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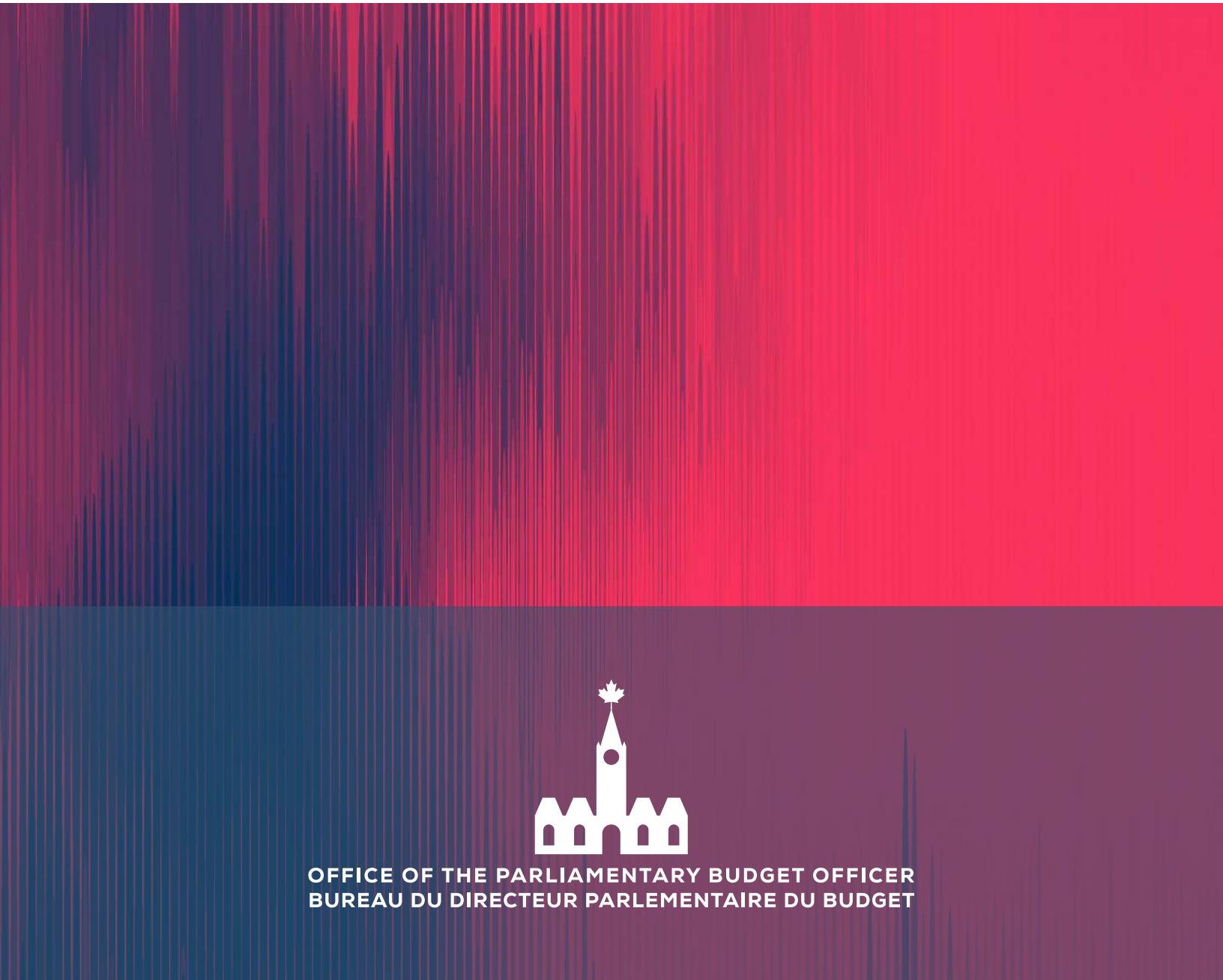
ASSESSING THE INSURANCE PROPERTIES OF THE FISCAL STABILIZATION PROGRAM



OFFICE OF THE PARLIAMENTARY BUDGET OFFICER
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The Parliamentary Budget Officer (PBO) supports Parliament by providing economic and financial analysis for the purposes of raising the quality of parliamentary debate and promoting greater budget transparency and accountability.

This report assesses the insurance properties of the Fiscal Stabilization Program, its recent changes and proposed modifications.

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Summary

The Fiscal Stabilization Program (FSP) was created in 1967 by the federal government to help insure provincial governments against extraordinary year-over-year revenue losses. As with any insurance program, adjustments, deductibles, and limits were placed on the program over the past 50 years.

This report assesses the insurance properties of the current program, its recent changes and proposed modifications using a stochastic simulation model. Our model generates thousands of realizations of provincial revenues and applies the FSP formula to determine whether a province is eligible for a payment and the loss coverage it provides.

To quantify the extent of insurance against extraordinary revenue losses, we calculate a "significant loss coverage" metric. Expressed in percentage terms, this metric is calculated as the proportion of revenue losses that would be covered by FSP payments, on average, in scenarios where total provincial revenue declines by more than five per cent (defined as a significant decline).

The results in this report are, however, illustrative in nature and are based on outcomes set in 2025-26 to abstract from the COVID-19 pandemic and recovery.

