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AN ALBERTA GUARANTEED BASIC INCOME: ISSUES AND OPTIONS

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SUMMARY

For all the job booms and wealth that have benefitted Alberta over the decades, nothing yet has been able to drastically reduce, let alone eliminate poverty in the province. The prospect of a guaranteed minimum income could help change that, and Alberta is particularly well positioned to roll one out and with relative ease and at a manageable cost.

An Alberta guaranteed basic income could be straightforwardly developed by revising the existing provincial tax system to make tax credits that are currently non-refundable into refundable tax credits, such that people earning below the minimum income-tax threshold will still be able to claim them as subsidies. This can be done while avoiding significant new funding and relying solely on budgetary measures to improve the fairness of the tax system.

Converting just a few non-refundable tax credits into refundable ones can produce a guaranteed annual income of over $6,000 for a single-adult family and over $9,000 for a two-adult family, with no significant new funding required. This would improve supports for 37 per cent of Alberta families, with the largest gains properly concentrated among the poorest households, and would reduce the rate and depth of poverty by 25 per cent.

An even more powerful approach would be if Alberta were able to persuade the federal government to combine a similar program federally with the provincial guaranteed basic income, converting non-refundable credits into refundable ones and eliminating the federal GST credit. A combined federal-provincial guaranteed annual income would increase dramatically to over $13,600 a year for a single-adult family and to over $19,000 a year for a two-adult family. The disposal income of the poorest 20 per cent of Albertans

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would increase by more than 50 per cent under the combined plan, while the rate of poverty across all Albertans would be cut by a substantial 44 per cent. Among single parents and non-elderly and elderly couples, poverty would be eliminated completely. And while two-parent families and non-elderly singles would continue to be in poverty, its rate declines significantly and its depth would be reduced by more than half.

The success of such a plan, of course, requires people with low incomes, even those below the basic income-tax exemption, to file tax returns in order to be eligible for the refundable credits. Fortunately, filing rates are already high in Canada. Besides the task of raising filing rates higher, the appeal of this approach is that it is otherwise relatively easy to implement as a basic tax reform. Several other provinces and the federal government have publicly pondered the possibility of a guaranteed minimum income. Alberta now has the opportunity to implement one with little disruption to the existing social-support system and no significant additional expenses, targeting poverty in the province in what may prove to be a more effective way than has ever been tried before.

1. INTRODUCTION

Poverty remains a persistent problem even in advanced economies, and Canada is no exception. Indeed, the Conference Board of Canada (2018) recently ranked Canada 13th among 16 peer OECD countries in overall poverty and 15th in child poverty, ahead only of the United States, despite a parliamentary resolution in 1989 to eliminate child poverty by the end of the last century. The Conference Board report notes a consensus that poverty "can lead to higher crime rates, illness, substance abuse, and poor educational outcomes, which, in turn, affect the economy through lost productivity (and) can also lead to discrimination, inequity, and social exclusion." The report coincides with renewed policy discussion of a basic or guaranteed income at the provincial and federal levels, including Quebec's proposed "revenu minimum garanti" (Gouvernement du Québec, 2018), Ontario's recently cancelled basic-income pilot project (Ontario Ministry of Finance, 2016), plans for a focused exploration of a basic income in British Columbia (BC Gov News, 2018), and the federal Liberal party platform proposal for a "minimum guaranteed income" (Liberal Party of Canada, 2016). It also coincides with renewed efforts by the federal government to address child poverty through implementation in the 2016 federal budget of an enriched Canada Child Benefit that conforms to the basic design of a guaranteed income for families with children. The federal initiative is supported by an Alberta Child Benefit for low-income parents introduced in 2015 Alberta budget.[1]

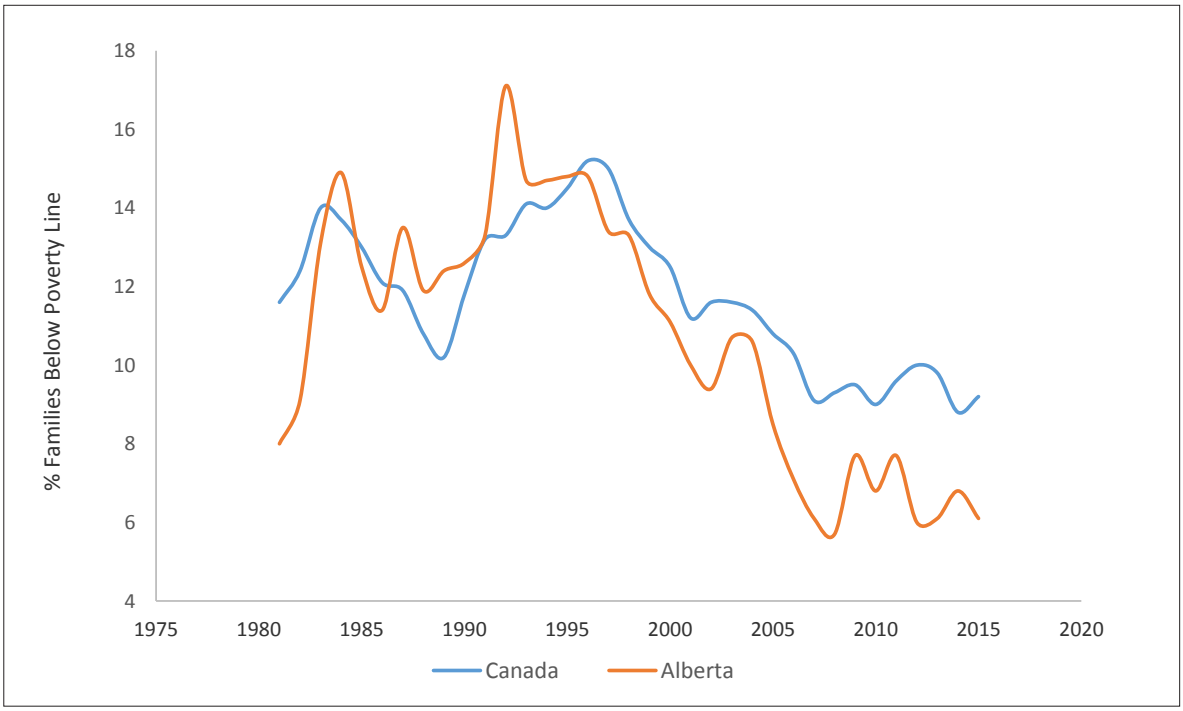
While Alberta has fared better than other Canadian provinces in terms of economic growth, poverty remains an important provincial problem. Since 1981, the Alberta economy has grown at an average annual rate of 3.0 per cent, well above the Canadian average of 2.4 per cent and the average growth rate of all other provinces including Saskatchewan (1.8 per cent), Newfoundland (2.1 per cent) and Prince Edward Island (2.2 per cent). Yet the Alberta poverty rate, based on Statistics Canada's after-tax Low Income Cut-Offs, only fell from eight per cent of the population in 1981 to 6.1 per cent in 2015. Other slower-growing provinces have fared better on the poverty-reduction front, however, including Saskatchewan (12.2 to 5.8 per cent), Newfoundland (13.3 to 6.0 per cent) and Prince Edward Island (12 to 6.3 per cent), perhaps as a result of migration to more rapidly growing areas of the country. Indeed, as can be seen in Figure 1, the poverty rate in Alberta has fallen pretty much in lock step with the Canadian rate despite impressive growth in the province, suggesting that economic growth alone will not solve the poverty problem. A substantial amount of the decline in poverty occurred from 1997 to 2008, but Figure 1 shows that poverty rates have stabilized in Alberta and the rest of Canada since then.

In this paper, we analyze the prospects for poverty reduction in Alberta today through a guaranteed basic income (GBI). Alberta provides an interesting opportunity to study GBI schemes. Although Alberta's rapid growth has not swept away poverty, its prosperity is reflected in some significant tax differences with other provinces, particularly a very generous system of non-refundable basic personal tax credits and some important refundable tax credits that we discuss and assess below. In the next section, we discuss the options for poverty reduction from the development of a guaranteed-basic-income plan, including plans that involve tax reform and plans that would involve a standalone basic income program. We argue for the benefits of the tax-reform approach that would make existing non-refundable tax credits refundable. We then introduce our analytical vehicle, version 26.0 of the Social Policy Simulation Database and Model (SPSD/M), to review the existing system of tax credits in Alberta. Section 3 sets out the design options for an Alberta guaranteed basic income (AGBI) and Section 4 evaluates their impact along multiple dimensions, including reduction of poverty and income inequality, earnings from the labour market, and

[1] See the Alberta Government website at https://www.alberta.ca/alberta-child-benefit.aspx.

population coverage. Section 5 examines the impact of two specific AGBI options, while Section 6 looks at the impact of an AGBI that is tied to a comparable federal plan. Section 7 provides a summary and concluding remarks.

FIGURE 1 POVERTY RATES BASED ON THE AFTER-TAX LICO FOR CANADA AND ALBERTA, 1981–2015



Sources: Statistics Canada Table 202-0802 ("Persons in low income families, annual") and Table 206-0041 ("Low income statistics by age, sex and economic family type, Canada, provinces and selected census metropolitan areas, annual").

2. POVERTY AND THE TAX-CREDIT SYSTEM IN ALBERTA

In the previous section we indicated that the Alberta poverty rate stood at 6.1 per cent of the population using the 2015 Canada Income Survey and the traditional yardstick of the Low Income Cut-Offs (LICOs) developed by Statistics Canada. This measure of low income, based on consumption patterns for necessities (food, shelter and clothing) and differentiated by family and community size, has been criticized as an indicator of poverty (Collin and Campbell, 2008) and has been replaced as Canada's official poverty measure by the Market Basket Measure (MBM), which determines the cost of purchasing a basket of goods and services for a reference family of two adults and two children for different regions of Canada (Wilkins and Kneebone, 2018). Version 26.0 of SPSD/M does not allow us to calculate the MBM measure, however, so we adopt the traditional LICO measure of the incidence and depth of poverty in this paper.

