BIG REFORM: A SENSIBLE SOLUTION TO POVERTY AND INEQUALITY IN CANADA

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

Contents

List of Figures

List of Tables

Abstract

Recently, there has been growing awareness regarding the magnitude of economic inequality that currently exists in North America. A basic income policy, which essentially seeks to ensure that all individuals are able to afford the goods and services necessary for a dignified and healthy life, represents one solution to current redistribution challenges. The fundamental concept of a basic income is quite simple. In practice, however, it is much harder to work out administrative and design details. This has resulted in relatively little academic work that considers the practicality of a basic income scheme. Building on the work of earlier innovators, this paper thus attempts to design an affordable program that may actually be feasible within Canada. Using Statistics Canada's Social Policy Simulation Database and Model, I am able to estimate the cost of an income-tested basic guarantee of $20,000, and its subsequent impact on poverty, disposable income and labour supply and find that it is indeed feasible to implement a national basic income in Canada. More specifically, by eliminating federal expenditures on existing income transfer programs and non-refundable tax credits, I find that such a reform would be nearly revenue-neutral, resulting in a net increase in government spending of only $3 billion. One of the most important findings, however, is that such a policy has the potential to reduce overall poverty by 80 percent.

1 Introduction

Recently, there has been growing awareness regarding the magnitude of economic inequality that currently exists in North America. Due to technological advancements and an aging labour force, Canada in particular has seen a substantial increase in income inequality over the past few decades (Fortin et al., 2012). And while it is true that inequality is an issue in and of itself, its existence also generates a number of additional concerns that necessitate remediation by policymakers.[1] Traditionally, governments have relied on taxation to redistribute income and mitigate inequality, as it is through taxation that governments are able to accumulate the revenues required for provision of the welfare state. Canada's current system, however, is characterized by a number of issues that ultimately interfere with its ability to achieve this important goal of redistribution. In brevity, some of these issues include a decline in welfare income over time, inadequate attention given to the working poor and disabled, the stigmatization and marginalization of welfare recipients and tax credits that mainly benefit individuals with high taxable incomes (Battle et al. (2006); Boadway (2011, 2013); Simpson & Stevens (2015); Calnitsky (2016); Béland & Daigneault (2015)). Creating a more equitable wealth distribution is thus an important policy problem that warrants particular attention from researchers and policymakers in the 21st century.

A basic income (BI) policy, which essentially seeks to ensure that all individuals are able to afford the goods and services necessary for a dignified and healthy life, represents one solution to these new social policy and redistribution challenges. With a history dating as far back as the early 1940s, basic income is not a new policy innovation. In fact, British politician Lady Juliet Rhys-Williams recommended the first negative income tax scheme in 1942. Within Canada, basic income was first proposed

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[1]Such concerns include the effect of inequality on social cohesion, poverty reduction and overall population health (Kawachi & Subramanian, 2014).

almost 30 years later by the Special Senate Committee on Poverty in the early-1970s. In addition, Hugh Segal, who has recently been appointed to design a basic income pilot for Ontario, has been a long-standing and prominent voice advocating for a BI. There have also been a few recent academic advocates in the Canadian context, including Simpson & Stevens (2015) and Stevens & Simpson (2016).

In general, basic income typically involves setting an income level, under which, it is believed persons could not meet their most basic needs. After this has been decided, there are, however, several additional decisions the BI designer must make. For instance, it must be decided whether the program is universal or income-tested. The former appeals to those who argue that all members of society have a right to a basic income, but would most likely result in a scheme that is far too expensive to actually offer meaningful help to those in need. By comparison, the latter option requires the BI architect to choose a guarantee level and a corresponding tax-back rate, and is, in this sense, income-tested. Note that there is an inverse relationship between these two parameters: the higher the guarantee is set, the larger the clawback rate must be to maintain affordability. In this type of design, the basic income is thus highly targeted towards those in the bottom in the distribution, and evidently much more effective at redistributing income and reducing poverty. For these reasons, it is the latter scheme that this paper advocates for. Throughout the paper, I refer to this particular structure as the basic income guarantee (or BIG).

The fundamental concept of a basic income is thus quite simple. In practice, however, it is much harder to work out administrative and design details, which has resulted in a relatively few academics actually preparing basic income proposals. Building on the work of earlier BI innovators, this paper thus attempts to design an affordable program that may actually be feasible within Canada. For instance, to improve feasibility, I ensure BIG is harmonized with provincial social assistance and existing in-kind benefits and social services. This approach ensures that federal-

provincial decentralization arrangements are accommodated, and also emphasizes the non-financial aspects of poverty. In this sense, employment services, health care and affordable housing programs must be complemented, rather than replaced by BIG. These types of considerations, amongst others, are what set this paper apart from the existing literature on basic income.

Using Version 22.1 of Statistics Canada's Social Policy Simulation Database and Model (SPSD/M), I am able to estimate the cost of a BIG program in Canada, and its subsequent impact on poverty, disposable income and labour supply. The SPSD/M package is a vast repository of detailed information and description regarding the tax and transfer systems of both the federal and provincial governments. It is constructed by combining individual data from personal income tax returns, the Survey of Labour and Income Dynamics (SLID), unemployment and claimant histories and the Survey of Household Spending. The data is then adjusted using survey weights to ensure that the population accurately corresponds to Census data.[2] Overall, the SPSD/M is thus the only statistically representative and integrated database in Canada.

