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# **COSTING A GUARANTEED BASIC INCOME DURING THE COVID PANDEMIC**



OFFICE OF THE PARLIAMENTARY BUDGET OFFICER  
BUREAU DU DIRECTEUR PARLEMENTAIRE DU BUDGET

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.

A parliamentarian requested that the PBO prepare a cost estimate of a guaranteed income program, using parameters set out in Ontario's basic income pilot project.

This report considers the provincial breakdown of a national post-COVID cost. In addition, it provides an estimate of the federal and provincial programs for low-income individuals and families, including many non-refundable and refundable tax credits that could be replaced by the guaranteed basic income program.

This analysis is based on Statistics Canada's Social Policy Simulation Database and Model (SPSD/M). The assumptions and calculations underlying the simulation results were prepared by PBO; the responsibility for the use and interpretation of these data is entirely that of the author.

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# Executive Summary

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A parliamentarian requested that the PBO estimate the cost of a guaranteed basic income (GBI) program to ensure all Canadians between 18 and 64 have income of at least 75% of the Low-Income Measure (LIM; \$24,439 for an individual and \$34,562 for a couple) for the last six months of the fiscal year 2020-21.

The parliamentarian directed that the PBO should use the parameters set out in Ontario's 2017 basic income pilot project. This pilot guaranteed individuals and couples with at least \$16,989 and \$24,027 of income per year, respectively.<sup>1</sup>

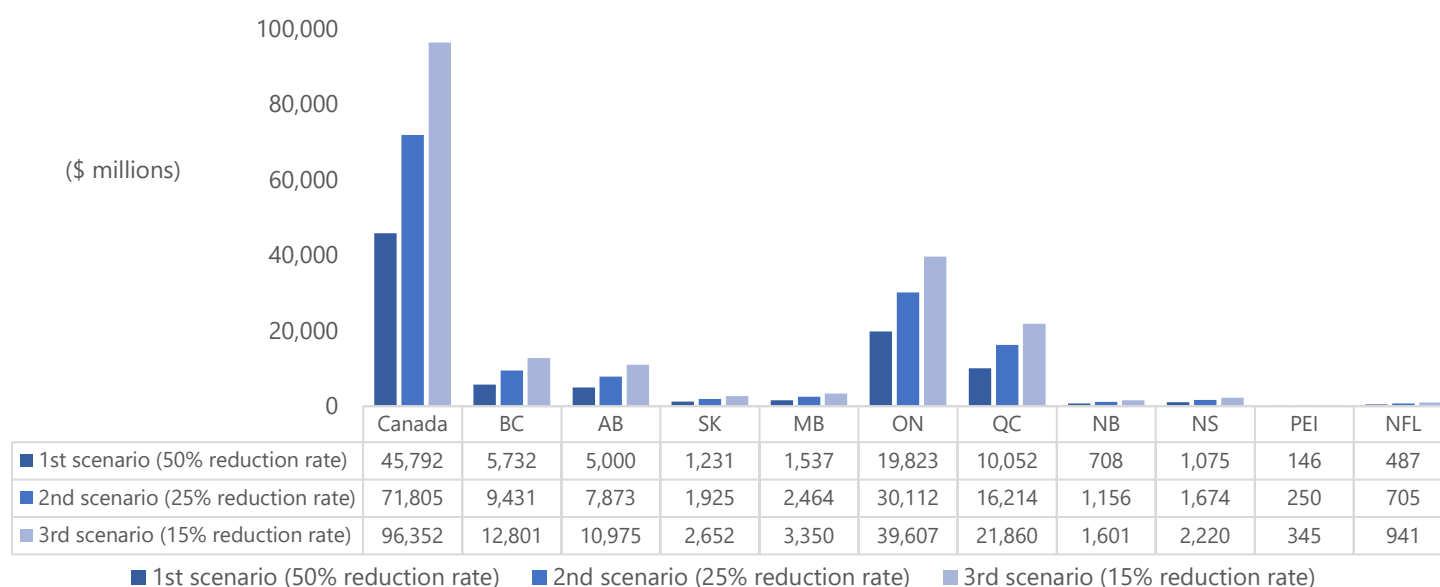
As directed by the requestor, PBO presents three estimates based on scenarios that phase-out the benefit by \$0.50, \$0.25 and \$0.15 for each dollar of employment income.<sup>2</sup>

## **Basic income gross cost**

Overall, as shown in Summary Figure 1, PBO estimates that the basic gross cost of the GBI would range between \$45.8 billion and \$96.4 billion based on the three scenarios for the six-month period. The supplemental guaranteed income for disability would be \$1.7 billion.<sup>3</sup>

Summary Figure 1

## Cost of a guaranteed basic income by province (for a 6-month period)



Source: PBO calculations.