What guaranteed-basic-income options are available to address poverty in Alberta? We can distinguish broadly two approaches to begin the design of an Alberta guaranteed basic income (AGBI). The first approach would be a new, standalone AGBI. This type of plan has been discussed, promoted and tested for decades without significant progress, largely due to the potentially prohibitive cost and potential work disincentives (Hum and Simpson, 2001). Such standalone plans continue to be studied at the national level, most recently by Boadway et al (2016) and the Parliamentary Budget Office (2018). We have argued that a new plan of this nature is not necessary, however, because an AGBI can be developed by revising the existing tax system to make

currently non-refundable tax credits refundable (Simpson and Stevens, 2015; Stevens and Simpson, 2017). This second approach is potentially more attractive politically because it can be designed to avoid significant new funding and can rely solely on budgetary measures to improve the fairness of the tax system. Our earlier research developed and evaluated a guaranteed-basic-income plan for Canada that included provincial participation, providing an alternative framework to a standalone provincial plan that we propose to explore more carefully here in the Alberta context.

An important aspect of the Alberta context is the system of tax credits in the province. Table 1 shows the distribution of provincial non-refundable tax credit (NRTC) claims across the income spectrum in Alberta, using version 26.0 of the Social Policy Simulation Database and Model (SPSD/M). SPSD/M offers a useful vehicle for this type of microsimulation exercise based on personal income tax data augmented by other administrative and survey data (Statistics Canada, 2013). Reading down the table, the tax credits are itemized and divided into those that we would propose to replace with refundable tax credits (RTCs) to develop an Alberta guaranteed basic income (AGBI), based on the arguments we developed in Stevens and Simpson (2017), and those that we would propose to leave in place in their current form as NRTCs. Reading across the table, we report, by adjusted economic-family income decile, the total number of claimants for each type of credit and the amount of the credit, as a per cent of taxable income, that was applied to reduce tax payable to $0. We use economic-family income because it is the basis for calculating poverty rates and we adjust economic-family income throughout our analysis by the square root of family size to allow for comparisons across families of different sizes, a convention used by Statistics Canada in presenting income data for the 2016 Census.

Table 1 indicates that a total of 3,395,000 Albertans claimed some provincial tax credit in 2017, including the universally applicable basic personal amount. These credits constituted 4.06 per cent of taxable income for all taxpayers but were much more important for lower-income taxpayers, constituting 8.91 and 8.40 per cent, respectively, of taxable income for the two lowest family-income deciles. The basic credit is not only the sole credit that is universally claimed but is also, by far, the most important credit, accounting for 60 per cent of the value of all provincial tax credits. Families in the lowest income decile (up to $24,242) receive the most benefit from this credit, accounting for 6.06 per cent of their taxable income and 68 per cent of all income from provincial credits, and taxpayers benefit less as the family-income decile rises. The married and equivalent credit is the next largest credit, accounting for 1.01 per cent of taxable income for those who claim it, but only 416,000 Albertans or 12.3 per cent of the adult population claim the credit. A much larger proportion, 69.8 per cent, claim the Canada Pension Plan (CPP) credit, but its value is only 0.22 per cent of taxable income.[2]

The universal entitlement and relative size of the basic credit makes it the cornerstone of any AGBI involving the conversion of NRTCs to RTCs in the fashion discussed in Stevens and Simpson (2017). Indeed, Alberta's relatively aggressive increases in its basic personal amount starting in 2001 (Alberta Treasury Board and Finance, 2000) have made this credit an important part of Alberta's "tax advantage" this century (Eisen, Lafleur and Palacios, 2017), as the Alberta basic amount of $18,690 dwarfs its federal and provincial counterparts.[3] Although the credit is somewhat

[2] That is, compared to the 2.42 per cent of taxable income represented by the basic claim for all Alberta taxpayers, the married and CPP credits only account for 0.12 and 0.15 per cent, respectively, of taxable income for all taxpayers, or less than 1/40th as much, once their more limited applications (12 per cent for the married and 70 per cent for the CPP credit) are considered. Other credits are correspondingly smaller.

[3] The Alberta credit is roughly double that of all other provinces except Saskatchewan, where is it still 16-per-cent higher: https://www.taxtips.ca/nrcredits/tax-credits-2017-base.htm.

progressive in the sense that it provides proportionately more income to taxpayers in families in lower income deciles, the design of the basic personal amount as a non-refundable credit means that it does not provide any benefit to individuals with incomes below the credit level, who are most in need of income support. Thus, conversion of this NRTC offers a particularly significant opportunity to improve the incomes of Alberta's lowest-income families. It also offers an opportunity to improve the fairness of the Alberta tax system in the sense that the full benefits of the credit would accrue to all families, not just those above the level of the credit.

TABLE 1 ALBERTA PROVINCIAL NRTC CLAIMS[1] BY TYPE AS A PER CENT OF TAXABLE INCOME BY ADJUSTED ECONOMIC-FAMILY INCOME DECILE[3]

Type of NRTC	Total Adults (000s)	Adjusted Economic-Family Income Decile[3]										Total
		1	2	3	4	5	6	7	8	9	10	
Basic*	3,395	6.06	5.32	4.59	3.94	3.36	3.15	2.64	2.29	2.05	0.88	2.42
Age*	473	n/a[4]	0.63	1.08	1.04	0.86	0.68	0.67	0.66	0.85	0.77	0.80
Pension Income*	546	0.09	0.15	0.28	0.21	0.12	0.06	0.09	0.11	0.03	0.05	0.01
Education*	158	0.03	0.51	0.58	0.36	0.35	0.28	0.40	0.31	0.28	0.20	0.32
Tuition*	172	0.17	0.56	0.55	0.34	0.28	0.44	0.41	0.33	0.43	0.25	0.37
Student Loan Int.*	69	0.11	0.21	0.09	0.07	0.15	0.08	0.07	0.17	0.09	0.06	0.10
Sub-Total*[2]	**3,395**	**6.86**	**6.41**	**5.11**	**4.45**	**3.63**	**3.39**	**2.87**	**2.46**	**2.19**	**0.94**	**2.65**
Married/MEq.	416	1.24	2.00	1.68	1.69	1.24	1.03	0.91	0.93	0.67	0.26	1.01
Caregiver	29	0.25	1.75	1.59	2.25	3.19	0.61	1.42	0.64	0.54	0.24	1.29
Charitable	836	0.16	0.23	0.35	0.46	0.35	0.44	0.23	0.37	0.23	0.23	0.27
CPP	2,370	0.09	0.30	0.36	0.34	0.34	0.31	0.25	0.26	0.23	0.10	0.22
EI	2,331	0.03	0.11	0.12	0.12	0.10	0.09	0.06	0.08	0.06	0.02	0.06
Disability	88	0.32	0.58	2.24	2.11	2.12	2.14	2.33	1.45	1.24	0.65	1.41
Infirm Dependent	1	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.12
Dividend	570	0.26	0.22	0.32	0.80	0.93	0.92	0.95	1.30	1.08	2.11	1.63
Medical	322	0.19	0.14	0.32	0.52	0.25	0.45	0.36	0.35	0.15	0.10	0.24
Total	**3,395**	**8.91**	**8.40**	**6.57**	**5.90**	**4.76**	**4.44**	**3.86**	**3.67**	**3.17**	**2.78**	**4.06**

Note:

* NRTCs deleted to finance the GBI.

[1] The claims represent the value of just that portion of the NRTC used to reduce tax payable to $0 for just those individuals claiming the credit.

[2] Except for the bottom decile 1, the subtotal is less than the sum of the individual items because of the differing number of adults claiming them.

[3] Economic-family income is adjusted by the square root of family size throughout our analysis.

[4] No observations.

Source: Authors' calculations from SPSD/M 26.0. (All subsequent tables have the same source unless otherwise stated.)

In addition to these non-refundable tax credits, Alberta provides several income-tested benefits. These benefits can be used to expand the AGBI or can be left to stand on their own as part of the provincial income-support program, as we investigate in section 5.2. Designed in the form of

refundable tax credits, they include the aforementioned Alberta Child Benefit, the Alberta Family Employment Tax Credit, the Alberta Seniors Benefit, and the Alberta Carbon Levy Rebate. These programs, which are described in more detail in Appendix A, already provide modest benefits based on family size and composition that are reduced according to family income to target benefits to lower-income families in the fashion that we would propose on a much larger scale for the AGBI.

3. DESIGNING AN AGBI

There a number of elements to the design of a guaranteed basic income (GBI), including:

- the sources of financing and the total budget;
- the size of the guarantee and whether that guarantee will vary by family size;
- the type of family unit which will be the focus of the program;
- the benefit-reduction rate to be applied to other income;
- the definition of "other income."

We address these issues in turn in this section.[4]

Sources of Income and the Budget

The primary source of income for financing an AGBI is the elimination of the six NRTCs marked with an asterisk in the top six rows of Table 1. The total value of those NRTCs in Alberta in 2017 was estimated to be $5,357.7 million. In addition to those NRTCs, there are a number of provincial refundable tax credits that could be incorporated into the AGBI, including the Alberta Child Benefit, the Alberta Family Employment Tax Credit, the Alberta Seniors Benefit and the Alberta Carbon Levy Rebate. In 2017, the total value of these refundable tax credits was $1,038.9 million. In total then, up to $6,396.6 million of existing spending could be reallocated to finance an AGBI. With the loss of these refundable tax credits, however, SPSD/M estimates that the decline in after-tax income leads to an increase in social-assistance spending of $286.0 million in Alberta, resulting in a net budget of $6,110.6 million. On this basis, we model two illustrative AGBIs below, the first with a budget of $5,357.7 million without the provincial refundable credits and the second with a budget of $6,110.6 million that includes the provincial credits.