In essence, the SPSD/M is a micro-simulation based package that allows researchers to modify existing tax and transfer programs, and answer "what-if" type research questions. Moreover, it is able to simulate over 20 years of Canadian tax-transfer parameters - in fact, by 'growing' the demographic structure of the database and accounting for inflation, the SPSD/M is able to forecast the cost implications or income redistributive effects of tax-transfer programs up until year 2021. The package, is however static, meaning that it cannot be used to simulate individual behavioural responses to policy alterations. Despite this, the SPSD/M is particularly well-suited for this paper given its strong simulation capabilities, and highly accurate depiction of the Canadian tax-transfer system.

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[2]Note, however, that persons living in the Yukon, the Nunavut or Northwest Territories, persons residing on reservations, or armed forces personnel residing in barracks, are not included in the SPSD/M.

Broadly speaking, the results of the analysis suggest that BIG could have large profound effects on poverty in Canada. In fact, under one scenario, poverty is reduced by roughly 80 percent – and the program is completely revenue-neutral. These findings ultimately demonstrate that, given current spending on social programs and non-refundable tax credits, it is entirely possible for the federal government to significantly reduce poverty in Canada. In terms of estimating the labour supply response to BIG, using common labour elasticities found in the literature I find that basic income is likely to reduce the labour supply of individuals whose family income is in the bottom two quintiles. Compared to individuals in the remaining quintiles, these persons receive a relatively larger BIG entitlement. As such, these findings support the predictions of labour supply theory. It is worth emphasizing, however, that the reduction in labour supply is by no means large, and thus not a reason to critique basic income policy.

Section 2 of this paper provides a brief overview of the existing literature on basic income and negative income tax schemes. Following this, I discuss weaknesses and concerns currently characterizing the existing tax and transfer system, and thus present a case for why Canada's social security system requires major restructuring, and a basic income more specifically. Section 4 describes the BIG program in detail. In particular, I discuss how a well-integrated basic income policy in Canada should be implemented and designed. I also provide cost estimates and explain how current federal spending can be rearranged to ensure BIG is revenue-neutral. The impact of the BIG reform on disposable income, poverty and labour supply is then outlined in Section 5. Finally, the paper concludes with a brief summary of the study and subsequent implications it may have for mitigating and, ideally, eliminating poverty and income inequality in Canada.

2 Basic Income in the Literature

The notion of using refundable tax credits, or negative income taxes (NIT), to enhance income redistribution and reduce poverty has received considerable attention from scholars throughout history. Though largely unrecognized for her contributions in the literature, British politician Lady Juliet Rhys-Williams recommended the first negative income tax scheme in 1942. The proposal was later formalized in her 1953 book, *Taxation and Incentive*, which outlines what her scheme would entail practically, politically, and philosophically. She argues that a cash allowance given to all citizens would generate positive change in society by improving opportunities for self-help by the unemployed, encouraging saving, restoring independence, and recognizing the value of unpaid labour in the household (Rhys-Williams, 1953). Though she admits repeatedly throughout the book that her ideas are in the preliminary stages of conception, her work undoubtedly represents a significant first step in the direction of a basic income guarantee as we know it today.

Emerging 20 years later, Milton Friedman's book, *Capitalism and Freedom* (1962), popularized the idea of a basic income. Indeed, Freidman is perhaps the most well-known American advocate of the NIT historically, and is often cited as the first basic income proponent. More specifically, his proposal involves administering cash transfers through the existing tax infrastructure using a lump sum refundable tax credit that phases out as income increases. Under such a scheme, the government would share not only in individuals' earnings, but also in income shortfalls, by providing cash transfers to individuals whose earnings fall below some specified poverty line (Tobin et al., 1967). In terms of alleviating poverty, Milton framed the NIT as a superior alternative to the existing welfare system, which he argued did not target the truly poor, and interfered with personal freedoms and the market (Friedman, 1967). As noted in Segal (2008), Friedman's basic income proposal harnessed many notable supporters on both sides of the political spectrum, including Sir Winston

Churchill, Richard Nixon, Donald S. Macdonald and his royal commission on our economic prospects, Robert Stanfield, Senator Patrick Moynihan and Linda Frum.

Building on the work of these basic income innovators, other researchers and policymakers have sought to gain a deeper understanding of basic income by evaluating the practicality and efficiency of such a policy. For instance, Tobin et al. (1967) address administration concerns, outlining three important design issues that must be considered in a practical NIT plan. These include defining: 1) the family unit and allowance schedule; 2) the income base for offsetting the tax; and 3) how a NIT will be integrated with existing public assistance and social security programs. The authors also consider payment methods, and the treatment of individuals with fluctuating incomes, ultimately arguing that initial implementation of NIT scheme should begin with a low benefit schedule that increases gradually over time as budgetary costs ease. Forman (1989) also proposes a NIT scheme, but instead considers behavioural impacts. More specifically, he discusses the effects of such a policy on labour supply and private savings, concluding that, for various reasons, a NIT could have a positive impact on aggregate labour supply, and no significant effect on savings.[3]

More recently, there has been a large growth of academic interest in basic income, and restructuring of the welfare state more generally.[4] Anthony Atkinson is one notable scholar that advocates not only for a basic income, but for a social security system that successfully balances such a program with existing social insurance and social assistance measures (Atkinson, 2015). He also proposes the idea of a *participation income*, which involves making receipt of basic income contingent upon participation in society. He notes that participation could include work, education, training, homecare, job search and/or voluntary work. By conditioning basic income

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[3]He argues, for example, that a large refundable tax credit could make it easier for parents with young children to enter the workforce, by freeing up income for child care.