Notes: These figures do not include the supplemental disability benefit.

Among provinces, Ontario would receive the greatest share of the GBI benefit – 42% of the total cost (on average, across the three scenarios).

These estimates do not incorporate behavioral reactions to the GBI. Some studies show that a guaranteed minimum income could have a negative impact on labour force participation and hours worked.<sup>4</sup>

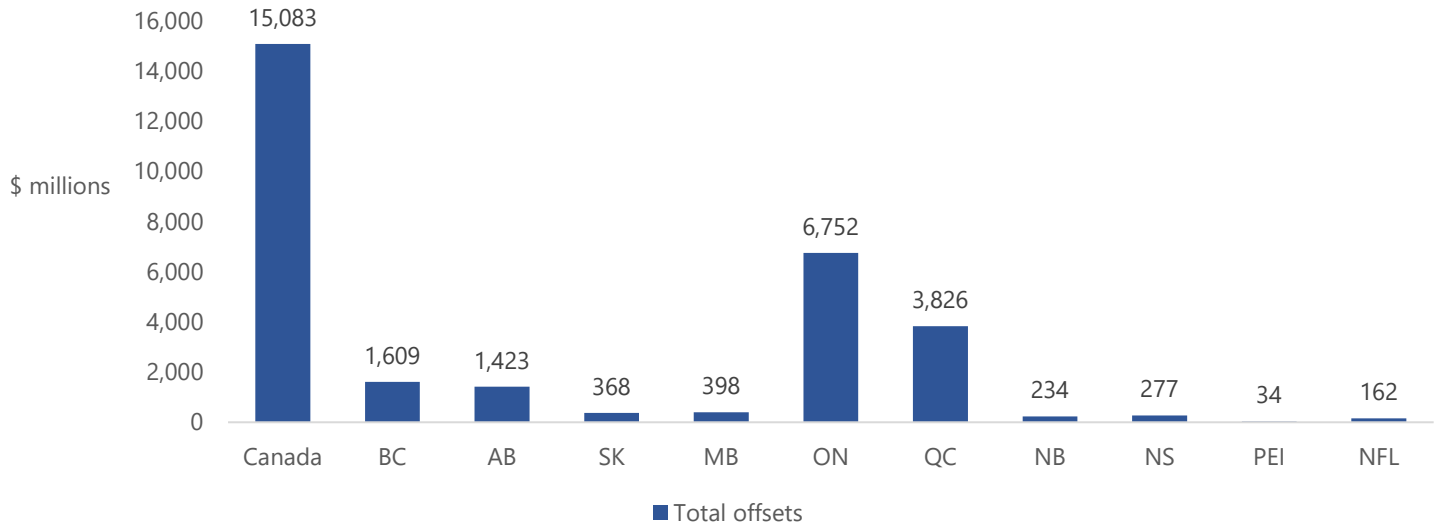
### Potential Federal and Provincial Offsets

Building on PBO's earlier analysis and at the behest of the requestor, PBO prepared an update of the potential offsets that could be generated if GBI replaced some income support measures targeted toward low-income and/or disabled individuals between the ages of 18 and 64.<sup>5</sup>

PBO estimates the potential offsets from repealing these measures would be just over \$15 billion for the October 2020 to March 2021 (inclusive) period. (Summary Figure 2).

## Summary Figure 2

Potential fiscal offsets from the cancellation of federal and provincial programs that could be replaced by GBI (for a 6-month period)



Source: PBO calculations.