The Size of the Guarantee, Benefit-Reduction Rate and Exit Level of Income

Within a given budget, the size of the guarantee (G) depends on several other program parameters, the chief one of which is the benefit-reduction rate (BRR). That is, the basic algebra of a refundable tax credit is:

$$\text{Net Benefit} = G - (\text{Family Income} \times \text{BRR}) \qquad [1]$$

A whole menu of guarantees and BRRs can therefore be specified to maintain the same net benefit and corresponding program cost, but the guarantee can only increase when the BRR rises as well

[4] Another design issue that we do not consider here is an income turning point below which there is no benefit reduction and the poorest families realize the full value of the benefit. This is a common feature of federal and provincial income-transfer programs but it involves a trade-off, since providing a turning point necessarily raises the benefit-reduction rate for those with incomes above the turning point (or else lowers the generosity of the benefit guaranteed to the poorest families) in order to constrain the total cost of the program to the available budget.

to offer a higher, more targeted benefit to fewer taxpayers. Hence, we consider below our approach to evaluating the various guarantee and BRR combinations in terms of multiple impacts and objectives.

The value of the guarantee can be "topped up" by a fixed amount to recognize the additional cost of such conditions as a disability or the presence of an infirm adult dependent, both of which are recognized by the federal and provincial tax codes. In our designs, we have topped up the guarantee for families where a person with a disability or an infirm adult dependent is present by an amount that reflects the value of the current non-refundable tax credit for each condition: $1,450 for persons claiming the disability tax credit and $1,080 for those claiming the caregiver tax credit.

As well, the value of the guarantee can be indexed by family size. An accepted approach is the index used by Statistics Canada to define its low-income measure, based on the square root of the size of the family. In our designs, however, we have chosen to vary the guarantee by the square root of the number of *adults* in the family unit because the federal Canada Child Benefit already offers a refundable tax credit for dependent children in the family unit. While the net value of the GBI is determined on the basis of family income, each adult is assigned an equal share of the net benefit, and it is this amount that is used to calculate labour-supply response.

The choice of a guarantee and BRR defines the "exit" (or breakeven) level of family income, equal to G/BRR, at which the guarantee is reduced to $0. Table 2 below shows the exit levels corresponding to the different combinations of G and BRR. It reveals that as G and BRR rise, the exit level drops, thus reducing the number of families gaining from the conversion of NRTCs to refundable credits.

The GBI Recipient Unit

Several types of family units can be the recipient of a GBI, including the individual adult, the nuclear, census or economic family, or the household. Some GBI designs, such as the universal demogrant, favour the individual adult as the recipient unit. Most refundable tax credits, however, use some version of the family as the recipient unit and use family income as the basis for clawing back the value of the guarantee. Because the personal income tax system will be used to determine the size of the net benefit, the "nuclear family" that includes parents and dependent children under 18 years old will be our GBI recipient unit. Adults 18 years of age and older living with their parents who are not being claimed as a dependent by a parent are eligible for their own GBI, consistent with existing personal income tax provisions.

The Definition of Family Income

In our designs, we have chosen to define family income according to the Canada Revenue Agency (CRA) definition of "total income" (line 150 of the tax return) plus the value of the Alberta refundable tax credits less CRA allowable deductions for all parents. This definition excludes the Canada Child Benefit because it is effectively a part of the AGBI, but the definition includes social-assistance income because our proposal supplements welfare payments rather than replaces them. By including social-assistance benefits in the definition of total income, the guarantee is reduced by the value of these benefits multiplied by the BRR. The definition of family income includes the Alberta refundable credits for our first option but excludes the credits for our second option.

4. EVALUATING AGBI OPTIONS WITH MULTIPLE OBJECTIVES

Using the SPSD/M package, we can measure a variety of outcomes affected by the introduction of a GBI, including the incidence and depth of poverty, income inequality, labour-market earnings and disposable income. Unless we are willing to focus on a single objective to the exclusion of others, or unless the multiple objectives improve in concert, we must typically trade off some objectives against others. Thus, while the primary objective of any GBI is poverty reduction, this outcome must be measured against its adverse effect on other objectives. From a theoretical standpoint, for example, as a GBI reduces poverty, the higher BRR will reduce incentives to work and earn income and the number of families that will qualify as beneficiaries will decline. Specifically, a menu of GBIs for a given budget constraint featuring rising guarantees and rising BRRs is expected to result in nontrivial trade-offs: Poverty and income inequality will decline at the expense of earnings losses and fewer GBI recipients. If that is supported by the evidence, the best that our analysis can do is identify the inherent trade-offs arising from the implementation of a GBI through refundable tax credits. In that case, the choice of a GBI remains a subjective exercise arising from a preferred balancing of conflicting objectives.

Table 2 presents the results of a menu of these options. Each option consists of a combination of G and BRR that was established by first setting the value of the BRR and then determining the value of G that resulted in the total cost of the program equalling the budget constraint. For example, a basic income with no BRR would result in a G of only $1,883 for a single adult, while the introduction of a modest BRR of 10 per cent raises the G to $6,389. The effects of the options are based on after-tax income after taking into account the labour-supply response (as explained below in Section 5) and the changes in tax payable resulting from the elimination of the NRTCs and receipt of the AGBI. The rate and depth of poverty have been measured at the level of the economic family using the after-tax LICO, as this is the family unit at which the LICO is measured. The other outcomes have been assessed at the nuclear-family level because this is the family unit at which the net value of the AGBI is assessed and delivered.[5] The change in earnings is for those who are AGBI beneficiaries, while the per cent change in disposable income is presented for the losers, i.e., those whose disposable income dropped because the increase in taxes paid was greater than the AGBI benefit.

Table 2 reflects our expectations that a rising guarantee (G) and benefit-reduction rate (BRR) for a given budget provides conflicting results. First, as we examine options for which the G and BRR rise, there is a greater reduction in the poverty rate and the depth of poverty, and a gradual reduction in inequality as measured by the Gini coefficient. In particular, the introduction of a positive BRR (10 per cent) to target GBI benefits to low-income households results in a sharp increase in G. For a single adult, for example, G increases from $1,883 to $6,389, which adds

[5] The standard Statistics Canada definitions of nuclear and economic families are found at https://www150.statcan.gc.ca/n1/pub/75f0011x/2011001/notes/fam-eng.htm. The nuclear (or census or immediate) family consists of a married couple or common-law couple with or without children, or a lone-parent with a child or children where each child must be under 25 and without his/her own spouse or child living in the household. Our definition is the same except that we only consider children under 18 to be members of the nuclear family. All members of the nuclear family are members of the same economic family, defined as a group of two or more persons who live in the same dwelling and are related to each other by blood, marriage, common law or adoption. In practice, the difference between the nuclear and economic family is small: There were 9,840,730 nuclear families in the 2016 Census compared to 9,688,645 economic families (https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/Page.cfm?Lang=E&Geo1=PR&Code1=01&Geo2=&Code2=&Data=Count&SearchText=Canada&SearchType=Begins&SearchPR=01&B1=All&GeoLevel=PR&GeoCode=01).

significantly to existing federal and provincial income-support programs to provide a substantial boost to the disposable incomes of low-income Alberta households and a reduction in poverty, as we discuss further in section 5.1. Secondly, however, as G and BRR rise there is also a greater reduction in labour supply (and hence earnings) for AGBI beneficiaries and greater losses in disposable income from the introduction of the GBI for those who do not benefit (losers). Losers, then, are those whose disposable income drops after the introduction of the GBI due to the fact that their GBI is less than their increase in taxes. Thus, raising the BRR from 10 to 25 per cent allows a further, more modest reduction in poverty at the expense of work disincentives that reduce earnings by a further 5.3 per cent (from 8.7 to 3.4 per cent). The labour-supply disincentives associated with income maintenance or anti-poverty programs have been a prominent issue, linked to the efficiency cost of redistribution, and were the focus of five negative income-tax experiments across North America (Hum and Simpson, 1993). Moreover, political support for income redistribution would likely depend on how much losers are expected to pay, as indicated in the final column of Table 2, or the additional funding needed to compensate them.

TABLE 2 IMPACTS ON FAMILIES OF AGBI OPTIONS FOR A BUDGET OF $5.361 BILLION

BRR	Guarantee (Family of 1 Adult)[1,2]	Exit Level of Income	Per Cent Change in Poverty Rate	Per Cent Change in Poverty Depth	Per Cent Change in Inequality (Gini)	Per Cent Change in Earnings (Beneficiaries)	Per Cent Change in Disposable Income (Losers)
0%	$1,883	None	-6.1	-3.7	-1.0	-0.1	-0.7
10%	$6,389	$63,890	-26.3	-25.3	-3.1	-3.4	-2.5
25%	$10,159	$40,636	-31.3	-39.4	-3.4	-8.7	-2.8
35%	$12,109	$34,597	-34.3	-48.6	-3.5	-12.2	-2.8
50%	$14,623	$29,246	-30.3	-64.1	-3.6	-17.2	-2.9

Notes:

[1] The guarantee for a two-adult family is (1 adult guarantee) x (square root of 2).

[2] For persons claiming the disability tax credit, there is a top-up of $1,450; for those claiming the caregiver tax credit, the top-up is $1,080.