[4]See Battle et al. (2006), Battle & Torjman (2000), Hum & Simpson (1991), Hum & Simpson (1993), Hum & Simpson (2001), Hum & Simpson (2005), Mulvale & Pasma (2014), Mulvale & Vanderborght (2012) and Regehr (2016).

in this way, Atkinson believes that basic income would convey a message of reciprocity. He also believes that by requiring individuals to make a social contribution, they are more likely to be active members of society (Atkinson, 2015).

During the 1970s, the first and only Canadian basic income pilot was launched in the small town of Dauphin, Manitoba. The experiment, referred to as *Mincome*, gave all families sixty percent of Statistics Canada's Low-Income Cut-Off (LICO), which was reduced at a rate of fifty percent for each additional dollar earned from other sources. Due to unexpected difficulties, original goals of studying incentives were replaced with heightened focus on administrative details. This resulted in a lot of archived data that was never analyzed (Forget, 2011). As such, there are a number of scholarly empirical studies that are now using this data to study the effects of Mincome on a variety of socio-economic variables.

For instance, Hum & Simpson (1993) review the results of five Canadian and American guaranteed income experiments that occurred during the late 1960s and early 1970s to discern their effect on labour supply. The authors ultimately argue that there is no definitive consensus regarding how labour supply responds to a BI. In terms of Mincome specifically, they note that reductions in labour supply at the intensive margin were modest and insignificant. There was one factor, however, that they suggest was an important determinant in the labour-supply response of married couples: the presence of preschoolers. In these families, labour supply for the husband significantly increased in response to Mincome, while that for the wife decreased by the same amount. Finally, Hum & Simpson (1993) conclude that, of the few adverse effects that have been identified from basic income experiments, results tend to be much smaller than expected. In addition to these findings, Forget (2011) has also used Mincome and health administration data to demonstrate that a basic income can improve health and education outcomes. More specifically, she finds reductions in hospitalization, physician contacts for mental health diagnoses and grade 12 students

dropping out before graduation. She concludes by noting that, in the event of national BI implementation, these finding indicate a potential for substantial health system savings.

In their analysis regarding increasing economic inequality in Canada, Simpson & Stevens (2015) use the SPSD/M to examine the impact of converting federal non-refundable tax credits into refundable ones. They argue that by doing so, the federal government could make the tax system much more fair, without the need for new tax measures. The authors estimate four different scenarios, and conclude that although this conversion would cost between $6 and $7 billion, approximately 37 percent of families would receive additional benefits. As such, while Simpson & Stevens (2015) do not estimate the cost of a basic income policy specifically, the outcome of converting NRTCs to RTCs would simply be a NIT scheme, or "what has been primarily termed a guaranteed annual income in Canadian policy discussions" (Simpson & Stevens, 2015). Currently, this paper represents one of the few attempts to reform personal income taxes using data; note that a similar paper by Hum & Simpson (2005) uses the SLID to determine that it would cost over $200 billion to completely eliminate poverty in Canada using a basic income scheme.[5]

Historically, there have been a number of basic income proposals in Canada, and while a detailed historical account of basic income is beyond the scope of this paper, there are a couple of proposals worth discussing.[6] First, is the Macdonald Commission's Universal Income Security Program (UISP) that was proposed in the mid-1980s. The USIP was characterized by much lower benefit levels than traditional guaranteed income proposals, and was ultimately described as an eventual replacement for most of the social programs in the existing welfare state. The program was,

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[5]In contrast to the current paper, Hum & Simpson (2005) focus on estimating the cost of eliminating poverty entirely, rather than attempting to design a comprehensive basic income program that is revenue-neutral and actually feasible in Canada.

[6]See Mulvale & Pasma (2014) for a detailed summary regarding the history of basic income in Canada.

however, never implemented by the Mulroney government due to fears of institution-alizing poverty and opposition by the Canadian labour movement (Young & Mulvale, 2009). The second proposal, by Stevens & Simpson (2016), is much more recent and performs similar simulations to the BIG program discussed below. Their proposal is quite different, however, for the following reasons: 1) the basic guarantee and bene-fit reduction rate are each very low, which results in much smaller reductions in the poverty rate compared to the present paper; and 2) the program described by Stevens & Simpson (2016) is not well-integrated with existing social assistance infrastructure and thus fails to consider how a basic income program would function successfully in a decentralized country.

There are, inevitably, also many papers that critique the notion of a basic income.[7] For the most part, concerns about a guaranteed income raised by critics include issues of work disincentives, and larger challenges of designing, implementing and financing a program that seeks to significantly restructure the existing income security architecture. It is indeed important to recognize the possible adverse labour supply effects that may arise in response to basic income receipt. That said, critics must also realize that the incentivizing labour is not the main goal of a basic income. Rather, it is the desire to tackle poverty, harmonize a tax-transfer system that is currently uncoordinated and inequitable, and ensure that all households can meet basic needs, that inspires basic income advocates.

These critics are correct, however, in stating that there has been little research at-tempting to design a program that is feasible politically and economically in Canada. As such, this paper contributes to the BI literature in several respects. First, it demon-strates that, despite obstacles a decentralized country poses, it is quite possible to design a BI that is both revenue-neutral and well-coordinated with existing federal and provincial income maintenance programs. This is meaningful as it shows that a

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[7]Bergmann (2004), Kesselman (2014), Lamman & MacIntyre (2015) are a few notable ones.

policy often portrayed as unrealistic can be implemented in a very sensible manner. Second, this paper recommends a comprehensive reform of the tax and transfer system. In contrast, the aforementioned studies have mainly focused on the conversion of NRTCs to RTCs, or are much less ambitious in design. While such alterations would considerably improve equity in the personal income tax system, they are not equivalent to the basic income proposed here, which arguably advocates for far more change. Finally, much of the aforementioned literature is purely discussion-based, and thus uses no data to evaluate the cost of a basic income or the potential effects it may have on poverty or labour supply. Estimating these variables (and others) using the SPSD/M comprises the heart of this paper, and thus differentiates it from most existing studies.[8] For these reasons, this paper offers new and ambitious insights for policymakers in Canada.