# 1. Introduction

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Governments have significantly increased their spending in response to the economic impacts of COVID-19. Soon after Canadian governments restricted the operations of the physical locations of several types of businesses, a significant number of Canadians found themselves unemployed or working reduced hours.

Part of the response by the federal government was the introduction of the widely available Canadian Emergency Response Benefit (CERB). This benefit is a flat taxable \$2,000 sum, offered to Canadians who had lost their job due to the impacts of COVID-19, for a period of up to 24 weeks.

The introduction of CERB has brought discussions of universal basic income to the forefront once again. In response to a request from a parliamentarian, this report updates the PBO's 2018 cost estimate of implementing Guaranteed Basic Income (GBI).

In the previous report (2018), PBO took the policy parameters of Ontario's basic income pilot project and applied them across the country to estimate the cost of a GBI (Box 1).<sup>6</sup> The methodology relies on Statistics Canada's Social Policy Simulation Database and Model (SPSD/M), which is a statistically representative database of Canadian individuals in their family context.<sup>7</sup>

## **Box 1: Ontario's Pilot Program of Guaranteed Basic Income**

Eligible persons were those 18 to 64 year old living on low income. The full amount of the GBI was based on 75 per cent of the low-income measure (LIM). In 2018, the Ontario Basic Income Pilot ensured that participants received up to \$16,989 for a single person and \$24,027 for a couple. People with a disability would have received a universal additional amount of \$6,000 per year.

These amounts were not taxable but were means-tested.

The GBI was reduced as an individual receives more employment earnings, at a rate of \$0.50 for every dollar of earnings. Participants receiving Employment Insurance or Canada Pension Plan payments would have their GBI reduced dollar for dollar. Participants receiving other benefits, such as the Canada Child Benefit, continued to receive them.

In this report, PBO updates its previously published estimates by considering the COVID impact on wages and employment.<sup>8</sup> In addition, PBO enumerates existing federal and provincial programs and tax measures delivered through the income tax system for low-income individuals and families and other vulnerable groups.

In comparison with the previous report, PBO also considers the provincial breakdown of the GBI gross cost and the tax measures that could be replaced by GBI.

Finally, PBO considers three levels of the reduction rate that will be applied on the maximum amount of the basic income. Specifically, PBO applies a rate of 50%, 25%, and 15% on the nuclear family employment earnings.



## 2. Results

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PBO developed a multi-step model that simulates GBI costs from October 2020 to March 2021 (inclusive) for each of the three phase-out scenarios. The model estimates two main components of the fiscal cost of implementing the GBI at national and provincial levels:

- The gross cost of implementing the basic income.
- The potential federal and provincial sources of revenues to fund the basic income program.

Each component is discussed below.

### 2.1. Cost of a Guaranteed Basic Income

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Overall, as shown in Table 2-1, the total estimated gross cost of the defined GBI would range between \$47.5 billion and \$98.1 billion based on the three scenarios for the six-month period from October 2020 to March 2021. A lower phase-out rate will result in more eligible individuals and therefore higher overall costs.

The average benefit ranges between \$4,500 and \$4,800. The average benefit amount is influenced by the phase-out rate. As it decreases, it expands the number of beneficiaries, who generally receive lower benefits because of their higher incomes.

The cost of a guaranteed income for disability would be \$1.7 billion. The supplemental disability amount is constant because it is a universal amount that does not depend on the phase-out rates (options) (Table 2-1).

**Table 2-1      Gross cost of a guaranteed basic income (for 6 months)**

	1 <sup>st</sup> scenario (50% reduction rate)	2 <sup>nd</sup> scenario (25% reduction rate)	3 <sup>rd</sup> scenario (15% reduction rate)
Basic cost of GBI (\$ million)	45,792	71,805	96,352
Number of recipients (000)	9,642	16,044	20,104
Unit GBI cost (\$)	4,749	4,475	4,793
Supplemental disability cost (\$ million)	1,734	1,734	1,734
Total gross cost (\$ million)	47,526	73,539	98,086

Source: PBO calculations.

Note: Totals may not add due to rounding

As shown in Table 2-2, among provinces Ontario obtains the highest share of the GBI benefit, representing roughly 42% of the total across all three phase-out rate options (excluding the disability amount).

