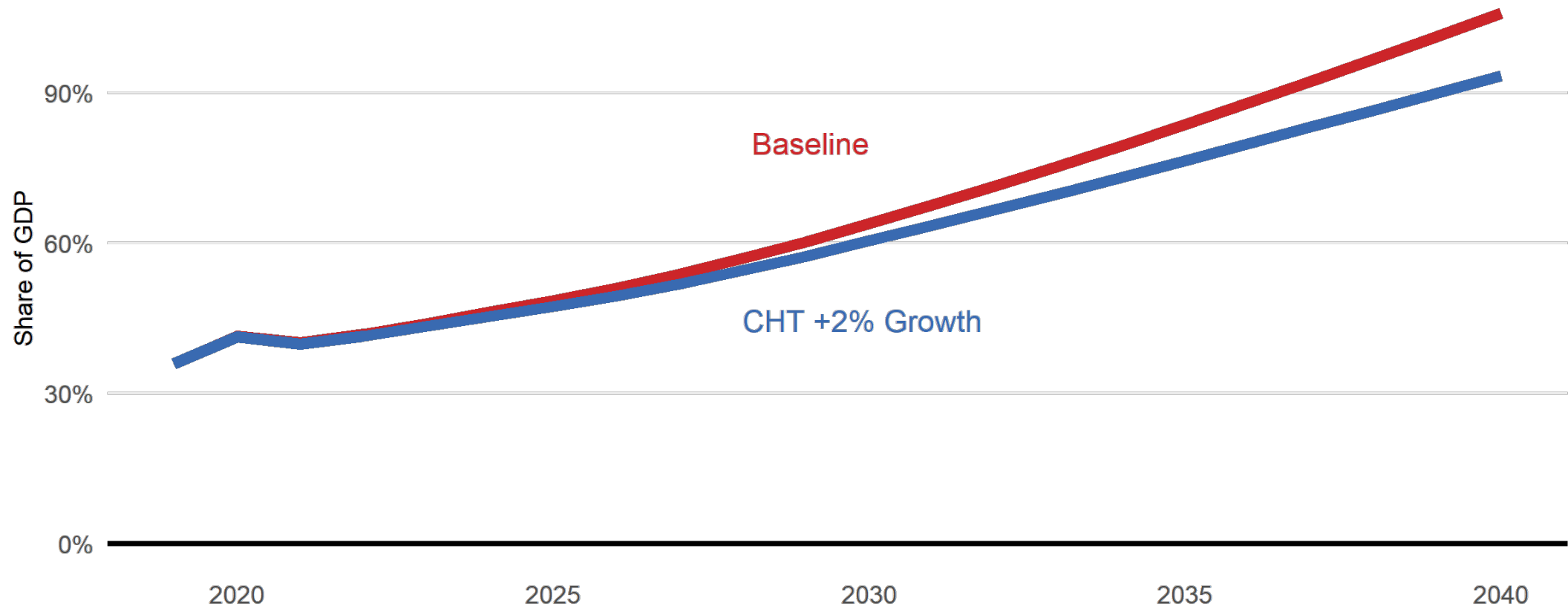
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Reforms to the Canada Health Transfer

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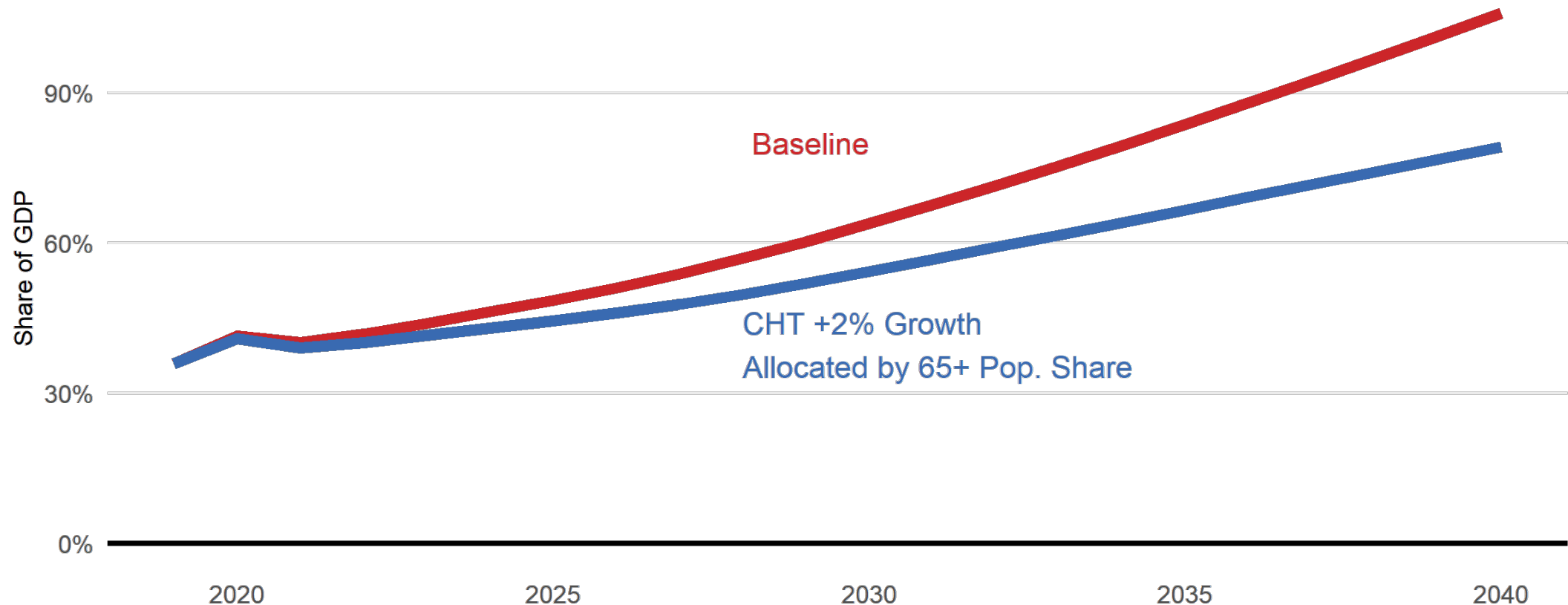
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Reforms to the Canada Health Transfer

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Concluding Thoughts

- Significant differences across provinces
- Opportunity for consensus among provinces?
 - Put **demographics** at centre of transfer reform efforts
 - Equalization changes are tough, but may be worth exploring
- A focus on modest provincial revenue growth + health spending restraint is sufficient for most
 - Alberta faces uniquely large long-term risks (currently ignored)