Since there is no obvious way to reconcile these conflicting objectives of a basic-income design, we follow the approach developed in Stevens and Simpson (2017) in choosing a preferred option for analysis. That option involves a 10-per-cent BRR, which has several attractive features. The 10-per-cent BRR is consistent with the existing provincial tax system and delivers significant poverty reduction and income redistribution, although further reductions in poverty are possible with options involving a higher BRR. Those options would, however, generate much stronger adverse work disincentives and possibly other efficiency effects, particularly when a high BRR is stacked on other federal and provincial taxes.[6] Moreover, a relatively low BRR provides benefits to a larger segment of lower-income Canadian families, which enhances its appeal as a support program in the same fashion as the new Canada Child Benefit. We now consider our preferred design with a 10-per-cent BRR for two budgets: one that includes our selected non-refundable tax

[6] Individuals with taxable income below the level of their tax credits would pay taxes immediately at the chosen BRR marginal rate rather than the zero marginal rate applicable under the current system of non-refundable credits. In addition, once income exceeds the level of their tax credits, individuals would pay the BRR on top of the provincial marginal tax rate of 10 per cent and the applicable federal marginal tax rate of 15 per cent.

credits but excludes current Alberta refundable tax credits; and one that includes both our selected non-refundable tax credits and the refundable credits.[7]

5. IMPACT OF THE AGBI ON POVERTY, LABOUR SUPPLY AND DISPOSABLE INCOME

In this section, we model the differential impact of our two AGBI options. The first option is financed solely from the removal of the selected NRTCs, with a total budget of $5,357.7 million and a BRR of 10 per cent. The second option is financed from the removal of the selected NRTCs and the provincial income-transfer programs: the Alberta Child Benefit, the Alberta Employment Tax Credit, the Alberta Seniors Benefit and the Alberta Carbon Levy Rebate. This option has the same BRR of 10 per cent but an expanded budget of $6,110.6 million.

The following results show the impact of the financing and delivery of the AGBI on labour supply and the value of the AGBI. They also show the change in disposable income *after* the first-order effects of the change in labour supply have been taken into consideration. The labour-supply effects are estimated using the midpoint of the range of estimates of labour-supply response from the review article by McClelland and Mok (2012, 30, Table 2): an income elasticity of 0.05, substitution elasticities of 0.2 for men and single women and 0.3 for married women, and participation elasticities of 0.05 for men and single women and 0.15 for married women. These elasticities are applied to the changes in after-tax wage rates and income that result from the elimination of the selected non-refundable tax credits and the introduction of the refundable GBI as described in Stevens and Simpson (2017, 132, Appendix). As we show below, the total effect of the financing and delivery of the AGBI is a reduction in the earnings of adults. This reduction then leads to both an increase in the value of the AGBI and a reduction in the amount of personal income taxes paid on those reduced earnings. It is the post-labour-supply values of the AGBI and the change in provincial taxes paid that appear in our results for the two options. As well, the impacts on poverty and inequality are calculated based on the post-labour-supply values of the family's level of disposable income.

5.1 Option 1: AGBI Financed Only With NRTCs

Table 3 shows the average value of the AGBI, the average change in provincial income taxes and the average change in disposable income by adjusted economic-family income decile. As noted above in Table 2, this AGBI features a BRR of 10 per cent that generates a guarantee of $6,389 for a single-adult family and $9,305 for a two-adult family. As it is the nuclear family that is the unit for calculating the AGBI benefits, the results are presented at that level. For persons with a disability and caregivers of disabled adults there is a top-up to the guarantee of $1,450 and $1,080,

[7] We contemplated a third option that also replaces provincial social assistance with an AGBI. An insurmountable problem for this analysis is that the SPSD/M program does not distinguish between social-assistance recipients on Alberta Works (AW) in either the "expected to work" or "barriers to full employment" categories, and recipients of benefits under Assured Income for the Severely Handicapped (AISH). We could identify the number of Alberta social-assistance recipients who are also receiving the federal disability tax credit (5,827), but this drastically undercounts the number of AISH recipients (57,946). Thus, we could not see how we could provide a meaningful assessment of the impact of a replacement AGBI on those enrolled in AW.

respectively, that fully compensates for the value of the existing non-refundable tax credits for these conditions.[8]

TABLE 3 COMPOSITION AND DISTRIBUTION OF THE NET IMPACT OF AGBI OPTION 1 BY ADJUSTED ECONOMIC-FAMILY INCOME DECILES

Family-Income Decile	Average Disposable Income[1]	Average GBI[1]	Average Loss of Earnings[1]	Average Provincial Tax Increase[1]	Net Impact of GBI		Per Cent Gaining from the GBI[1]
					Average Amount[1]	Average Per Cent Change in Income[1]	
1	$15,511	$5,338	$478	$856	+$4,005	+25.8%	98.4%
2	$33,572	$4,115	$650	$1,934	+$1,569	+4.7%	75.6%
3	$42,757	$3,038	$958	$2,249	-$141	-0.3%	37.2%
4	$52,416	$2,334	$793	$2,500	-$942	-1.8%	27.0%
5	$61,035	$1,461	$683	$2,559	-$1,756	-2.9%	16.5%
6	$62,737	$1,440	$299	$2,453	-$1,302	-2.1%	23.5%
7	$76,311	$1,082	$179	$2,602	-$1,695	-2.2%	19.1%
8	$91,186	$975	$98	$2,664	-$1,789	-2.0%	16.3%
9	$96,277	$1,218	$179	$2,547	-$1,506	-1.6%	19.8%
10	$215,708	$919	$82	$2,668	-$1,834	-0.9%	16.7%
TOTAL	$72,204	$2,312	$445	$2,255	-$380	-0.5%	37.3%
Pre-labour-supply cost		$5,361.0 M		$5,357.7 M			
Post-labour-supply cost		$5,491.7 M		$5,334.1 M			

Notes:

[1] The averages are for the *nuclear* family unit.

We note two aspects of the results in Table 3. First, the pre-labour-supply cost of the AGBI is $3.3 million more than the revenues raised ($5,361.0 million – $5,357.7 million). This arises because the replacement of the provincial NRTCs with a GBI causes an increase in federal taxes of $3.7 million offset by a $0.1 million increase in federal transfers and a $0.5 million increase in the Alberta Seniors Benefit, the cost of which is fully covered by the GBI. By comparison, the post-labour-supply cost of the AGBI is $130.7 million more ($5,491.7 million – $5,361.0 million) and provincial tax revenues are less by $23.6 million ($5,334.1 million – $5,357.7 million) for a total cost increase of $154.3 million (2.9 per cent). Second, the impact of the AGBI on the disposable income of the nuclear family is reduced by the loss in earnings due to receipt of the AGBI and the additional taxes paid to finance it. Consequently, only the two lowest income deciles show an average gain from the program, with the remaining deciles showing a loss, an indication of the ability of our GBI scheme to target benefits to those whose income needs are greatest. Overall, 37 per cent of all families gain from the AGBI but the gains are directed at the bottom income decile, which has by far the greatest income gain of 25.8 per cent, and more modestly to the second-lowest income decile (4.7 per cent). Income losses are moderate and scattered across the top eight deciles, reaching a peak of 2.9 per cent for families in the fifth decile due to the sharp drop in GBI benefits at this point.

The overall change in family disposable income produced by the AGBI is categorized by family type in Table 4. Overall, single-parent families and the non-elderly and elderly single persons benefit from the AGBI, while two-parent families and non-elderly and elderly couples lose from

[8] Since the AGBI and top-ups are refundable credits whose benefits are targeted to low-income families, families with higher incomes will still realize modest income losses even when families include persons with a disability and caregivers of disabled adults.

the introduction of the AGBI. These overall gains and losses by family type are modest, however, and the important feature of the scheme remains the concentration of benefits in the lowest income deciles regardless of family type. For the bottom income decile, elderly couples gain the most, followed by the non-elderly single persons and non-elderly couples. There are also substantial gains for non-elderly single persons and single parents as far as the fourth decile.

TABLE 4 PER CENT CHANGE IN NUCLEAR-FAMILY DISPOSABLE INCOME BY FAMILY TYPE AND INCOME DECILE FOR AGBI OPTION 1

Family-Income Decile	Single Parent	Two Parent	Non-elderly Single	Non-elderly Couple	Elderly Single	Elderly Couple	All Families
1	+15.2%	+17.2%	+31.4%	+20.2%	+12.2%	+52.6%	+25.8%
2	+3.7%	-0.3%	+9.8%	+2.8%	+6.7%	+5.8%	+4.7%
3	+3.2%	-3.6%	+4.2%	-3.0%	+2.3%	-0.4%	-0.3%
4	+1.6%	-3.3%	+3.4%	-4.3%	+0.3%	-3.2%	-1.8%
5	-2.1%	-3.1%	+0.2%	-5.3%	-2.7%	-3.7%	-2.9%
6	-0.9%	-2.8%	+0.8%	-4.5%	+0.4%	-2.6%	-2.1%
7	-1.3%	-2.5%	0.0%	-3.7%	-1.0%	-3.7%	-2.2%
8	-0.9%	-2.1%	-0.1%	-3.1%	-1.7%	-2.5%	-2.0%
9	-0.1%	-1.9%	0.0%	-2.5%	-0.0%	-2.5%	-1.6%
10	-0.1%	-0.9%	-0.1%	-1.2%	-0.2%	-0.9%	-0.9%
TOTAL	+2.0%	-2.0%	+3.0%	-2.4%	+1.8%	-1.2%	-0.5%

The pattern of one-adult families — single parents and non-elderly and elderly single persons — benefitting from the AGBI at the expense of two-adult families — two parents and non-elderly and elderly couples — is consistent with results in Stevens and Simpson (2017).[9] To explore this feature a bit further, Table 4A breaks down the net impacts reported in Table 3 by family type. The table shows that, while benefits are reasonably consistent across family types, families with two adults pay higher taxes and have a greater labour-supply response (reduction in earnings) than families with one adult. The difference in taxes likely reflects a difference in the distribution of one-adult and two-adult families across the income spectrum, with a larger concentration of one-adult families in lower income deciles.