Prince Edward Island has the lowest share of the total GBI benefit, not exceeding an average over the three phase-out rate options of 0.3% of the total (ranging between \$146 million and \$345 million).

British Columbia has the third-largest benefit that represents 13% of the total GBI. Depending on options, the post-COVID cost varies between \$5.7 billion and \$12.8 billion for the second half of the current fiscal year.

With respect to the average value per recipient, Ontario has the highest unit GBI cost. For example, the unit GBI cost of the 3<sup>rd</sup> scenario is \$4,922 per recipient (in comparison with the national unit value of \$4,793). A representative beneficiary in New Brunswick will receive the lowest amount at \$4,183 with a 15% of phase-out rate.

This variability of the average value by recipient across provinces is explained by the distribution of employment earnings among low-income Canadians. The highest unit value in Ontario indicates that a representative low-income beneficiary in this province has lower employment earnings than in other provinces.

**Table 2-2** Provincial breakdown of the guaranteed basic income gross cost

		1 <sup>st</sup> scenario (50% reduction rate)	2 <sup>nd</sup> scenario (25% reduction rate)	3 <sup>rd</sup> scenario (15% reduction rate)
CA	<b>Total basic GBI cost (\$ million)</b>	45,792	71,805	96,352
	<b>Number of recipients (000)</b>	9,642	16,044	20,104
	<b>Unit GBI cost (\$)</b>	4,749	4,475	4,793
BC	<b>Total basic GBI cost (\$ million)</b>	5,732	9,431	12,801
	<b>Number of recipients (000)</b>	1,229	2,100	2,621
	<b>Unit GBI cost (\$)</b>	4,662	4,491	4,883
AB	<b>Total basic GBI cost (\$ million)</b>	5,000	7,873	10,975
	<b>Number of recipients (000)</b>	1,032	1,778	2,384
	<b>Unit GBI cost (\$)</b>	4,846	4,429	4,603
SK	<b>Total basic GBI cost (\$ million)</b>	1,231	1,925	2,652
	<b>Number of recipients (000)</b>	254	444	582
	<b>Unit GBI cost (\$)</b>	4,854	4,331	4,561
MB	<b>Total basic GBI cost (\$ million)</b>	1,537	2,464	3,350
	<b>Number of recipients (000)</b>	325	566	707
	<b>Unit GBI cost (\$)</b>	4,730	4,354	4,739
ON	<b>Total basic GBI cost (\$ million)</b>	19,823	30,112	39,607
	<b>Number of recipients (000)</b>	4,037	6,508	8,046
	<b>Unit GBI cost (\$)</b>	4,911	4,627	4,922
QC	<b>Total basic GBI cost (\$ million)</b>	10,052	16,214	21,860
	<b>Number of recipients (000)</b>	2,227	3,747	4,595
	<b>Unit GBI cost (\$)</b>	4,514	4,327	4,757
NB	<b>Total basic GBI cost (\$ million)</b>	708	1,156	1,601
	<b>Number of recipients (000)</b>	167	294	383
	<b>Unit GBI cost (\$)</b>	4,253	3,931	4,183
NS	<b>Total basic GBI cost (\$ million)</b>	1,075	1,674	2,220
	<b>Number of recipients (000)</b>	235	381	481
	<b>Unit GBI cost (\$)</b>	4,573	4,392	4,610
PEI	<b>Total basic GBI cost (\$ million)</b>	146	250	345
	<b>Number of recipients (000)</b>	37	65	81
	<b>Unit GBI cost (\$)</b>	3,964	3,836	4,260
NFL	<b>Total basic GBI cost (\$ million)</b>	487	705	941
	<b>Number of recipients (000)</b>	101	161	223
	<b>Unit GBI cost (\$)</b>	4,827	4,369	4,218

Source: PBO calculations.

Notes: These figures do not include the supplement disability benefit.  
Totals may not add due to rounding.