3 Canada's Current Tax-Transfer System: Why the Need for BIG Change?

The tax-transfer system in Canada reflects a long, complex history of piecemeal initiatives aimed at addressing the needs of many different interest groups (Miljan, 2012). During the earliest moments of social policy formation, goals were ambitious as politicians yearned to conquer poverty. As a result, the country has experienced a number of major social security reforms that have effectively shaped Canada into a mature welfare state (Hicks, 2008). Recently, however, prominent scholars have expressed concerns regarding the adequacy of Canada's current tax-transfer system, which is accused of failing certain segments of the population in the bottom of the income

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[8]One exception is Stevens & Simpson (2016). As noted above, however, the BIG proposal in this paper is much different than the authors? guaranteed income design.

distribution.[9] In this section, I will outline weaknesses in the existing social security system that support this claim, and, in light of these issues, justify the need for BIG reform.

In the literature, academics typically highlight three specific concerns regarding personal income taxation and income supports in Canada: 1) the asymmetric nature of non-refundable tax credits, 2) the stigmatization and inadequacy of social assistance and disability payments, and 3) the separation of revenue-raising and expenditure responsibilities between the federal and provincial governments. The following subsections will explain each of these points in detail, but for now it is important to recognize that the proposal for basic income in this paper is meant to address weaknesses and wasteful spending in the current tax-transfer system. From the outset, readers are thus asked to set aside subjective value judgments about reciprocity that may interfere with understanding the larger goals of basic income, which not only include reducing poverty, but also repairing the severely tangled safety net.[10] In what follows, I explicitly engage with the aforementioned concerns, and subsequently present innovative solutions to the inexcusable shortcomings that currently characterize Canada's tax and transfer system.

3.1 Non-Refundable Tax Credits

Non-refundable tax credits (NRTCs) are, presently, a key component of personal income taxation. In theory, most NRTCs serve as mechanisms for income redistribution, and many operate for the sole purpose of achieving horizontal equity and marriage neutrality (Simpson & Stevens, 2015). Others exist to incentivize behaviours carrying

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[9]See Battle et al. (2006), Boadway (2011), Boadway (2013), Simpson & Stevens (2015), Calnitsky (2016) and Béland & Daigneault (2015).

[10]These types of philosophical discussions are undoubtedly crucial for any comprehensive understanding of basic income, but are beyond the scope of this paper. Readers are encouraged to refer to Fleurbay (2008), Van Parijs (2009) and Tondani (2009) to engage in such debates. The former article discusses concepts such as responsibility, social justice and freedom generally, while the latter places them in the context of a basic income discussion specifically.

positive externalities,[11] subsidize certain activities,[12] or simply, to "reflect the costs of earning income" (Boadway, 2011). Canada's tax system also contains a handful of refundable tax credits (RTCs), including the Goods and Services Tax Credit and the Working Income Tax Benefit (WITB), which are income-tested and thus targeted towards low-income Canadians. There are also refundable tax credits given to parents on behalf of their children, such as the Universal Child Care Benefit (UCCB) and Canada Child Tax Benefit (CCTB), both of which were replaced by the Canada Child Benefit (CCB) in July 2016. Finally, although they are not explicitly referred to as RTCs, the Old Age Security (OAS) and Guaranteed Income Supplement (GIS) benefits also resemble (quite generous) refundable credits that are specifically directed towards elderly Canadians.

The major difference between non-refundable and refundable tax credits is their value to non-taxpayers. NRTCs are used to reduce federal taxes owing, and consequently do not benefit individuals who have no or low income. In contrast, RTCs allow for 'negative' taxes by giving low-income tax filers a benefit corresponding to the difference between taxes owed and the size of the credit. For low-income persons who owe little or no taxes, RTCs are therefore much more valuable.

Using the SPSD/M package, I am able to estimate that total federal expenditure on non-refundable tax credits was roughly $69 billion in 2015. To put this quantity into perspective, Figure 1 displays federal income transfer (or social) spending, which includes expenditure on *total* non-refundable tax credits (rather than the expenditure on each NRTC separately) and each of the foregoing refundable credits. Total spending on the Canadian Pension Plan (CPP) and Employment Insurance (EI) programs in 2015 have also been included, since they both serve as important mechanisms in Canada's overarching social security scheme. Observing Figure 1, it is evident that NRTCs comprise a large portion of government spending in comparison to the other

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[11]For instance, charitable and political donations.
[12]Such as taking public transit or engaging in fitness activities.