Under the current structure of the FSP:

- For resource-intensive provinces, we estimate that significant loss coverage ranges from 4 per cent in Newfoundland and Labrador to 10 per cent in Alberta, which is well below the range of 15 per cent in Quebec to 19 per cent in British Columbia for the remaining provinces.
    - In other words, in the case of Newfoundland and Labrador, when faced with significant declines, federal FSP payments would make up for 4 per cent of all revenue losses, on average.
- From the federal perspective, we estimate that there is a 25 per cent chance that the Government would make an FSP payment in our reference year. In these instances, total FSP payments made to provinces would average $861 million and the maximum payment would total $7,610 million.

We estimate that the indexation of the per capita limit announced in the 2020 Fall Economic Statement more than doubles the average FSP payment made to each province and improves significant loss coverage, particularly for the resource-intensive provinces.

Prior to the changes announced in the 2020 Fall Economic Statement, Canada's Premiers proposed several modifications to the FSP: remove the per capita limit; reduce the five per cent deductible for non-resource revenues to three per cent; and reduce the 50 per cent deductible for resource revenues to 40 per cent.

By removing the per capita limit and reducing the deductibles, the Premiers' FSP proposal would increase significant loss coverage for all provinces, particularly for the resource-intensive provinces.

The Premiers' proposal would raise significant loss coverage from 4 per cent to 11 per cent in Newfoundland and Labrador and from 10 per cent to 23 per cent in Alberta. For the remaining provinces, significant loss coverage would increase from 15 to 32 per cent in Quebec and from 19 per cent to 35 per cent in British Columbia under the Premiers' proposal.

1. Introduction

The COVID-19 pandemic generated renewed interest and focus on the Fiscal Stabilization Program (FSP), as provincial governments faced large and unexpected revenue losses.

Given these large losses, it is likely that several provincial governments will be eligible and will apply to receive support from the FSP. Past events, for example, the collapse in crude oil prices in 2014 and 2015, resulted in provincial governments applying for and receiving FSP payments due to large and unexpected revenue losses.

The Government's 2020 Fall Economic Statement introduced the first changes to the Fiscal Stabilization Program since 1987. In 2020, Canada's Premiers also proposed changes to the program to make it "more responsive to economic circumstances and downturns in resource sectors".[1]

This report assesses the insurance properties of the current program, its recent changes and proposed modifications. The results in this report are, however, illustrative in nature and allow for a comparison of different program parameters, including how they may affect each province differently due to the structure of their economy.

The next section provides an overview of the Fiscal Stabilization Program and is then followed by a description of PBO's FSP model. The report closes with our quantitative assessment of the insurance properties of the current program, along with a comparison to results under alternative parameters and thresholds.

2. Overview of the FSP

The Fiscal Stabilization Program (FSP) was created in 1967 to help insure provincial governments against extraordinary year-over-year revenue losses.[2] As with any insurance program, adjustments, deductibles, and limits were placed on the program over the past 50 years.[3]

Under the FSP, provincial revenues are adjusted for any tax changes that have occurred from the prior year so that policy-driven revenue changes are not included. This is important to ensure that the revenue losses being covered are not due to policy changes. Further, provincial governments submit claims for financial assistance to the federal government, which are subject to review by Finance Canada.

At its inception, the FSP covered (eligible) year-over-year revenues losses exceeding five per cent. That is, a province would receive a payment from the federal government equivalent to the loss in its revenue exceeding the five per cent threshold. In this report, we refer to this five per cent threshold as a "deductible", which is similar in concept to that commonly found in insurance-type programs.

In 1972, the five per cent deductible was removed and all year-over-year revenue losses were covered. Then, in 1977, revenues were split into two streams: resource and non-resource revenues. There was also a 50 per cent deductible placed on resource revenues at the same time.[4]

In 1987, another threshold was introduced: a limit of $60 on the FSP payment when expressed relative to a province's population. However, any amount exceeding the $60 per capita limit could be obtained in the form of an interest-free loan, subject to the approval of the Minister of Finance. This limit capped the size of the payment that each province received by the size of its population.

Maximum payments are common in insurance programs and limit the financial exposure for the insurer (the federal government in this case), allowing for greater control and predictability in program funding. The FSP per capita limit remained at $60 from 1987 until 2020.[5]

The original five per cent deductible was reinstated in 1995 for non-resource revenues. The reinstatement of this deductible was the last change to the FSP for the next 25 years. From 1995 to 2020, the FSP included: a five per cent deductible on non-resource revenues; a 50 per cent deductible on resource revenues; and a $60 per capita limit. In addition, interest-free loans for revenue declines in excess of the per capita limit could be extended at the discretion of the Minister of Finance.

In the 2020 Fall Economic Statement (FES), the per capita limit was indexed to growth in nominal GDP per capita and increased to $170 for fiscal year 2019-20.[6] Going forward, the per capita limit will continue to increase in line with nominal GDP per capita. In addition, the Minister of Finance retained discretion to extend interest-free loans for revenue declines in excess of the per capita limit.