## 2.2. Potential Federal and Provincial Offsets

PBO also estimated the potential fiscal offsets that could be used to defray some of the incremental GBI expenses. The criteria for this inclusive list, as well as a complete list of measures, are included in Appendix A2. Generally speaking, they are measures targeted toward low-income or disabled persons, and are limited to programs delivered via the personal income tax system as well as the social assistances.<sup>9</sup>

As stated, these results reflect the offsets obtained from recipients of these measures aged 18 to 64 years, rather than the amount obtained from a total repeal of these measures. This was done to ensure consistency between eligibility criteria for the GBI and the various tax measures (see Box 1).

Ultimately, the decision on which credits to repeal, if any, rests with the governments. The estimates in this report offer information to support an informed debate about potential sources of revenues to fund GBI.

PBO estimates the potential offsets from repealing tax measures that could be replaced by GBI is over \$15 billion for the period of October 2020 to March 2021 (inclusive).

Table 2-3 below provides a summary of these offsets. In addition to providing more detail, the provincial-level analysis also provides an overview of each provinces' own offset capacity.

**Table 2-3 Potential fiscal offsets of select tax measures that could be replaced by GBI**

\$ millions	Refundable		Non-Refundable		Interaction	Total
	Prov	Fed	Prov	Fed		
BC	1,199	601	120	70	-380	1,609
AB	1,087	409	91	83	-247	1,423
SK	285	92	19	23	-51	368
MB	292	136	21	36	-86	398
ON	5,409	1,424	369	287	-737	6,752
QC	2,998	1,585	169	290	-1,216	3,826
NB	162	83	15	25	-50	234
NS	168	170	42	31	-135	277
PE	18	30	3	6	-23	34
NL	108	71	18	19	-54	162
CA	11,725	4,602	866	869	-2,979	15,083

Source: PBO calculation

Note: Totals may not add due to rounding

Ontario and Quebec represent the largest proportion of these offsets, because of their large populations.

## Appendix A – Costing Methodology

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PBO has developed a three-step model to estimate the gross GBI cost and the offsets from the cancellation of federal and provincial programs that would be replaced by the GBI.

### A.1 The Guaranteed Basic Income Gross Costing

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The first step consists of estimating the Pre-COVID cost of implementing the GBI. PBO took the policy parameters of Ontario's basic income pilot project and applied them across the country to estimate the cost of a GBI. The methodology relies on Statistics Canada's Social Policy Simulation Database and Model (SPSD/M), which is a statistically representative database of Canadian individuals in their family context before the COVID health and economic crisis. This pre-COVID costing represents the reference case.

Our overall approach follows Simpson and Stevens (2017), Boadway et al. (2016), and Pasma and Regehrby (2019) using the SPSP/M nuclear family income at which the tax-back rate is applied. The nuclear family is consistent with the family level benchmark defined by the Ontario basic income pilot in which the participants must be aged 18 to 64 and living as a single or in a couple on low income.

PBO chose the adjusted net income as a measure of the earned income defined by the Ontario GBI model excluding welfare (social assistance payments) and disability transfers. The Ontario GBI model required that the participants receiving support through social assistance would need to withdraw from Ontario Works or the Ontario Disability Support Program (ODSP). In this respect, a part of GBI would replace some federal and provincial tax measures, such as the disability transfers, as well as social assistance allowances.

The Ontario model uses a guaranteed income of \$16,989 that determines the full benefit payment when no earned income is available in 2017-18. The Ontario program also provides people with a disability a universal additional \$6,000 per year, which is not means-tested.

To calculate the corresponding income guarantees for future fiscal years, PBO calculates the full amount of the GBI based on 75 per cent of the low-income measure (LIM) as defined by the Ontario model in 2020 and 2021. The LIM measure is calculated as half of the median of the "equivalent disposable household income".