included transfer programs. In fact, NRTCs represent roughly 30 percent of the spending shown in Figure 1, and the largest quantity spent on any one program.[13] From the diagram, it is also evident that aggregated spending on non-refundable tax credits is far greater than that on refundables ($69 billion versus $38.2 billion). This substantial difference is problematic given that low-income earners tend to benefit relatively less from NRTCs than their high-income counterparts.
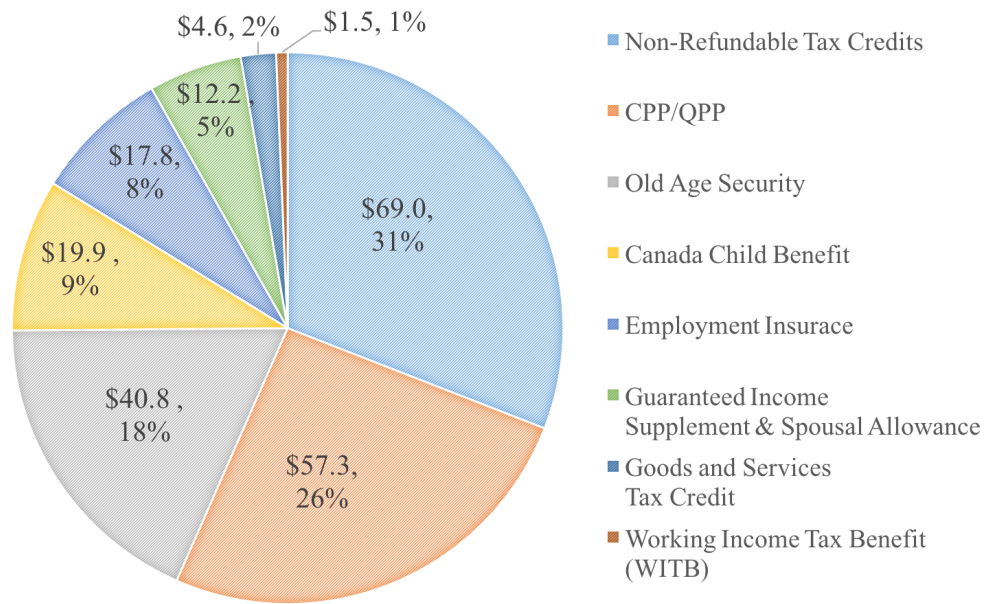
Figure 1: SHARE OF GOVERNMENT EXPENDITURE ON NRTCS, RTCS AND OTHER INCOME TRANSFER PROGRAMS IN CANADA ($ BILLIONS) - 2015
Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

Above, I briefly explained how the use of NRTCs in the personal income tax system results in an inequitable treatment of tax filers. That is, they reduce the taxes

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[13]I am able to estimate the cost of the CCB program in 2015 using computational capabilities unique to the SPSD/M. More specifically, because the database is based on a probability sample and adjusted using household weights, researchers are able to enter and simulate any program they desire. As such, despite the CCB not being technically active until July 2016, I am able to project its cost and the extent to which it changes family income. It is also worth mentioning here that the CCB is explicitly used in place of other child benefits that were active in 2015 (such as the UCCB or CCTB), as the CCB permanently replaced those programs in 2016, and is consequently integral to the basic income design below.

of individuals at the top of the income distribution by the full value of combined NRTCs, while only partially benefitting those who have a low-income status. To illustrate this point further, I have provided Table 1, which summarizes the percentage of individuals in each income quintile claiming and benefiting from each federal NRTC. Before reviewing the results of this exercise in depth, I will first illustrate the difference between 'claiming' and 'benefiting' from a NRTC using the first row of Table 1. The basic personal amount, which was $11,327 in 2015, is claimable by *every* tax filer regardless of individual characteristics such as age or marital status. If the basic amount were the only NRTC applied to taxes owed, then only individuals with taxes greater than $11,327 would completely benefit from it. In other words, because NRTCs do not permit negative values or payments to persons from the government, individuals owing less than $11,327 in taxes only partially benefit to the extent that the NRTC reduces their taxes to zero. After this point, NRTCs are of no value.[14] To this effect, the 'claim' column simply indicates the percent of individuals who qualify for and claim the tax credit in their annual tax return. Alternatively, the 'benefit' column displays the percent of individuals whose taxes are greater than the total value of their NRTCs - i.e. those who are able to apply the full value of the NRTCs to their taxes owed.[15] This column should thus be interpreted as the percentage of individuals in each income quintile that *fully* benefit from the aggregated value of each non-refundable tax credit.

As row one in Table 1 demonstrates, 100 percent of individuals in every quintile claim the basic amount; but once the basic credit is combined with the value of

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[14]For example, an individual with $10,000 in taxes owed would lose out on $1,327 of the basic amount relative to those who are in a higher tax paying position (assuming the basic amount is the only NRTC in the personal income tax system.)

[15]The benefit column was calculated by first creating a variable that subtracted the total value of each individuals' non-refundable tax credits from their taxes owed. Then, I derived the number of individuals who claimed each distinct NRTC, if and only if the value of this variable was positive. The percentages displayed in the benefit columns thus strictly capture only those individuals who apply the full value of the credits to their taxes owed. This may lead to underestimation of beneficiaries, as I am not able to measure those who may have only partly benefitted.

all the other NRTCs and applied to federal taxes owing, 0 percent of individuals in the bottom quintile benefit, compared to nearly 100 percent of individuals in the two highest income categories. To be clear, this figure may be misleading, since low-income tax filers may receive partial benefits from NRTCs. Even so, this result supports the claim that NRTCs are relatively more valuable to persons in higher tax paying positions. Consider, also, the age credit in the second row of Table 1. Of the roughly 15 percent of individuals in the bottom quintile who claim the credit, none benefit fully from it. In comparison, nearly all individuals in the top three quintiles who claim the credit also benefit from it. To this effect, the age credit, in particular, demonstrates how the income tax system works against one of the most vulnerable groups in society. Rather than distributing tax benefits to the low-income elderly, they are given to those in relatively better financial positions.