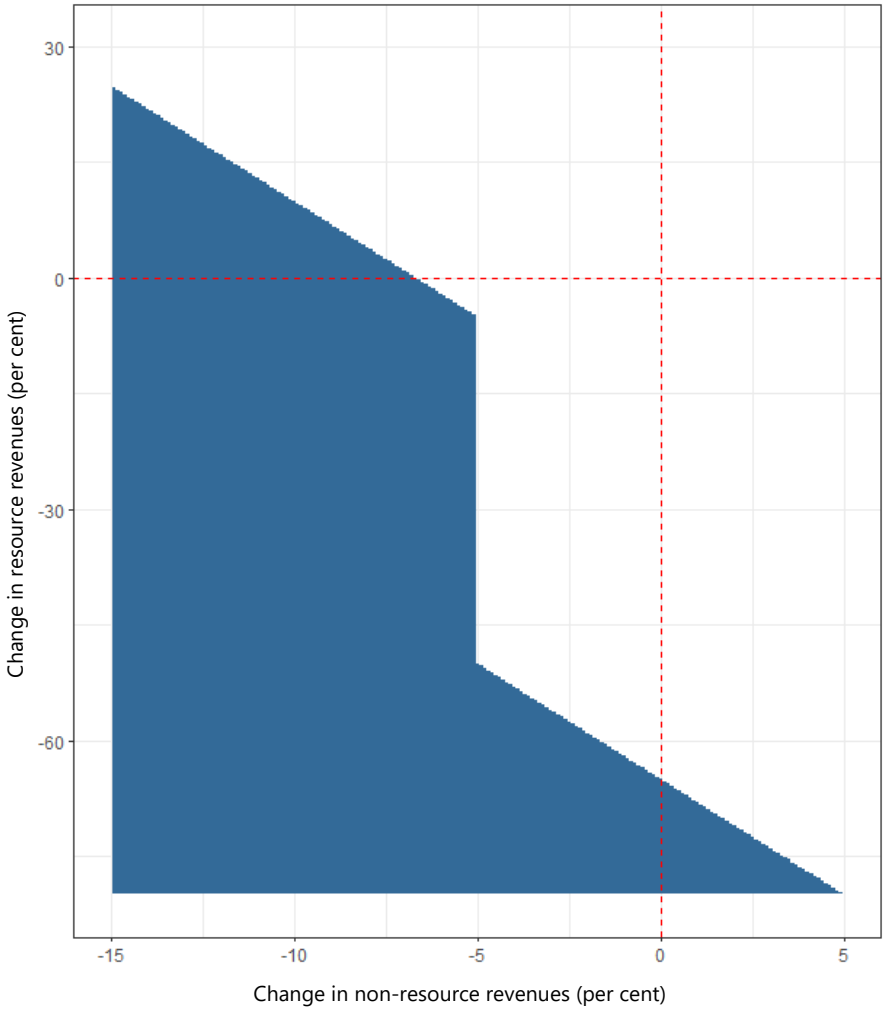
PBO's interpretation of the FSP formula that includes the 2020 FES changes is given by the following equation:

$$V_t = \begin{cases} [0.95R_{t-1}^{NR} - R_t^{NR}] + [0.95R_{t-1}^{R} - R_t^{R}] & if\ R_t^R > 0.95R_{t-1}^R, \\ 0.95R_{t-1}^{NR} - R_t^{NR} & if\ 0.5R_{t-1}^R \leq R_t^R \leq 0.95R_{t-1}^R, \\ [0.95R_{t-1}^{NR} - R_t^{NR}] + [0.5R_{t-1}^{R} - R_t^{R}] & if\ R_t^R < 0.5R_{t-1}^R \end{cases}$$

Where V_t is the value of the FSP payment without adjustments for the per capita limit, $R_t^{NR}$and R_t^R are the non-resource and resource revenues in period t respectively. Note that if the value V_t is greater than the per capita limit multiplied by the province's population, the payment is capped at the latter amount. Also, if V_t is negative, then the province does not qualify for an FSP payment and the payment is 0.

Figure 2-1 provides an illustration of the above formula.[7] The shaded area corresponds to decreases in revenues associated with an FSP payment. The example presented here is based on the assumption that a province receives 25 per cent of its revenues from natural resources. Note that for a province with a lower share of revenues from natural resources, the FSP payment profile would be flatter and declines in non-resource revenues would largely determine FSP eligibility.

Figure 2-1 Illustration of FSP eligibility



Source: Office of the Parliamentary Budget Officer.

Note: The illustration is based on the assumption that a province receives 25 per cent of its revenues from natural resources.

3. Stochastic FSP model

PBO's Fiscal Stabilization Program model can be used to assess the insurance properties of the FSP program and proposed modifications from both provincial and federal government perspectives.

Our FSP model uses a stochastic simulation approach, resulting in thousands of realizations of non-resource and resource revenues for each province for a given fiscal year and then applies the FSP formula, or any other alternative program structure, to the simulated data.

In this report, we simulate the model in fiscal year 2025-26 (the end of our current medium-term economic and fiscal projections horizon) so that the simulations are based on a "typical" year and abstract from the COVID-19 downturn and subsequent recovery.

Our results are, however, illustrative in nature and allow for a comparison of different program parameters, including how they may affect each province differently due to the structure of their economy.