The next phase considers the COVID impact by increasing the pre-COVID cost through employment changes. This phase can be subdivided into two steps:

- The first step is to provide the impact of economic closure on the GBI cost through the compensation loss (family income changes). To do that, we use our Economic and Fiscal (E&F) model to evaluate the percentage change of employment compensation by industry sector. The pre-COVID value of this compensation is based on February's sectoral payroll and is compared to the sectoral average payroll of the third and fourth quarter of the fiscal year 2020-21 provided by the E&F model.<sup>10</sup> After that, PBO recalculated the GBI cost in SPSPD/M by applying these estimated employment shocks to SPSPD/M's database income variables. These shocks were applied by industry sector to be more consistent with the E&F.
- The second step involves estimating the layoff effect on the GBI cost arising from forced closures. PBO used Statistics Canada's Labour Force Survey (LFS) to capture the labour market impacts of COVID-19.<sup>11</sup> Two groups were identified as laid off; (i) those who are not currently employed, but have worked in the past year, and (ii) those who are currently employed, but are absent from their work due to "other reasons". The first group of eligible recipients are assumed to have become unemployed as a result of temporary or permanent layoffs from COVID-19. The second group of eligible recipients are those employed but absent for the whole reference week due to the COVID-19 economic shutdown.<sup>12</sup>

While the overarching picture reveals a general increase in unemployment and work-absence, it conceals the underlying sectoral, family, and provincial distributions. Certain sectors are more adversely affected than others; and, similarly, the effects of COVID-19 fell disproportionately on certain family types and provinces. Therefore, LFS cross-tabulations were utilized to provide the shares of eligible GBI recipients from those who self-reported they were laid off in the survey, by each industry sector and economic family type.

These cross-tabulations provided a precise distribution across the 306 types of groups of differing sector and family types, by province. The shares were then multiplied by the unit GBI cost by sector and by family type from SPSPD/M and by the take-up rates of these individual groups that will claim the GBI to obtain the average individual cost of providing GBI to these laid-off individuals.<sup>13</sup> The total layoff impact is then calculated by multiplying these unit costs by the number of unemployed people as a result of COVID-19 during the third and fourth quarter of 2020-21 based on the E&F labor model. The forecasted unemployment levels are adjusted to match with the previous defined distribution by sector and by economic family type.<sup>14</sup>

## A.2 Federal and Provincial Offsets

This report also provides an estimate of existing tax expenditures for measures that could be replaced by GBI. To do this, PBO follows the criteria

for inclusion of tax measures for low-income and vulnerable groups described in PBO's 2017 report on GBI, and applied them to both federal and provincial tax measures in the personal income tax system (PBO, 2017). However, there were some exceptions.

The Ontario pilot project provided that transfers to seniors, families or children, or employment insurance would remain available to GBI recipients. To remain consistent with these parameters, PBO did not include tax measures that were explicitly for children, families or seniors as a potential source for offsets. Anything associated with employment insurance was also excluded.

Additionally, PBO did not explicitly include programs that exist outside the personal income tax and transfer system. However, a list of these programs and their 2017-18 values can be found in PBO's 2017 GBI report (PBO, 2017).

Finally, the value of the programs in the personal income tax system captured in this report reflect the values for those aged 18 to 64, rather than the full value of the measures.

If these inclusively listed tax measures were to be repealed, the offsets they would generate would reduce the net costs of GBI. To estimate these offsets, PBO used Statistics Canada's Social Policy Simulation Database and Model (SPSD/M). Specifically, PBO ran an alternate scenario where these inclusively listed tax expenditures no longer existed, and another baseline scenario which represents the status quo. PBO did this for calendar years 2020 and 2021.

As explained in the methodology for GBI, PBO also accounted for COVID's impact on economic conditions. Using the same approach, PBO shocked the database's employment income variables by industry and calculated and applied the proportion of recipients and their average unit offsets by industry and economic family type that corresponded with the LFS, thus accounting for income changes as a result of COVID-19 when calculating the tax measures.

Summing the static independent value of the tax credits produces a first estimate of the potential fiscal offsets. However, the value of tax measures is interrelated, and this value would overestimate potential offsets. For example, if a taxpayer can reduce their taxes payable to zero before using all tax credits available to them, the inherent value of the remaining credits is zero – even though the taxpayer was technically entitled to them.

PBO accounts for this interaction effect by also looking at the total change in federal and provincial income taxes payable less their transfers.<sup>15</sup> Subtracting the sum of individual credits from this value provides the overall "interaction" effect. Estimating the offsets in this way allows PBO to present the value of offsets while preserving an approximate estimate of the offsets each credit represents.<sup>16</sup>



PBO follows the same methodology used for estimating the gross cost of GBI. However, the approach uses the values of federal and provincial refundable and non-refundable credits, as well as the value of the interaction effect, rather than the value of GBI.