To compliment this analysis, I have also estimated the distribution of refundable and non-refundable tax credits by income quintile using the SPSD/M. Figure 2 presents the average value of total NRTCs and total RTCs for each income group.[16] As expected, persons in the bottom quintile do not (fully) benefit from NRTCs at all. This is remarkably lower than the value received by individuals in the next four quintiles, and is thus further evidence that NRTCs are of no benefit to individuals in a non-taxpaying position. Non-refundable credits also appear to benefit individuals in the highest income quintile most, as the average value of the NRTCs increases with income. An opposite trend is observable for RTCs, which are quite a bit larger for low earning Canadians. Interestingly, there is not a notable difference in the average value of NRTCs received by the three groups in the middle of the distribution. The average benefit received from RTCs, however, seems to be considerably higher for individuals in the second quintile. This difference most likely reflects the reality that RTCs, by definition, are far more progressive than non-refundable tax credits (Boadway, 2011).

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[16]Note that the values provided reflect average NRTCs for tax filers who claim *and* benefit from NRTCs.

Table 1: Percent of Individuals Claiming and Benefiting from Federal Non-Refundable Tax Credits by Income Quintile - 2015

NRTC	Bottom Quintile		Second Quintile		Middle Quintile		Fourth Quintile		Top Quintile		Total	
	Claim	Benefit	Claim	Benefit	Claim	Benefit	Claim	Benefit	Claim	Benefit	Claim	Benefit
Basic	100%	0%	100%	35.75%	100%	34.69%	100%	99.80%	100%	99.80%	100%	66.14%
Age	14.73%	0%	38.57%	3.32%	28.97%	27.37%	17.80%	17.67%	5.92%	5.92%	21%	10.92%
Married	9.66%	0%	10.76%	1.17%	10.61%	8.71%	11.24%	11.23%	14.69%	14.66%	11%	7.11%
Married Equivalent	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Dependent Caregiver	42.85%	0%	48.48%	4.40%	0%	0%	0%	0%	0%	0%	18%	0.86%
Infirm Dependents	0.02%	0%	0.04%	0%	0.07%	0.05%	0.03%	0.03%	0.05%	0.05%	0.04%	0.03%
Family Caregiver	37.28%	0%	47.23%	4.40%	0%	0%	0%	0%	0%	0%	17%	0.86%
Family Tax Cut	0%	0%	0.76%	0.52%	2.58%	2.57%	11.00%	11.00%	22.95%	22.95%	7.35%	7.31%
Disability	1.95%	0%	3.62%	0.02%	3.21%	2.31%	2.27%	2.25%	1.47%	1.47%	3%	1.21%
Employment Credit	30.07%	0%	47.99%	24.39%	68.02%	65.94%	80.97%	80.90%	88.11%	87.95%	63%	51.60%
Pension Income	2.91%	0%	26.25%	5.69%	32.88%	31.42%	25.06%	24.92%	18.62%	18.53%	21%	16.12%
Public Transit	2.94%	0%	4.13%	1.75%	5.71%	5.40%	6.29%	6.29%	7.15%	7.13%	5%	4.10%

Continued on next page...

Table 1 – continued from previous page

NRTC	Bottom Qunitile		Second Quintile		Middle Quintile		Top Quintile		Fifth Quintile		Total	
	Claim	Benefit	Claim	Benefit	Claim	Benefit	Claim	Benefit	Claim	Benefit	Claim	Benefit
Fitness	1.39%	0%	1.66%	0.26%	2.79%	2.50%	6.10%	6.10%	14.01%	13.98%	5%	4.51%
Student Loans	0.32%	0%	1.29%	0.87%	2.95%	2.88%	3.22%	3.20%	2.72%	2.72%	2.09%	1.94%
Tuition	9.39%	0%	8.50%	1.87%	5.50%	5.02%	3.66%	3.65%	2.75%	2.73%	6%	2.65%
Education Allowance	10.77%	0%	10.49%	2.93%	6.12%	5.67%	4.07%	4.05%	3.34%	3.34%	7%	3.20%
Textbook	10.77%	0%	10.49%	2.93%	6.12%	5.67%	4.07%	4.05%	3.34%	3.34%	7%	3.20%
Charitable Contrib.	1.73%	0%	6.27%	1.98%	18.40%	17.30%	24.70%	24.58%	40.88%	40.69%	18%	16.76%
Political Contrib.	0.05%	0%	0.19%	0.04%	0.45%	0.43%	0.66%	0.66%	1.43%	0.89%	11%	0.50%
CPP Contrib.	25.05%	0%	50.60%	26.47%	64.52%	62.65%	77.19%	77.12%	85.79%	85.63%	60%	50.12%
EI Contrib.	23.04%	0%	45.14%	23.31%	63.28%	61.36%	76.87%	76.81%	86.29%	86.13%	17%	49.28%
Total Tax Credits	100%	0%	100%	35.75%	100%	96.52%	100%	99.80%	100%	99.80%	100%	66.14%
N (000s)	**5,912**		**5,662**		**5,834**		**5,870**		**5,595**		**28,874**	