TABLE 4A NET IMPACT OF AGBI OPTION 1 BY FAMILY TYPE

Economic-family type	Average AGBI	Average Change in Taxes	Average Change in Earnings	Average Change in Disposable Income	Per Cent Change in Disposable Income
One Adult:					
Single Parent	$2,246	**$1,083**	-$410	$753	1.0%
Non-Elderly Single	$2,504	**$1,548**	-$476	$480	1.0%
Elderly Single	$2,473	**$1,874**	-$43	$556	1.2%
Two Adults:					
Two Parent	$2,187	**$2,451**	-$517	-$781	-0.9%
Non-Elderly Couple	$2,021	**$2,484**	-$537	-$1,001	-1.2%
Elderly Couple	$2,809	**$2,783**	-$250	-$231	-0.3%
All Households	$2,312	$2,245	-$445	-$380	-0.5%

[9] See Table 9 (p. 130) and Table 15 (p. 135).

Table 5 presents the impact of the AGBI on poverty and income inequality by economic-family type. The overall impact is about equal for the rate and depth of poverty, reducing these measures by 23 and 24 per cent respectively.[10] Income inequality, as measured by the Gini index, is reduced by 1.6 per cent. The biggest impact of poverty occurs for the single-parent family, where it is completely eliminated. Poverty, which was already at a low rate for two-parent families, non-elderly couples, and the elderly, falls further and is virtually eliminated for all these groups, although the depth of poverty remains high for the few two-parent families and non-elderly couples who remain poor. Although non-elderly single persons experience a substantial improvement in their disposable income, the impact on poverty is more modest because of the deep poverty experienced by this group, as can be seen in Table 5. With an average depth of poverty of 49 per cent currently, the AGBI can only reduce the depth of poverty by 27 per cent and the incidence of poverty by 16 per cent for this group.

TABLE 5 IMPACT OF AGBI OPTION 1 ON THE RATE AND DEPTH OF POVERTY AND INCOME INEQUALITY BY ECONOMIC-FAMILY TYPE

Family Type[1]	Rate of Poverty			Depth of Poverty			Income Inequality		
	Pre	Post	Per cent change	Pre	Post	Per cent change	Pre	Post	Per cent change
SP	10.8%	0.0%	-100%	26.6%	0.0%	-100%	36.35	29.59	-19%
TP	3.2%	1.8%	-44%	42.4%	40.1%	-5%	37.10	36.18	-2%
NES	28.3%	23.7%	-16%	49.1%	35.9%	-27%	45.42	41.93	-8%
NEC	1.4%	0.3%	-79%	25.6%	21.3%	-17%	39.54	39.63	+0.2%
ES	0.0%	0.0%	0%	0.0%	0.0%	0%	33.42	31.00	-7%
EC	1.4%	1.8%	+29%	36.5%	10.0%	-73%	47.65	47.09	-1%
TOTAL	9.9%	7.6%	-23%	45.9%	34.9%	-24%	50.57	49.78	-1.6%

Note:

[1] SP = single parent; TP = two-parent family; NES = non-elderly single person; NEC = non-elderly couple; ES = elderly single person; EC = elderly couple.

Another way to portray the redistribution that takes place from a plan of this nature is to consider the total gains realized as a per cent of the total AGBI for the post-labour-supply expenditure of $5,491.7 million. As shown in Appendix B, the additional benefits at the level of the nuclear family are $3,262.7 million, indicating that 59 cents out of every dollar in the AGBI budget is redistributed from richer to poorer households. Although the extent of redistribution is highest for the poorest income decile, at 83.7 cents on the dollar, significant redistribution exceeding 36 cents on the dollar occurs across all income deciles.

5.2 Option 2: AGBI Financed with NRTCs and Provincial RTCs

Our second option expands the AGBI budget by incorporating a set of provincial income-tested benefit programs whose design is similar to our GBI refundable-tax-credit plans. These programs, which are described in more detail in Appendix A, include the Alberta Child Benefit, the Alberta Family Employment Tax Credit, the Alberta Seniors Benefit and the Alberta Carbon Levy Rebate. Their inclusion increases the GBI budget by a net amount of $754.8 million to $6,110.6 million. This option enriches the guarantee for a single adult to $6,801. Table 6 shows the average value of

[10] The poverty rates reported here are based on the 2014 Canada Income Survey data adjusted to 2017 incomes by the income and population inflators used by SPSD/M. They therefore differ from the poverty rates reported in Section 1 and Figure 1, which are based on the 2015 Canada Income Survey.

this AGBI, the average change in taxes, refundable credits and earnings and the average change in disposable income by adjusted economic-family income decile.

Despite the greater generosity of this second option, there are many similar results.[11] While the average AGBI is some $324 more than the previous option ($2,636 as opposed to $2,312 from Table 3), the net adverse impact on disposable income is actually larger (–$441 as opposed to –$380 in Table 3) because the average loss in earnings is greater (–$518 compared to –$445). Furthermore, families in the lower income deciles are worse off under this option than under the previous, less generous AGBI option. The average per cent change in income is lower for the first three deciles and the per cent benefitting from the program declines from 37.3 to 36.4 per cent. The smaller per cent change for the lowest three family-income deciles arises primarily from the design of the Alberta Child Benefit, which doesn't start clawing back benefits until $25,832 of net family income, and the Family Working Income Supplement, which provides increasing benefits based on earnings until $41,786 of family income, as shown in Appendix A.

TABLE 6 COMPOSITION AND DISTRIBUTION OF THE NET IMPACT OF AGBI OPTION 2 BY ADJUSTED ECONOMIC-FAMILY INCOME DECILES

Family-Income Decile	Average Disposable Income[1]	Average GBI[1]	Average Loss of Provincial Tax Credits[1]	Average Loss of Earnings[1]	Average Tax Increase[1]	Net Impact of GBI		Per Cent Gaining from the GBI[1]
						Average Amount[1]	Average Per Cent Change in Income[1]	
1	$15,511	$5,823	$455	$489	$856	+$4,023,	+25.9%	96.4%
2	$33,572	$4,723	$940	$645	$1,931	+$1,217	+3.6%	66.8%
3	$42,757	$3,558	$681	$1,029	$2,248	-$369	-0.9%	36.7%
4	$52,416	$2,767	$342	$926	$2,497	-$973	-1.9%	27.4%
5	$61,035	$1,814	$171	$906	$2,560	-$1,784	-2.9%	16.5%
6	$62,737	$1,690	$137	$478	$2,451	-$1,358	-2.2%	24.5%
7	$76,311	$1,237	$102	$281	$2,601	-$1,738	-2.3%	19.1%
8	$91,186	$1,102	$83	$125	$2,664	-$1,770	-1.9%	16.6%
9	$96,277	$1,373	$86	$196	$2,547	-$1,453	-1.5%	21.1%
10	$215,708	$1,024	$62	$85	$2,668	-$1,794	-0.8%	17.0%
TOTAL	$72,204	$2,63608	$318	$518	$2,254	-$441	-0.6%	36.4 %
PRE-LABOUR-SUPPLY COST		$6,113.2 M	$754.8 M		$5,355.8 M			
POST-LABOUR-SUPPLY COST		$6,196.4 M			$5,323.0 M			

Note:

[1] The averages are for the *nuclear* family unit.

Table 7 shows the change in disposable income by family type and income decile for this AGBI option. Compared to Table 4, only the non-elderly single adult does consistently better under this option. Non-elderly couples and elderly singles and couples in the lowest decile also do better under this option, but both single- and two-parent families do less well. Overall, those in the first three income deciles show a smaller positive change in their disposable income under this option. In sum, the additional income provided by the elimination of the four provincial refundable tax credits

[11] As was the case for the first option, the pre-labour-supply cost of the AGBI is $2.4-million more than the revenues raised ($6,113.0 – ($5,355.8 + $754.8)). This occurs because the cancellation of the provincial NRTCs causes the SPSD/M model to generate increased federal taxes of $3.0 million that are offset by a $0.6-million increase in federal transfers and these cost increases are fully covered by the GBI such that there is no overall change in disposable income. By comparison, the post-labour-supply cost of the AGBI is $83.2-million more ($6,196.4 – $6,113.2) and tax revenues are less by $32.8 million ($5323.0M - $5355.8M) for a total cost increase of $116.0 million (+1.9 per cent).

does not lead to higher disposable incomes because the lost income from the refundable tax credits exceeds the increase in GBI benefits.

TABLE 7 PER CENT CHANGE IN NUCLEAR-FAMILY DISPOSABLE INCOME BY FAMILY TYPE AND INCOME DECILE FOR AGBI OPTION 2

Income Decile	Single Parent	Two Parent	Non-elderly Single	Non-elderly Couple	Elderly Single	Elderly Couple	All Families
1	+8.8%	+11.2%	+32.7%	+21.6%	+16.5%	+53.6%	+25.9%
2	-0.3%	-18%	+10.6%	+3.7%	+3.3%	+5.9%	+3.6%
3	-0.1%	-4.1%	+4.8%	-2.4%	-3.4%	-0.1%	-0.9%
4	-1.2%	-3.9%	+4.0%	-3.8%	+0.5%	-2.8%	-1.9%
5	-2.6%	-3.2%	+0.0%	-5.4%	-2.2%	-3.5%	-2.9%
6	-1.3%	-2.8%	+0.8%	-5.0%	+0.7%	-2.4%	-2.2%
7	-1.7%	-2.5%	+0.1%	-3.9%	-0.6%	-3.8%	-2.3%
8	-1.5%	-2.1%	+0.0%	-3.1%	-1.6%	-2.5%	-1.9%
9	-0.3%	-1.9%	+0.2%	-2.5%	+0.1%	-2.5%	-1.5%
10	-0.1%	-0.9%	+-0.0%	-1.2%	-0.2%	-0.9%	-0.8%
TOTAL	+0.1%	-2.2%	+3.2%	-2.4%	+1.0%	-1.1%	-0.6%

Table 8 shows the impact on poverty and income inequality. The overall impact is about the same as in Table 5, a 23- to 24-per-cent reduction in the rate and depth of poverty and a one- to two-per-cent reduction in income inequality. For the single non-elderly person, this AGBI option leads to a slightly larger reduction in the rate and depth of poverty and income inequality, but this gain is offset by higher rates of poverty for the single parent and elderly singles and couples. This second AGBI option, which replaces both refundable and non-refundable Alberta tax credits, does not perform as well as the first option that replaced only the non-refundable credits and will not be considered in the next section that looks at the combined impact of a federal and Alberta GBI.