Simulations of provincial revenues are made in three steps.

The first step consists of using historical series of provincial real gross domestic product (GDP) and provincial GDP deflators to construct data generating process (constructed as a deviation from trend) on which the simulations are based.[8] The data generating process allows for simulated real GDP and GDP deflators to be correlated for a given province as well as across provinces.

$$\epsilon^{GDP}_{t,prov} = \frac{GDP_{t,prov} - GDP^{Trend}_{t,prov}}{GDP^{Trend}_{t,prov}},$$
$$\epsilon^{P}_{t,prov} = \frac{P_{t,prov} - P^{Trend}_{t,prov}}{P^{Trend}_{t,prov}}$$

Next, realizations of real GDP and GDP deflators (indexed by the subscript i) are drawn for each province in 2025-26.[9] These draws follow the contemporaneous correlation pattern of the deviation from trend, or "shock", for each series shown in Figure 3-1 derived in the first step.

$$GDP_{i,prov} = GDP^{Trend}_{prov} \times \left(1 + \epsilon^{GDP}_{i,prov}\right),$$
$$P_{i,prov} = P^{Trend}_{prov} \times \left(1 + \epsilon^{P}_{i,prov}\right)$$

With $\epsilon^{GDP}_{i,prov}$, and $\epsilon^{P}_{i,prov}$ being the shocks associated with each series. In the final step, non-resource (resource) revenues in 2025-26 are derived from deviations from trend for real GDP (GDP deflator), given trend revenues and elasticities. The elasticities of revenues to real GDP and GDP deflators are

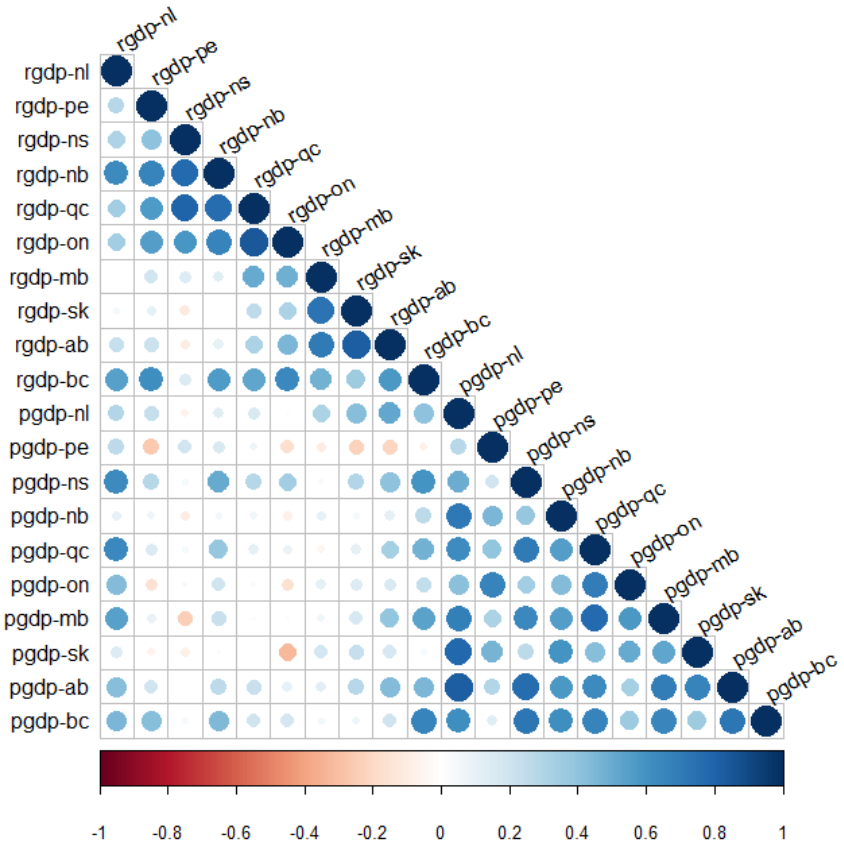
calibrated to reflect the observed variation in each type of revenues and observed FSP payments made to provinces.

$$R^{NR}_{i,prov} = \left(\frac{GDP_{i,prov}}{GDP^{Trend}_{prov}}\right)^{\varepsilon^{NR}} \times \bar{R}^{NR},$$

$$R^{R}_{i,prov} = \left(\frac{P_{i,prov}}{P^{Trend}_{prov}}\right)^{\varepsilon^{R}} \times \bar{R}^{R}$$

Where $\bar{R}^{NR}$ and $\bar{R}^{R}$ are trend non-resource and trend resource revenues, respectively, in 2025-26.[10]

Figure 3-1 Contemporaneous correlation coefficients of trend deviations for provincial real GDP and GDP deflators



Sources: Statistics Canada and Office of the Parliamentary Budget Officer.

Notes: Color intensity and the size of the circle are proportional to the correlation coefficients.

RGDP refers to real gross domestic product and PGDP refers to the price deflator.