The following table provides an overview of the inclusive list of tax measures.

**Table A-1 List of the selected federal and provincial credits**

<b>Tax Measure</b>	<b>Federal/Provincial</b>	<b>Refundable/Non-Refundable</b>
Caregiver tax credit	federal	non-refundable
Disability tax credit	federal	non-refundable
Family Caregiver Tax Credit	federal	non-refundable
Medical Expense Non-Refundable Tax Credit	federal	non-refundable
NL Caregiver Tax Credit	provincial	non-refundable
NL max disability deduction	provincial	non-refundable
NL medical expense Tax Credit	provincial	non-refundable
ON tax reduction disabled dependant amount	provincial	non-refundable
QC Disability tax credit	provincial	non-refundable
QC flag for Tax Credit for Experienced Worker	provincial	non-refundable
Canada Training Credit	federal	refundable
GST credit	federal	refundable
Maximum expenses allowed for medical expense supplement	federal	refundable
Workers Compensation Benefits	federal	refundable
Working Income Tax Benefit	federal	refundable
Working Income Tax Benefit Supplement	federal	refundable
BC sales tax credit	provincial	refundable
MB cost-of-living basic credit	provincial	refundable
NB Refundable HST credit	provincial	refundable
NL Income Supplement	provincial	refundable
NS Affordable Living Tax Credit	provincial	refundable
NS Home Heating Assistance Rebate	provincial	refundable
NS Poverty Reduction Credit	provincial	refundable
ON Electricity Support Program	provincial	refundable
ON sales tax credit amount per adult (post 2009)	provincial	refundable
PE HST Credit	provincial	refundable
QC Adapted Work Premium for Disabled refundable tax credit	provincial	refundable
QC Natural Caregivers Tax Credit	provincial	refundable
QC refundable tax credits for medical expenses	provincial	refundable
QC Solidarity Tax Credit	provincial	refundable
QC Work Premium refundable tax credit	provincial	refundable
SK Low Income Tax Credit	provincial	refundable
Social assistance	provincial	refundable

## Appendix B – Potential Federal and Provincial Fiscal Offsets when including Basic Personal Amounts

PBO also considered a scenario that includes the federal and provincial basic personal amounts, which are effectively tax credits that allow the first few thousand dollars of earnings to be tax free. While the federal and provincial BPAs are not explicitly for low-income or disabled individuals, it is a universal basic amount. It was also considered for inclusion by the Basic Income Canada Network.<sup>17,18</sup> Their inclusion also reflects the federal government's most recent change to the federal BPA that added a means-tested top-up, which provides a slight tax preference to lower-income taxpayers.

**Table B-1** Potential savings of selected tax measures that could be replaced by GBI, including the Basic Personal Amounts

\$ millions	Refundable		Non-Refundable		Interaction	Total
	Prov	Fed	Prov	Fed		
BC	1,199	601	1,032	3,471	-1,304	4,999
AB	1,087	409	3,239	3,346	-1,730	6,352
SK	285	92	679	808	-388	1,475
MB	292	136	485	930	-388	1,455
ON	5,409	1,424	3,377	10,737	-3,944	17,003
QC	2,998	1,585	6,351	6,077	-4,410	12,600
NB	162	83	240	520	-190	815
NS	168	170	300	671	-332	977
PE	18	30	51	111	-50	159
NL	108	71	158	363	-152	548
CA	11,725	4,602	15,911	27,033	-12,888	46,384

Source: PBO calculation

Notes: This table represents the scenario when cancelling all of the inclusive credits including the basic personal amount. The latter includes the amount transferred from a spouse or common-law partner, or an eligible dependent. In the case of provincial BPA, it also includes the Ontario basic tax reduction, Quebec's combined age, living alone and retirement credit, and Nova Scotia's BPA enhancements.<sup>19</sup>

For the scenario without the BPA, you can consult Table 2-3.