TABLE 8 IMPACT OF AGBI OPTION 2 ON THE RATE AND DEPTH OF POVERTY AND INCOME INEQUALITY BY ECONOMIC-FAMILY TYPE

Family Type	Rate of Poverty			Depth of Poverty			Income Inequality		
	Pre	Post	Per cent change	Pre	Post	Per cent change	Pre	Post	Per cent change
SP	10.8%	0.0%	-100%	26.6%	0.0%	-100%	36.35	30.23	-17%
TP	3.2%	1.8%	-44%	42.4%	41.46%	-2%	37.10	36.26	-2%
NES	28.3%	23.6%	-17%	49.1%	35.4%	-28%	45.42	41.76	-8%
NEC	1.4%	0.3%	-79%	25.6%	24.4%	-5%	39.54	39.60	+1%
ES	0.0%	0.2%	n/a	0.0%	1.9%		33.42	32.06	-4%
EC	1.4%	1.8%	++29%	36.5%	8.4%	-77%	47.65	47.05	-1%
TOTAL	9.9%	7.6%	-23%	45.9%	34.5%	-25%	50.57	49.83	-1%

Note: As in Table 5.

6. WHAT IF THE FEDERAL GOVERNMENT COLLABORATED?

Since the federal government has expressed interest in poverty reduction and the concept of a basic income, and since the federal and provincial tax systems are integrated to a large extent, it makes sense to consider an AGBI in the context of a comparable federal plan. We expect that

federal collaboration on a basic income would make a significant difference at the provincial level, since federal tax credits are about 50-per-cent higher on average than their provincial counterparts (Stevens and Simpson, 2017). Given the superior performance of an AGBI financed solely from the elimination of selected NRTCs, we now consider the impact for Alberta adults of a combined federal and Alberta guaranteed basic income financed solely from the removal of the selected NRTCs.

6.1 A Federal GBI

Stevens and Simpson (2017) provide a national framework for the implementation of a basic income through the conversion of non-refundable tax credits to a refundable credit. The financing of a federal GBI features the removal of the same set of NRTCs as the Alberta GBI and the elimination of the federal GST credit (GSTC). The total revenue raised by these two measures is $51,577.6 million across Canada, including $47,297.6 million from the NRTCs and $4,280.0 from the GSTC. Table 9 revisits the menu of choices available at the federal level and illustrates the same pattern of conflicting objectives as in Table 2: As the BRR and G rise, the incidence and depth of poverty fall, but at the expense of rising work disincentives reflected in lower earnings and declining disposable income. Moreover, at higher BRR and G combinations, fewer low-income families receive benefits. As in Stevens and Simpson (2017), we adopt a federal BRR of 15 per cent that provides a single-adult G of $7,285 as our preferred option on the basis of: its consistency with the existing tax system; its ability to deliver significant poverty reduction and income redistribution to a large segment of all families; its estimated smaller impact on earnings and net change in disposable incomes; and its ability to address concerns about tax stacking that arise with higher BRR options. As with the provincial GBI, we add a top-up to the guarantee of $1,220 for those claiming a disability tax credit and of $710 for those claiming the caregiver tax credit. These amounts reflect the full value of the non-refundable tax credits. This GBI would be calculated separately from the AGBI but would supplement low-income Alberta households in much the same way.

TABLE 9 IMPACTS ON FAMILIES OF FEDERAL GBI OPTIONS FOR A BUDGET OF $51.578 BILLION

BRR	Guarantee (Family of 1 Adult)[1,2]	Exit Level of Income	Per Cent Change in Poverty Rate	Per Cent Change in Poverty Depth	Per Cent Change in Inequality (Gini)	Per Cent Change in Earnings (Beneficiaries)	Per Cent Change in Disposable Income (Losers)
0%	$2,083	None	-7.7	-3.7	-0.5	-0.1	-0.1
10%	$5,978	$59,780	-34.6	-10.4	-2.0	-3.2	-2.8
15%	$7,285	$48,567	-38.5	-16.8	-2.0	-4.7	-3.1
25%	$9,436	$37,744	-43.3	-26.9	-1.9	-8.2	-3.4
35%	$11,242	$32,120	-44.2	-38.7	-1.7	-11.6	-3.6
50%	$13,606	$27,212	-44.2	-50.9	-1.6	-16.5	-3.7

Notes:

[1] The guarantee for a two-adult family is (one-adult guarantee) x (square root of two).

[2] For persons claiming the disability tax credit, there is a top-up of $1,220; for those claiming the caregiver tax credit, the top-up is $710.

A federal GBI that fully offsets the loss in income resulting from the effects of removing the federal NRTCs and the elimination of the GSTC actually costs an estimated $51,521.9 million, or about $56-million less than the additional tax revenues generated according to calculations made by SPSD/M. This reduction in cost and plan benefits arises because of estimated reductions in provincial income taxes ($37.5 million) and federal transfers ($4.8 million) and an estimated increase in provincial transfers ($23.0 million) arising from the implementation of a federal GBI. Once we evaluate the labour-supply impact of the federal GBI option, using the same methodology

and response elasticities as described in Section 5, Table 10 reveals modest declines in total disposable income, amounting to $770 or 1.1 per cent for Alberta and 0.6 per cent for Canada as a whole. Alberta contributes 3.7-per-cent more in taxes ($2,348) than the Canadian average ($2,264) and receives on average 19.3-per-cent less in GBI benefits than the federal plan ($2,063 compared to $2,557).[12]

TABLE 10 AVERAGE CHANGE IN FEDERAL TAXES AND THE GSTC, AVERAGE FEDERAL GBI BENEFIT AND AVERAGE CHANGE IN DISPOSABLE INCOME FOR THE 15 -PER-CENT BRR OPTION BY PROVINCE — 2017

Jurisdiction	Average Change in Federal Taxes[1]	Average Change in the GSTC[1]	Average GBI Benefit [1]	Average Change in Disposable Income[1] (Per Cent)
NF	+$2,595	-$196	$2,302	-$755 (-1.3%)
PE	+$2,554	-$222	$2,683	-$577 (-1.1%)
NS	+$2,466	-$213	$2,597	-$463 (-0.9%)
NB	+$2,486	-$228	$2,620	-$497 (-0.1%)
QC	+$1,982	-$219	$2,661	-$11 (-0.02%)
ON	$2,301	-$212	$2,682	-$231 (-0.4%)
MB	$2,382	-$214	$2,558	-$521 (-1.0%)
SK	$2,477	-$192	$2,219	-$798 (-1.2%)
AB	**$2,348**	**-$166**	**$2,063**	**-$770 (-1.1%)**
BC	$2,389	-$201	$2,511	-$491 (-0.9%)
CANADA	$2,264	-$206	$2,557	-$322 (-0.6%)

Note:

[1] These are the averages for all families, regardless of GBI recipient status.

Table 11 shows the distribution of federal GBI benefits for Albertans by economic-family income decile for our preferred BRR of 15 per cent and single-adult guarantee of $7,285. The results reflect the changes to the federal GBI and federal taxes paid due to the first-order labour-supply effects produced by the GBI. Only the bottom two deciles gain from the federal GBI, illustrating again the ability of a modest BRR option to direct benefits primarily to the poorest families. Income losses are again moderate and scattered across the top eight deciles, reaching a peak average of three per cent for those families in the fourth and fifth deciles. Overall, Albertans lose 1.1 per cent of their disposable income as a result of the federal GBI.

[12] Quebec is the clear beneficiary in our federal GBI, contributing only 87.5 per cent of the Canadian average in taxes while receiving 104.1 per cent of the average federal GBI benefit, such that the average reduction in disposable income is only $11 (0.02 per cent).

TABLE 11 AVERAGE FEDERAL GBI, AVERAGE CHANGE IN TAXES AND DISPOSABLE INCOME BY ADJUSTED ECONOMIC-FAMILY INCOME DECILES — ALBERTA 2017 — POST-LABOUR-SUPPLY ESTIMATES

Adjusted Family-Income Decile	Average GBI	Average Change in Taxes and GSTC	Average Change in Earnings	Average Change in Disposable Income	
				$	Per Cent
1	$5,633	+$1,491	-$470	+$3,671	+23.7%
2	$3,713	+$2,751	-$775	+$187	+0.6%
3	$2,225	+$2,558	-$834	-$1,165	-2.7%
4	$1,647	+$2,783	-$450	-$1,570	-3.0%
5	$1,010	+$2,622	-$240	-$1,832	-3.0%
6	$1,284	+$2,583	-$103	-$1,376	-2.2%
7	$990	+$2,686	-$84	-$1,726	-2.3%
8	$884	+$2,733	-$113	-$1,914	-2.1%
9	$1,103	+$2,572	-$154	-$1,584	-1.6%
10	$840	+$2,664	-$124	-$1,884	-0.9%
TOTAL	$2,063	+$2,514	-$345	-$770	-1.1%

6.2 A Federal and Alberta GBI

There are two ways to model a joint federal and provincial GBI. Both options feature a federally funded national GBI with one G and BRR set for the entire country that ensures that, overall, families are fully compensated for the change in disposable income due to the loss of federal NRTCs and the GSTC. At the provincial level, one model has each province removing the same provincial NRTCs and providing that income to the federal government to augment the value of G, such that the additional cost of the GBI equals the additional revenue provided. With this plan, the value of G will vary by province but there will be one BRR. The other model has each province delivering its own GBI that parallels the federal design but with its own G and BRR financed by the removal of the same set of NRTCs as the federal plan. With this model, there is both a federal and provincial BRR applied to income, resulting in a stacking of the BRRs. It is this second model that we feature below as it is consistent with the Alberta tradition of designing and financing its own parallel child tax credits and working income tax credits.