Our model uses a simple structure to link trend deviations in real GDP to non-resource revenues and trend deviations in GDP deflators to resource

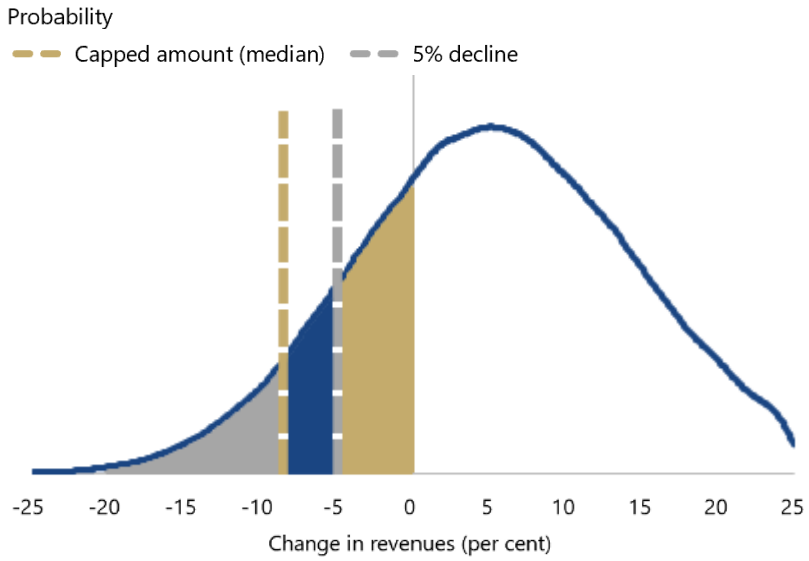
revenues. Of course, linkages between the economy and revenues are much more complex. Nonetheless, this simple structure allows us to capture the FSP in sufficient detail and generate plausible distributions of payments.

Further, our economic structure allows for a straightforward add-up of provincial nominal GDP, which is used to determine national GDP per capita and consequently the maximum per capita FSP payment.[11]

As an illustrative example, Figure 3-2 shows the distribution of (eligible) percentage changes in non-resource revenues generated by our FSP model. The grey line highlights the five per cent decline in revenues (the deductible) and the gold line is the decline that would be "capped" by the FSP per capita limit. Thus, the area between the deductible and the limit (blue shaded area) represents events in which all revenue losses above the 5 per cent decline would be made up by the FSP payment from the federal government. Events that fall in the grey shaded area would be only partially made up by the FSP payment from the federal government, as payments would reach the capped amount.

This example is meant to give a general idea of the likelihood of receiving an FSP payment, as well as the likelihood of revenue declines exceeding the limit based on the per capita maximum. However, it is important to note that the areas shown in the example do not represent actual thresholds for FSP payments since resource revenues are not incorporated.

Figure 3-2 Distribution of changes in non-resource revenues – an example



Source: Office of the Parliamentary Budget Officer.

To quantify the extent of insurance against extraordinary revenue losses, we calculate a "significant loss coverage" metric. Expressed in percentage terms, this metric is calculated as the proportion of revenue losses that would be covered by FSP payments, on average, in scenarios where total provincial revenue declines by more than five per cent (defined as a significant decline). Recall that at its inception, the FSP covered total year-over-year revenue losses exceeding five per cent. As such, we adopt this threshold to identify "significant" revenue losses for provincial governments.

4. Results

Based on our model's simulation results, we assess the likelihood of receiving FSP payments and estimate their magnitude, both from federal and provincial government perspectives.

Our model is designed to capture changes to program parameters and inputs, such as the increase in the per capita limit and the decrease in eligibility thresholds (deductibles). This allows us to assess the impact of recent changes to the FSP, as well as proposed changes to the program.

This section first analyses the current program structure and then assesses the impacts of the change to the FSP per capita limit made in the 2020 FES. To further illustrate the model and its properties, we also consider the September 2020 proposal by Canada's Premiers to enhance the FSP structure.

4.1. Current program results

The current FSP structure, including the 2020 FES modifications, has a five per cent deductible for non-resource revenues, a 50 per cent deductible for resource revenues, and a per capita limit that grows in line with national (nominal) GDP per capita.[12]

Based on our model calibration, the probability of a province receiving an FSP payment is broadly consistent with historical experience since 1995. Resource-intensive provinces, such as Newfoundland and Labrador and Alberta, have a higher probability (in some cases, double) of receiving an FSP payment due to the higher volatility in their total revenues and therefore greater likelihood of being eligible for the program compared to other provinces (Table 4-1).

In 2024, the year prior to the simulation, we project the FSP per capita limit to be $195. In cases where FSP payments are made, the per capita limit in 2025 has a median value of $195 (the same as in 2024) however fluctuates at times depending on the simulation.

We calculate the average FSP payment conditional on a province receiving a payment (that is, FSP payments of zero are not included). For example, in our reference year, we estimate that there is a 4 per cent chance that Ontario would be eligible to receive an FSP payment; in such a case the average payment would amount to $1,818 million.

In dollar terms, the average and maximum FSP payments are tied to the size of the economy and the population of each province. Our results show that larger provinces have higher average and maximum payments. Recall that the maximum payment under the current FSP formula is determined by nominal GDP per capita at the national level.

Significant loss coverage measures the proportion of provincial revenue losses that would be covered by the FSP payment when total revenue losses exceed five per cent. That is, significant loss coverage of 20 per cent means that FSP payments to a province would make up for 20 per cent, on average, of all revenue losses given that the losses exceed five per cent.