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.
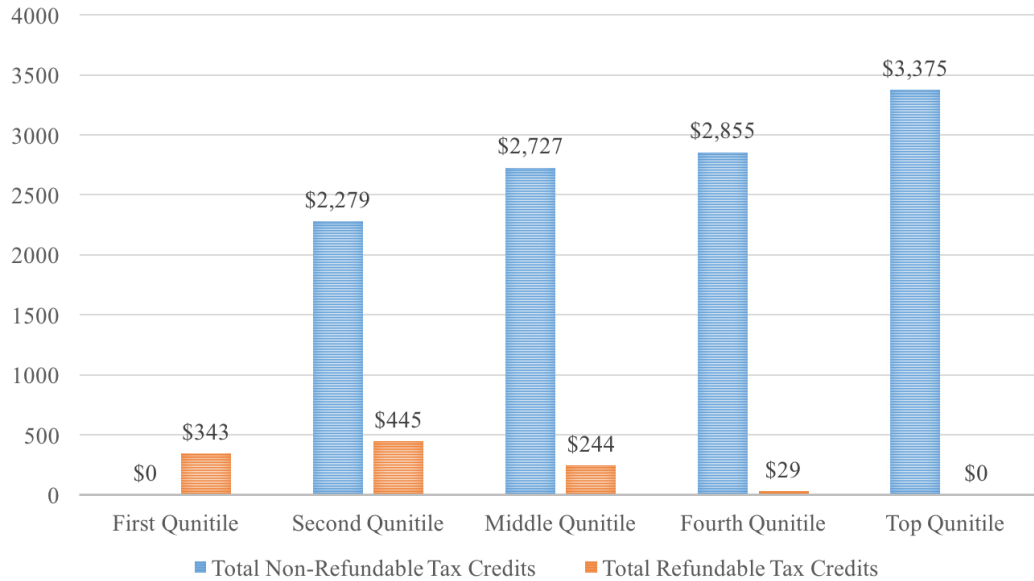
Figure 2: Average Value of Non-Refundable and Refundable Tax Credits by Income Quintile - 2015
Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.
Note: The value reported for non-refundable tax credits reflects the average for only those tax filers who are able to use NRTCs to offset their federal taxes owing.

The same statistics for each distinct non-refundable tax credit are displayed in Table 2. Again, for the majority of credits, higher income individuals receive more on average than those in bottom of the distribution. More specifically, the value of total tax credits for persons in the bottom quintile is $0 on average, compared to $3,375 for those in the top. This outcome, arising from a system that Canadians rely on to bolster horizontal equity and redistribute income, is thus very troubling. Additionally, considering that NRTCs cost the federal government approximately $69 billion in foregone tax revenue, their asymmetric effect on tax filers is even more concerning. In attempting to serve their main purpose of "impart[ing] fairness to the income tax," (Boadway, 2013) it seems that NRTCs create more inequities than they mediate. From an efficiency and fairness standpoint, then, their existence is questionable (Boadway, 2013; Simpson & Stevens, 2015). This, however, is not a novel conclusion. In his invitation for policymakers and scholars to rethink the tax-transfer system,

Boadway (2011) recommends that NRTCs be replaced by fully refundable, income-tested tax credits. Doing so, he argues, would enhance the overall progressivity of the tax system. As such, while the findings discussed here do not contribute anything new to the literature, they are a fundamental component of the present paper in terms of justifying the need for a basic income. A BIG that takes the form of a uniform refundable tax credit is beneficial to *all* parties, not just those who have substantial taxes owing. By offsetting the inequities generated by NRTCs, basic income is thus a more equitable alternative to the current tax-transfer system.

3.2 Social Assistance and Decentralization: A Loss for Low-Income Persons

Social assistance, more commonly referred to as 'welfare,' is a well-known policy response to poverty in Canada. Welfare specifically falls under the jurisdiction of provincial authorities, and as a result, varies significantly across the country in terms of generosity and eligibility requirements (Banting, 2007). Functioning primarily as a last-resort safety net, it provides means-tested financial support to some of the most vulnerable groups in the country, and is thus an important tool for achieving social inclusion and cohesion in Canada (Béland & Daigneault, 2015). Originally, social assistance was intended to be a minor component of Canadian social policy, but because of significant social, economic and demographic changes, governments were unable to risk (re)building a more comprehensive and effective social security system that could offer more meaningful aid to Canada's poorest citizens (Battle et al., 2006).

In effect, social policy today reflects a collection of uncoordinated benefit programs that provide generous aid to families with children and the elderly, but leave certain segments of the population - such as the working poor and disabled - rela-

Table 2: Average Value of Federal Non-Refundable Tax Credits by Income Quintile - 2015

NRTC	Bottom Quintile	Second Quintile	Middle Quintile	Fourth Quintile	Top Quintile	Total
Basic	$0	$1,773	$1,773	$1,773	$1,773	$1,773
Age	$0	$1,098	$1,089	$811	$260	$911
Married	$0	$337	$1,214	$1,328	$1,394	$1,294
Married Equivalent	$0	$0	$0	$0	$0	$0
Dependent Caregiver	$0	$224	$0	$0	$0	$224
Infirm Dependents	$0	$0	$1,376	$1,376	$1,376	$1,376
Family Caregiver	$0	$186	$148	$177	$232	$182
Family Tax Cut	$0	$168	$190	$447	$1,307	$949
Disability	$0	$1,236	$1,237	$1,240	$1,241	$1,239
Canada Employment Credit	$0	$176	$172	$173	$177	$175
Pension Income	$0	$287	$295	$294	$282	$291
Public Transit	$0	$114	$145	$153	$174	$155
Fitness	$0	$90	$80	$87	$115	$103
Interest on Student Loans	$0	$78	$85	$86	$99	$89
Tuition	$0	$368	$479	$398	$395	$424
Education Allowance	$0	$264	$254	$175	$186	$222
Textbook	$0	$43	$41	$29	$30	$36
Charitable Contributions	$0	$181	$243	$374	$848	$564
Political Contributions	$0	$181	$118	$156	$193	$170
CPP Contributions	$0	$113	$210	$347	$392	$303
EI Contributions	$0	$48	$80	$125	$139	$111
Total Tax Credits	**$0**	**$2,279**	**$2,727**	**$2,855**	**$3,375**	**$2,908**
N (000s)	**5,912**	**5,662**	**5,834**	**5,870**	**5,595**	**28,874**