Parallel federal and provincial GBIs feature a federal guarantee for a single-adult family of $7,285 and a BRR of 15 per cent combined with a provincial guarantee for a one-adult family of $6,389 and a BRR of 10 per cent from our first AGBI option. The same federal and provincial top-ups to G for disability and caregiver conditions apply, as noted above. The total budget of the combined federal and provincial GBI for Alberta is $11,351.0 million, consisting of $5,610.1 million in additional federal taxes, $393.6 million in foregone GST credits, $1.8 million in lower federal transfers, $5,345.6 million in additional provincial taxes and $0.2 million in higher provincial transfers. However, as Table 12 shows, the pre-labour-supply cost of the combined GBI is only $10,105.7 million, due to the fact that the cost of the federal GBI for Albertans is $1,245.3-million less than the federal revenues raised. In comparison, the post-labour-supply cost of the combined GBIs is $10,673.5 million, some $567.8-million more. In addition, the post-labour-supply combined tax revenues are $233.4-million less, for a combined increase in the cost of the GBIs of $801.2 million, which represents 7.9 per cent of the total pre-labour-supply cost of the program.

TABLE 12 COMPOSITION AND DISTRIBUTION OF THE NET IMPACT OF A COMBINED ALBERTA-FEDERAL GBI BY ADJUSTED ECONOMIC-FAMILY INCOME DECILES — POST-LABOUR-SUPPLY ESTIMATES

Family-Income Decile	Average Disposable Income[1]	Average GBI[1,2]	Average Loss of GSTC[1]	Average Loss of Earnings[1]	Average Tax Increase[1]	Net Impact of GBI		Per Cent Gaining from the GBI[1]
						Average Amount[1]	Average Per Cent Change in Income[1]	
1	$15,511	$11,089	$413	$941	$1,925	+$7,810	+50.4%	97.8%
2	$33,572	$8,015	$398	$1,367	$4,225	+$2,024	+6.0%	61.4%
3	$42,757	$5,519	$182	$2,271	$4,417	-$1,351	-3.2%	28.9%
4	$52,416	$4,164	$133	$1,894	$4,919	-$7,783	-5.3%	21.5%
5	$61,035	$2,621	$59	$1,674	$4,893	-$4,005	-6.6%	14.6%
6	$62,737	$2,805	$94	$790	$4,835	-$2,916	-4.6%	22.4%
7	$76,311	$2,134	$67	$484	$5,165	-$3,582	-4.7%	16.6%
8	$91,186	$1,914	$70	$293	$5,328	-$3,776	-4.1%	14.5%
9	$96,277	$2,387	$73	$474	$5,017	-$3,176	-3.3%	18.5%
10	$215,708	$1,805	$66	$248	$5,271	-$3,785	-1.8%	15.8%
TOTAL	$72,204	$4,493	$166	$1,047	$4,514	-$1,234	-1.7%	33.5%
PRE-LABOUR-SUPPLY COST		$10,105.7 M	$393.6 M		$10,955.8 M			
POST-LABOUR-SUPPLY COST		$10,673.5 M			$10,722.4 M			

Notes:

[1] The averages are for the *nuclear*-family unit receiving the GBI.

[2] For persons claiming the disability tax credit, there is a federal top-up of $1,220 combined with a provincial top-up of $1,450; for those claiming the caregiver tax credit, there is a federal top-up of $710 combined with a provincial top-up of $1,080.

The overall average value of the post-labour-supply combined GBI is $4,493 with offsetting losses of $166 in GST credits, earnings losses of $1,047 and tax increases of $4,514, for an overall decrease in disposable income of $1,234, which represents 1.7 per cent of pre-GBI income. For those in the first two income deciles, the combined net value of their GBIs result in increases in their disposable income of 50.4 per cent and six per cent, respectively. Virtually all families in the lowest income decile receive benefits, and most (61.4 per cent) receive benefits in the second decile. The remaining deciles experience modest average decreases in their disposable income, with the largest decrease experienced by those in the fifth decile, as fewer families receive benefits in higher income deciles. In total, 33.5 per cent of Alberta families show an increase in their disposable income due to the GBIs.

Table 13 presents the post-labour-supply impact of the combined GBIs on the disposable income of nuclear families by the type of family and the income decile. Consistent with the results presented in Table 4 for the provincial GBI and earlier results in Stevens and Simpson (2017), single-parent families and non-elderly and elderly single adults experience an overall increase in their disposable income while two-parent families and non-elderly and elderly couples experience a drop in their disposable income. The non-elderly single person benefits the most from the combined GBI, as those in the first four deciles of this family group show gains. Single parents also do well, with those in the first four deciles also showing gains on average. The largest losses in disposable income are experienced by the non-elderly couple in the fifth decile (–11.5 per cent) and the elderly couple in the fourth decile (–10.9 per cent).

TABLE 13 PER CENT CHANGE IN NUCLEAR-FAMILY DISPOSABLE INCOME BY FAMILY TYPE AND INCOME DECILE FOR A COMBINED ALBERTA-FEDERAL GBI

Income Decile	Single Parent	Two Parent	Non-elderly Single	Non-elderly Couple	Elderly Single	Elderly Couple	All Families
1	+28.6%	+31.3%	+62.6%	+39.2%	+20.0%	+105.1%	+50.4%
2	+3.7%	-2.1%	+17.2%	+3.6%	+8.0%	+5.2%	+6.0%
3	+3.6%	-8.8%	+6.1%	-8.2%	+0.4%	-6.1%	-3.2%
4	+2.1%	-7.0%	+4.8%	-10.3%	-3.3%	-10.9%	-5.3%
5	-4.1%	-6.4%	-0.4%	-11.5%	-7.6%	-10.7%	-6.6%
6	-2.0%	-5.6%	+1.0%	-9.3%	-1.9%	-7.1%	-4.6%
7	-3.0%	-5.0%	-0.2%	-7.5%	-3.1%	-8.5%	-4.7%
8	-3.2%	-4.2%	-0.5%	-6.2%	-4.1%	-5.8%	-4.1%
9	-0.2%	-3.7%	-0.4%	-5.0%	-0.7%	-5.6%	-3.3%
10	-0.1%	-1.8%	-0.4%	-2.4%	-0.7%	-1.9%	-1.8%
TOTAL	+2.9%	-4.2%	+5.3%	-5.0%	+1.0%	-4.0%	-1.7%

Table 14 presents the combined impact of the two GBIs on the rate and depth of poverty and income inequality. Overall, the rate of poverty drops by 44 per cent and is completely eliminated for single parents, non-elderly couples, elderly singles and elderly couples, and is almost entirely eliminated for two-parent families. Only for the non-elderly single person does some poverty remain and it is greatly diminished in size, as the incidence of poverty falls by 36 per cent and the depth of poverty declines by 58 per cent. The degree of inequality, measured by the Gini coefficient, falls by 2.2 per cent overall, but declines by 32 per cent among single-parent families.

TABLE 14 IMPACT OF THE COMBINED ALBERTA-FEDERAL GBI ON THE RATE AND DEPTH OF POVERTY AND INCOME INEQUALITY BY ECONOMIC-FAMILY TYPE

Family Type	Rate of Poverty			Depth of Poverty			Income Inequality (Gini)		
	Pre	Post	Per cent change	Pre	Post	Per cent change	Pre	Post	Per cent change
SP	10.8%	0.0%	-100%	26.6%	0.0%	-100%	36.35	24.60	-32%
TP	3.2%	1.1%	-66%	42.4%	18.9%	-55%	37.10	35.91	3%
NES	28.3%	18.0%	-36%	49.1%	20.7%	-58%	45.42	38.71	-15%
NEC	1.4%	0.0%	-100%	25.6%	0.0%	-100%	39.54	39.98	+1%
ES	0.0%	0.0%	n/a	0.0%	0.0%	n/a	33.42	29.88	-10%
EC	1.4%	0.0%	-100%	25.6%	0.0%	-100%	47.65	47.61	-0%
TOTAL	9.9%	5.5%	-44%	45.9%	21.1%	-54%	50.57	49.45	-2.2%

Note: As in Table 5.

SUMMARY AND CONCLUSIONS

Our paper demonstrates that a guaranteed basic income (GBI) achieved by transforming most existing non-refundable tax credits (NRTCs) into a single refundable credit can have substantial impact on poverty in Alberta. Rather than developing a standalone basic-income scheme that involves considerable political risk, the government could adopt simple tax measures to alleviate poverty, which continues to affect more than six per cent of Albertans despite an extended period of vigorous economic growth. Using version 26.0 of the Social Policy Simulation Database and Model (SPSD/M), we find that 3,395,000 Albertans claimed these provincial tax credits in 2017,

including the universally applicable basic personal amount that accounts for 60 per cent of all benefits received and 68 per cent of all income received by the poorest families.