Resource-intensive provinces experience more inconsistent year-over-year revenue changes as resource revenues are highly volatile. The higher volatility and the higher deductible for resource revenues results in resource-intensive provinces having lower significant loss coverage, albeit with greater likelihood of receiving an FSP payment. For resource-intensive provinces, significant loss coverage ranges from 4 per cent (Newfoundland and Labrador) to 10 per cent (Alberta), which is well below the range of 15 per cent (Quebec) to 19 per cent (British Columbia) for the remaining provinces.

Under the assumption that provincial governments will apply to the program every time they are eligible, we estimate that there is a 25 per cent chance that the federal government would make an FSP payment in our reference year. In these instances, total payments made to provinces would average $861 million. For the federal government, maximum payments made under the FSP would total $7,610 million in our reference year. However, the probability of the federal government making such a large FSP payment is extremely low (0.001 per cent).

Table 4-1 Results summary – existing FSP structure

	Probability of FSP payment	Average payment ($ millions)	Maximum payment ($ millions)	Significant loss coverage
Newfoundland and Labrador	9%	77	105	4%
Prince Edward Island	3%	22	36	18%
Nova Scotia	4%	119	209	18%
New Brunswick	3%	89	162	17%
Quebec	2%	1,098	1,806	15%
Ontario	4%	1,818	3,212	19%
Manitoba	3%	173	303	18%
Saskatchewan	4%	159	261	5%
Alberta	11%	706	990	10%
British Columbia	4%	579	1,073	19%
Federal government	25%	861	7,610	n.a.

Source: Office of the Parliamentary Budget Officer.

Note: Significant loss coverage is the proportion of revenue losses that would be covered by FSP payments, on average, in scenarios where total provincial revenue declines by more than five per cent.

4.2. Increasing the per capita limit from $60

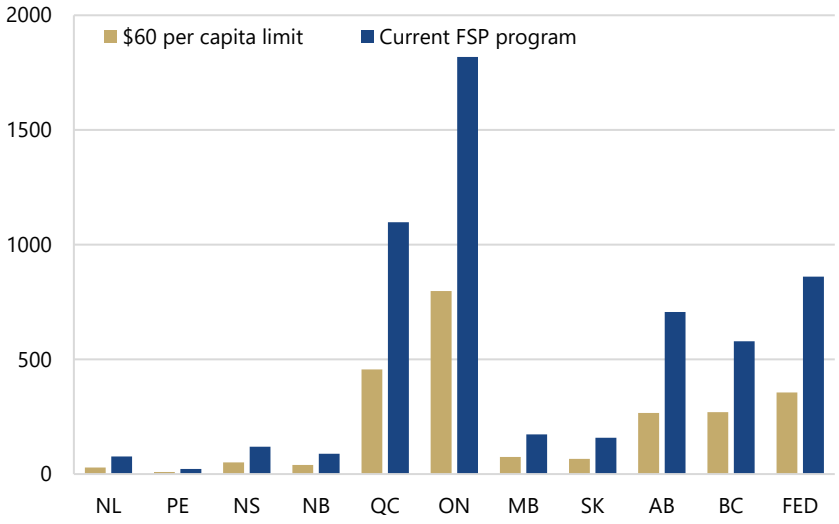
As a point of comparison, we assess the FSP under the $60 per capita limit that existed prior to the indexation announced in the 2020 Fall Economic Statement, with all other program parameters unchanged from the current structure.

Under the $60 per capita limit, all provinces would receive smaller FSP payments, on average, compared to the current program (Figure 4-1). The increase in the per capita limit to around $195 from $60, more than doubles the average FSP payment made to each province in 2025-26.

Figure 4-1

Average FSP payments

$ millions



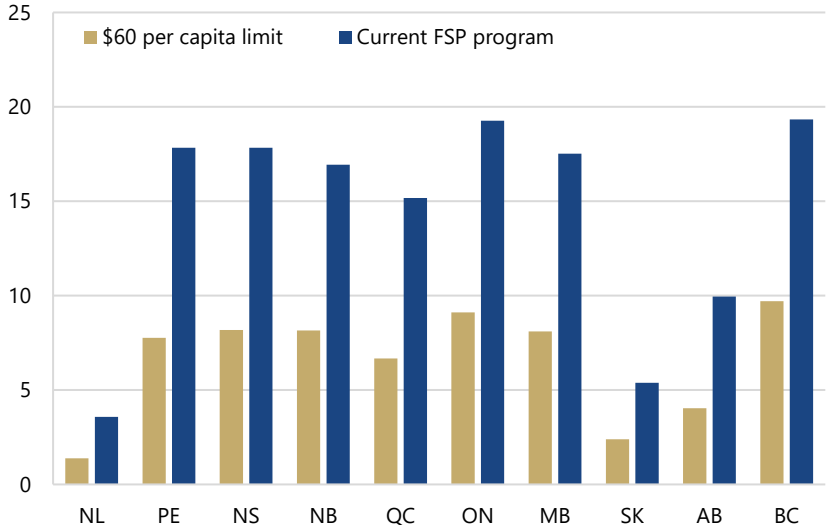
Source: Office of the Parliamentary Budget Officer.