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# Notes

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1. For more details, see the project description in Section 2 of the previous report published in April 2018. [https://www.pbo-dpb.gc.ca/en/blog/news/Guaranteed\\_Basic\\_Income](https://www.pbo-dpb.gc.ca/en/blog/news/Guaranteed_Basic_Income)
2. The model description is in Appendix A.
3. The supplemental disability amount is constant because it's a universal amount that does not depend on the scenarios.
4. For example, Clavet et al. (2013) shows that the impact of a guaranteed minimum income on hours of work and labor force participation in Quebec may be negative.
5. Definition of low-income people is found in Appendix A-1.
6. Ontario Government. (2019). Archived - Ontario Basic Income Pilot. Retrieved from <https://www.ontario.ca/page/ontario-basic-income-pilot>
7. Ibid. note 1.
8. PBO assumes that existing temporary federal income support measures, such as the Canada Emergency Response Benefit (CERB) and Canada Emergency Student Benefit (CESB), will expire as stated in legislation.
9. A list of these additional programs that could be considered and their 2017-18 values are available in PBO's 2017 report.
10. Office of the Parliamentary Budget Officer. (2020). Scenario Analysis Update: COVID-19 Pandemic and Oil Price Shocks. Retrieved from [https://www.pbo-dpb.gc.ca/web/default/files/Documents/Reports/RP-2021-009-S/RP-2021-009-S\\_en.pdf](https://www.pbo-dpb.gc.ca/web/default/files/Documents/Reports/RP-2021-009-S/RP-2021-009-S_en.pdf)
11. The LFS collected data on the personal and labour force characteristics of Canada's working age population; including details of their employment, family status, and earnings.
12. Statistics Canada, 2020. The Daily: Labour Force Survey, April 2020. Retrieved from: <https://www150.statcan.gc.ca/n1/daily-quotidien/200508/dq200508a-eng.htm>
13. To obtain the unit GBI cost and take-up rates of claims from laid-off people, PBO replaces the employment earnings in SPSP/M by their equivalent of the Employment Insurance benefits. PBO then assumes that the full amount of the defined GBI in the pre-COVID stage will be reduced at a rate of 100% for every dollar of the equivalent employment earning as defined by the Ontario basic income model.
14. This modelling exercise involves several limitations:
  - PBO estimates are heavily based on the SPSP/M data which does not include the territories, persons residing on reservations, or armed forces personnel residing in barracks. Although these populations are not large, this does mean that the cost of the program is likely slightly higher than estimated.

- The SPSPD/M model is a static accounting model. Thus, the estimates do not take behavioral reactions to the GBI into consideration. For example, Hum and Simpson (1993) showed that hours worked declined with the introduction of a guaranteed income program.
  - The estimates consider a uniform distribution of the income shock within sectors. As a result, the unit GBI cost and the take-up rates could be slightly undervalued if the employment compensation loss is more captured in the low-income population.
15. That is, the net federal and provincial balance excluding commodity taxes.
  16. The overestimation of offsets of each credit (that is, the attributable size of the interaction effect) is smallest for credits that can be used first in the personal income tax and transfer system, and largest for credits that are applied later. First and last refer to the order in which they appear on the tax return.
  17. Office of the Parliamentary Budget Officer. (2017). Federal Support for Low Income Individuals and Families. Retrieved from [http://www.pbo-dpb.gc.ca/en/blog/news/Fed\\_Support\\_Low\\_Income](http://www.pbo-dpb.gc.ca/en/blog/news/Fed_Support_Low_Income)
  18. Pasma, C., & and Sheila, R. (2019). Basic Income: Some Policy Options for Canada. Basic Income Canada Network. Retrieved from [https://d3n8a8pro7vhmx.cloudfront.net/bicn/pages/3725/attachments/original/1579707497/Basic\\_Income-Some\\_Policy\\_Options\\_for\\_Canada2.pdf?1579707497](https://d3n8a8pro7vhmx.cloudfront.net/bicn/pages/3725/attachments/original/1579707497/Basic_Income-Some_Policy_Options_for_Canada2.pdf?1579707497)
  19. Note that the amount of Quebec's combined age credit, living lone credit and retirement credit captured is for those aged 18-64, and therefore much of the value associated with the age credit and retirement credit are excluded.