Our analysis considered two options for an Alberta guaranteed basic income (AGBI). Option 1 involves the transformation of the basic credit and five other NRTCs used in our earlier study for Canada (Stevens and Simpson, 2017) with a total value of $5,357.7 million. Option 2 adds the Alberta Child Benefit, Alberta Family Employment Tax Credit, Alberta Seniors Benefit and Alberta Carbon Levy Rebate to boost the net AGBI budget to $6,110.6 million. Using SPSD/M, we simulate the outcomes for these two options along a variety of dimensions, including the incidence and depth of poverty, income inequality, labour-market earnings and the distribution of beneficiaries. Consistent with our expectations, we show that a rising guarantee (G) and benefit-reduction rate (BRR) for a given budget results in a greater reduction in the poverty rate and the depth of poverty, but at the expense of a greater reduction in labour supply (and hence earnings) and disposable incomes and fewer beneficiaries. We found that Option 1 outperformed Option 2 by leaving those in deciles two to 10 with higher net incomes and more families as net winners. Accordingly, we focused the remaining analysis on Option 1.

We opted for an AGBI plan involving a BRR of 10 per cent that is consistent with the existing Alberta tax and tax-credit system. This plan delivers significant poverty reduction and income redistribution to a large segment of families with limited impact on labour supply and effective marginal tax rates. This produces a guarantee of $6,389 for a single-adult family and $9,035 for a two-adult family, in addition to existing income-support benefits that include social assistance and the Canada Child Benefit. The impact of the AGBI on the disposable income of the nuclear family is reduced by the loss in earnings due to receipt of the AGBI and the additional taxes paid to finance it. Overall, 37 per cent of families benefit from our preferred AGBI option, with the highest gains in the first three deciles, and the rate and depth of poverty each fall by about 25 per cent. On average, single-parent families and non-elderly and elderly single persons see their disposable income increase slightly due to the AGBI, while two-parent families and non-elderly and elderly couples show a small average loss in disposable income from the introduction of the AGBI. The largest gains are appropriately concentrated in the lowest two income deciles for all family types. The biggest impact on poverty occurs for the single-parent family, where it is completely eliminated.

We then considered an AGBI linked to a comparable federal plan, involving the transformation of the same NRTCs as the first option, the elimination of the federal GST credit, and a BRR of 15 per cent as in Stevens and Simpson (2017). While Alberta contributes more in taxes and receives lower benefits than other provinces, a federal plan with a guarantee of $7,285 for a single-adult family and $10,382 for a two-parent family still provides significant benefits for families with the lowest incomes. Moreover, combining the federal GBI with the first AGBI option allows for a total GBI budget of $11,359.7 million, which generates a guarantee of $13,674 for a single-adult family and $19,338 for a two-adult family. The combined GBI increases the disposable income of the two poorest family-income deciles by 50.4 per cent and six per cent, and one-third of all families realize an increase in disposable income from the combined GBI. The combined GBI is financed by moderate reductions in family income that are spread across the other eight deciles and peak in the fifth decile.

As was the case for the provincial AGBI, single-parent families and non-elderly and elderly single adults experience an overall increase in their disposable income, but the two poorest income deciles benefit for all family types. The rate of poverty among all Albertans now drops by 44 per cent and poverty is completely eliminated for single parents and non-elderly and elderly couples.

While poverty remains for two-parent families and the non-elderly single person, its rate declines substantially and its depth is reduced by more than 50 per cent. The non-elderly single person, the family group that exhibits by far the most poverty, receives the most benefit from the combined GBI, as families in the lowest-four income deciles all show gains. Inequality, measured by the Gini coefficient, falls by 2.2 per cent compared to 1.6 per cent for the provincial AGBI alone.

Our analysis has attempted to demonstrate the impact that a straightforward tax-policy change toward refundable tax credits can have on poverty in Alberta. We do not mean to imply that our choice of a specific AGBI plan would accord with all perceptions of what is best for the province. Indeed, our argument has laid out several dimensions along which differences in emphasis might lie and we welcome further discussion of these and other details of plans of this nature. We have also limited the scope of our analysis to poverty reduction, although there are other potentially important arguments to support a GBI that are beyond the scope of this paper. A GBI is seen as an important component of policy to address the rapid advance of robotics, artificial intelligence and other technologies during the "fourth industrial revolution," which may create widespread job destruction, unemployment and hardship within a short timeframe (West, 2015). A GBI can also be understood more broadly as an important source of income security or a social insurance policy that extends the planning horizon of individuals and families to provide more beneficial outcomes to health, education and other indicators of social well-being (Forget, 2011).

The success of our approach, or any approach using the current taxation system, rests on a high degree of tax compliance and, in particular, circumstances in which low-income families file tax returns and claim appropriate benefits. In this regard, Canada's modern tax-filing record seems promising. The 2016 Census[13] reports 28,642,980 persons 15 years of age and over, of which 27,488,530 had any income. Of those with any income, 27,090,400 filed a tax return, a filing rate of 94.6 per cent for all persons 15 years of age and over and 98.6 per cent for those with any income. Adoption of a GBI based on tax filing would therefore be effective, especially if it were accompanied by additional measures to raise the rate of tax filing even closer to 100 per cent.

Finally, we would note that reliance on the tax system to deliver benefits raises the problem of the timing of benefits, since annual income-tax reconciliation is the current norm and that is unlikely to provide sufficient short-term income support to low-income families whose incomes fluctuate significantly during the year. In that respect, our proposed GBI would rely on the current social-assistance program to deliver emergency income replacement in these situations. Given the inadequacy of social assistance in its current form, Alberta might want to consider modifications to its welfare system to accompany a tax-based GBI, but that analysis is beyond the scope of this paper.

[13] Our source is Census tables 98-400-X2016113 and 11-10-0033-01.

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APPENDIX A: ALBERTA INCOME-TESTED BENEFITS — 2017

Program	Eligibility	Annual Guarantee (Maximum Benefit)	Turning Point (Clawback Begins)	Benefit-Reduction Rate	Total Beneficiaries and Cost ($,000,000)
Alberta Child Benefit (ACB)	Families with children under 18 with net family income under $41,746	1st child: $1,114; 2nd + child: $557	$25,832	1 child, 7%; 2 children, 10.5%; 3 children, 14.0 %; 4+ children, 17.5%	66,810 ($82.5)
Alberta Family Employment Tax Credit (AFETC)	Parent of one or more children under 18. File a tax return. Have a family working income of more than $2,760 and a family net income of less than: $61,111, if 1 child; $78,676, if 2 children; $89,236 if 3 children; $92,736, if 4+ children	1 child: $773; 2 children: $1,473; 3 children: $1,898; 4+ children: $2,038;	Minimum Working Family Income: $2,760 Turning Point Net Family Income: $41,786	Benefit Increase Rate: 11% Benefit-reduction rate: 4%	122,097 ($116.3)
Alberta Seniors Benefit (ASB)	65+ years of age in receipt of federal OAS benefits with net family income less than $27,690 for one adult and $44,965 for two adults	Basic: $3,360; Spouse supplement: $1,680; Long-term care accommodation supplement: $13,059	$0	16.42% for a single adult; 16.45% for a couple	155,790 ($459.3)
Alberta Carbon Levy Rebate	Alberta resident: File a tax return	1st adult: $300; Spouse: $150; Each child up to 5: $45	Single: $47,500; Couple: $95,000; Family: $95,000	Single: 2.67%; Couple: 4.00% Family: 4.00%	1,473,477 ($381.3)

Source: Statistics Canada, SPSD/M v.26; calculations of beneficiaries and costs by authors.

APPENDIX B: NET REDISTRIBUTION ($MILLIONS) BY INCOME DECILE FOR AGBI OPTION 1

Adjusted Economic-Family Income Decile	Per Cent Winners	Winners			Losers				Per Cent Redistributed by Decile
		Total Δ in Taxes	Total GAI	Benefits Redistri-buted	Total Δ in Taxes - GAI Non-Recipients	Total Δ in Taxes - GAI Recipients	Total GAI	Contribu-tions to Redistribution	
1	98.6	$246.2	$1,580.1	$1,333.9	$0.6	$8.5	$13.8	$4.7	83.7%
2	75.6	$312.9	$807.1	$494.2	$5.8	$161.0	$225.9	$59.2	47.8%
3	37.2	$114.7	$380.8	$266.1	$35.8	$378.3	$343.2	-$70.9	36.8%
4	27	$81.1	$285.7	$204.6	$132.5	$339.3	$235.9	-$235.9	39.2%
5	16.5	$35.8	$186.4	$150.6	$239.4	$292.3	$140.9	-$390.8	46.0%
6	23.5	$60.7	$273.9	$213.3	$390.4	$122.9	$64.5	-$448.8	63.0%
7	19.1	$52.2	$280.3	$228.2	$478.3	$58.5	$37.0	-$499.8	71.9%
8	16.3	$42.8	$176.6	$133.9	$507.1	$46.3	$41.5	-$511.9	61.4%
9	19.8	$51.0	$229.5	$178.5	$470.9	$75.1	$56.3	-$489.7	62.5%
10	16.7	$40.8	$172.3	$131.5	$518.0	$35.0	$31.9	-$521.1	64.4%
TOTAL	37.3	$1,038.1	$4,300.8	**$3,262.7**	$2,778.8	$1,517.2	$1,190.9	**-$3,105.1**	59.4%

Note: The discrepancy between benefits redistributed and contributions is $157.6 million.

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Wayne Simpson is a Research Fellow at The School of Public Policy and a Professor in the Department of Economics at the University of Manitoba. He has also held academic affiliations with the University of Ottawa, the University of California San Diego, the University of Wollongong, the Lincoln Institute of Land Policy, and St. John's College. Dr. Simpson has published extensively on economics and social policy, including recent research on redistributive taxation through refundable tax credits with Harvey Stevens.

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