Note: The average payment is calculated based on all FSP payments made in 2025-26 and excludes FSP payments of zero.

The increase in the FSP per capita limit from $60 improves the significant loss coverage, particularly for the resource-intensive provinces (Figure 4-2). The increase in the per capita limit raises significant loss coverage from 1 per cent to 4 per cent in Newfoundland and Labrador and from 4 per cent to 10 per cent in Alberta.

Figure 4-2 Significant loss coverage

Per cent



Source: Office of the Parliamentary Budget Officer.

Note: Significant loss coverage is the proportion of revenue losses that would be covered by FSP payments, on average, in scenarios where total provincial revenue declines by more than five per cent.

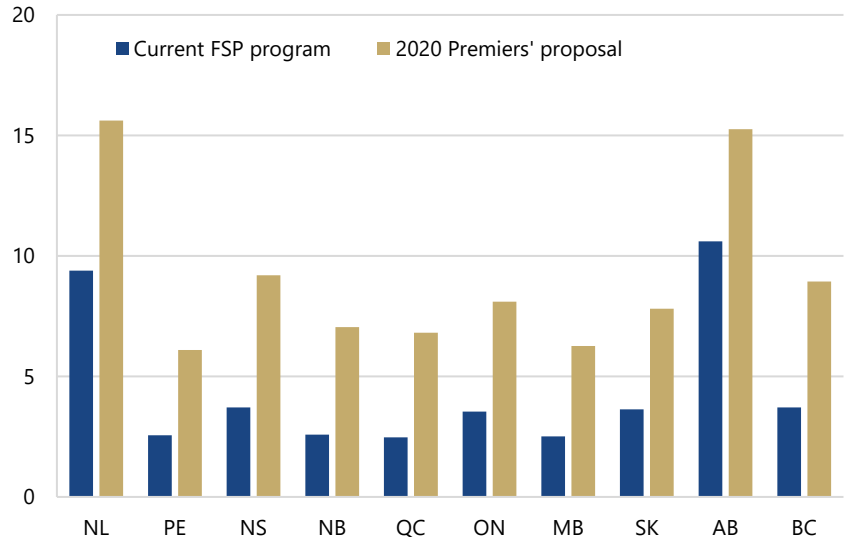
4.3. September 2020 Premiers' FSP proposal

Prior to the changes announced in the 2020 Fall Economic Statement, Canada's Premiers proposed several modifications to the FSP: remove the per capita limit; reduce the five per cent deductible for non-resource revenues to three per cent; reduce the 50 per cent deductible for resource revenues to 40 per cent.[13]

Under the structure proposed by the Premiers, the probability of receiving an FSP payment would more than double for most provinces compared to the current program as it depends on the size of the deductibles (Figure 4-3). Therefore, decreasing the deductibles by two and 10 percentage points for non-resource and resource revenues, respectively, significantly raises the probability of receiving an FSP payment for every province.

Figure 4-3 Probability of receiving an FSP payment

Per cent

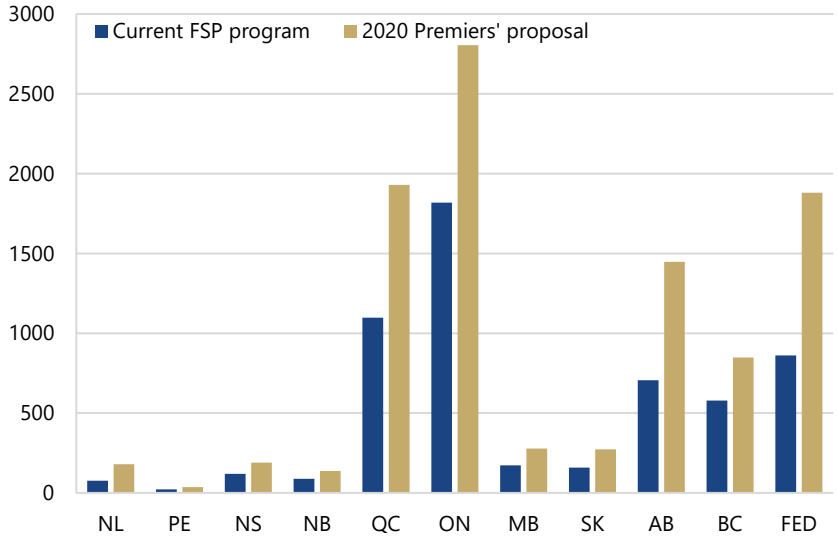


Source: Office of the Parliamentary Budget Officer.

By removing the per capita limit under the Premiers' proposal, FSP payments would cover all revenue declines with the exception of the deductibles. The size of the average FSP payment for each province reflects the size of its economy and population and therefore their potential revenue loss (Figure 4-4).

Figure 4-4 Average FSP payments

$ millions



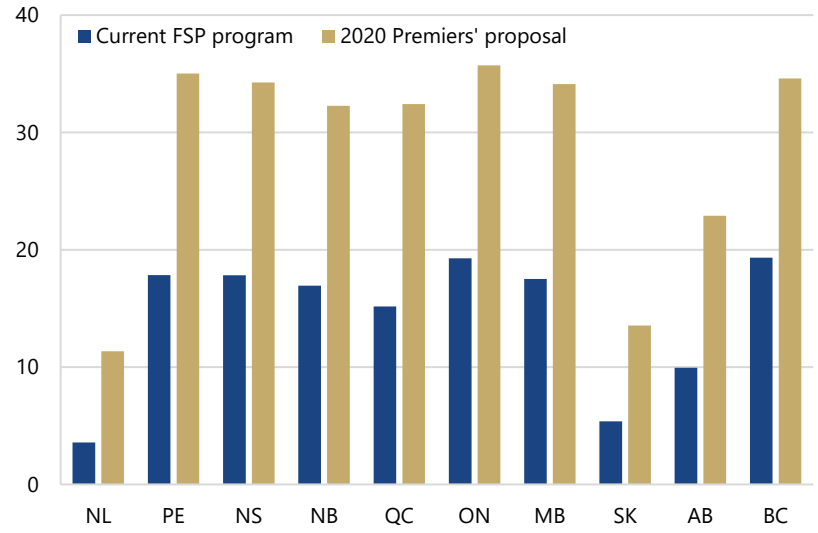
Source: Office of the Parliamentary Budget Officer.

Note: The average payment is calculated based on all FSP payments made in 2025-26 and excludes FSP payments of zero.

By removing the per capita limit and reducing the deductibles, the Premiers' FSP proposal would increase significant loss coverage for all provinces, particularly for the resource-intensive provinces (Figure 4-5).[14] The Premiers' proposal would raise significant loss coverage from 4 per cent to 11 per cent in Newfoundland and Labrador and from 10 per cent to 23 per cent in Alberta. For the remaining provinces, significant loss coverage would increase from 15 per cent to 32 per cent in Quebec and from 19 per cent to 35 per cent in British Columbia.

Figure 4-5 Significant loss coverage

Per cent



Source: Office of the Parliamentary Budget Officer.

Note: Significant loss coverage is the proportion of revenue losses that would be covered by FSP payments, on average, in scenarios where total provincial revenue declines by more than five per cent.

Notes

1. For details see the September 18, 2020 press release by Canada's Premiers, available at: https://www.canadaspremiers.ca/wp-content/uploads/2020/09/Sept_18_COF_Communique_final.pdf.
2. See Finance Canada's Fiscal Stabilization Program backgrounder for additional details. Available at: https://www.canada.ca/en/department-finance/news/2016/02/backgrounder-the-fiscal-stabilization-program.html.
3. Tombe (February 2020) relates the principles of insurance design to the stabilization policy and the FSP. See "An (Overdue) Review of Canada's Fiscal Stabilization Program". IRPP Insight No 31. Available at: https://irpp.org/research-studies/an-overdue-review-of-canadas-fiscal-stabilization-program/.
4. Historically speaking, resource revenues are more volatile, and keeping a similar level of protection on both types of revenues could raise issues of moral hazard. That is, provinces would have an incentive to increase their exposure to risks by overly relying on resource revenues.
5. Even though several provinces over the years have exceeded the $60 per capita limit and would have been eligible to receive the additional amount as an interest-free loan, there are no records indicating that any province received an FSP loan.
6. The 2020 FES indicates that in years in which nominal GDP (per capita) declines, the per capita limit will remain at its preceding year's level. In addition, several technical changes were included that will apply to FSP claims made in 2021-22 and thereafter. See page 109 in the 2020 FES for additional details. Available at: https://www.budget.gc.ca/fes-eea/2020/report-rapport/toc-tdm-en.html.
7. We would like to thank Trevor Tombe for the help in constructing this graphic.
8. The GDP and GDP deflator time series are decomposed using the Hodrick-Prescott filter, with adjustments made to address endpoint considerations (that is, filtering the combined historical and projected series). Using the annual values and the estimated trend component, we obtain for each indicator a series of deviations from the trends (that is, "shocks"). From these series we create a variance-covariance matrix that provides the statistical structure for the shocks used in our stochastic simulations.
9. Trend values for provincial GDP and GDP deflators in 2024 and 2025 are set equal to their medium-term projected levels.
10. Trend values for non-resource and resource revenues in 2025-26 are set equal to their medium-term projected levels.
11. Our model could also be used to consider deeper changes to the FSP program. For example, Tombe (February 2020) proposes a macro-based formula to determine FSP payments based on provincial GDP.

12. The current FSP structure also includes interest-free loans (at the discretion of the Minister of Finance) for revenue losses exceeding the per capita limit.

13. In addition, the Premiers proposed that these changes to the FSP should be implemented retroactively to include both the 2015 downturn and pandemic.

14. Shifting from the current program to the Premiers' FSP proposal by changing one parameter at a time (per capita limit and deductibles), the significant loss coverage ratios still increase compared to the current program, however, they do not change in the same way for each province.

    Resource-intensive provinces (Newfoundland and Labrador, Alberta, and Saskatchewan) have higher significant loss coverage ratios when the per capita limit is removed and the current deductibles are maintained, compared to the case in which the per capita limit is maintained and the deductibles are reduced. The remaining provinces, conversely, have higher significant loss coverage ratios when the per capita limit is maintained and the deductibles are reduced.