tively worse off (Battle et al., 2006).[17] This is a direct byproduct of decentralizing revenue-raising and expenditure responsibilities; because the provinces have assumed jurisdiction over social policy, social assistance and disability support recipients are often overlooked when the federal government allocates spending. Thus, while persons under federal responsibility have, in a manner of speaking, 'prospered' under existing decentralization arrangements, groups receiving most of their income support from provinces have fallen significantly behind (Boadway, 2011).

During the 1980's, welfare was praised for its success in reducing overall poverty and inequality in Canada (Kenworthy, 1999). Since the 1990's, however, social assistance has been much less effective, hence triggering the bad reputation that it is currently characterized by (Béland & Daigneault, 2015). The lack of recent success is mostly attributed to significant cuts in welfare benefits during the 1990s,[18] but non-indexation has also played a minor role (Battle et al., 2006; Battle & Torjman, 2000). As a result, low-income individuals in the welfare system "receive what can only be called a pittance with which to survive" (Boadway, 2011). The welfare benefits given to this segment of the population fall far below Canada's low-income cutoffs, which makes it difficult for recipients to meet even the most basic of needs (Battle et al., 2006; Boadway, 2011). Battle et al. (2006) also note that the core objective under-lining social policy in the postwar era was achieving a 'social minimum,' which he defines as "an adequate income floor for all Canadians" (Battle et al., 2006). Given the current state of welfare, it seems as if policymakers failed to achieve this goal.

To reiterate, the separation of jurisdictional responsibilities results in an unnec-essarily complex system that works against the truly poor. As Battle et al. (2006)

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[17]Readers should note the extent to which elderly persons benefit from the current tax-transfer system in Figure 1. Total expenditure on the Canada (Québec) Pension Plan, Old Age Security (OAS), Guaranteed Income Supplement (GIS) and Spousal Allowance (SA) programs sums to $110 billion. Such a large quantity directed at one specific group is precisely the issue under discussion here. This outcome is a direct consequence of larger discrepancies in the distribution of income transfers due to the decentralization of revenue-raising and expenditure responsibilities (Boadway, 2011).

[18]For empirical evidence of provincial decline in welfare income over time, see Battle et al. (2006).

explain, social assistance is a 'tangled safety net' exacerbated by the following set of concerns. First, receipt of welfare is dependent upon the discretionary decisions of social workers, which introduces the possible arbitrary treatment of persons in otherwise identical situations (Battle et al., 2006). The use of such staff to monitor clients also increases bureaucratic costs, and generates redundant case work that interferes with the often forgotten goal of helping recipients. Second, in some provinces, there is a 100 percent tax-back rate on an already very low earnings limit. This ultimately generates significant disincentives to seek out employment (Boadway, 2011). Finally, to qualify for welfare, applicants must also comply with fixed and liquid asset exemption levels. These asset exemption requirements are quite low in most provinces, and thus also adversely affect recipient behaviour by discouraging savings (Boadway (2011), Battle et al. (2006)).

To conclude this section, I briefly address the relationship between stigmatization, social assistance and basic income. I begin by noting that to receive welfare, Canadians must self-identify as poor. This essentially fosters "highly visible and special treatment" (Calnitsky, 2016) of low-income persons. It also marginalizes individuals that require financial assistance, and, in some instances, may even deter them from getting the help they need (Calnitsky, 2016). In a recent paper that examines why people chose to participate in the 1974 Mincome program, Calnitsky (2016) concludes that recipients understood the pilot as a viable alternative to welfare, without the social stigma costs. Participants commended Mincome's hands-off approach, which, Calnitsky argues, avoided the "stipulations and conditions of welfare" (Calnitsky, 2016). Basic income, by working directly through the personal income tax system, uses this same approach. It would ultimately allow low-income persons to get the assistance they need, without marginalization, or forcing them to self-identify as poor. Accordingly, by highlighting the importance of moral and psychological considerations in the formation of public policy, the conclusions of Calnitsky support the need

for social security reform, and a basic income more specifically.

Basic income, which arguably serves as an eventual replacement for social assistance, circumvents the aforementioned issues in several respects. It avoids the complexity of the current system by functioning through only one level of government rather than two, while also ridding the system of uncoordinated piecemeal benefit programs. Furthermore, it would operate through the income tax system administered by the Canada Revenue Agency (CRA). This system is based on self-reporting, and is therefore much different than social assistance. Additionally, basic income does not require social workers to monitor the behaviour of recipients, and thus preserves the integrity and privacy of low-income Canadians. By not enforcing any restrictions on asset ownership, it also does not disincentivize or distort saving decisions. What it *does* do, however, is soften the existing boundaries between the "deserving and undeserving poor," achieve unfulfilled goals of instituting a 'social minimum' in Canada, and treat all Canadians equally, regardless of family type, disability status or age.[19]

3.3   Inevitable Change and Other Considerations

BIG reform is necessary for a number of additional reasons that reflect larger issues of inevitable change, such as globalization and technological advancements. Together, these forces have increased international competition, changed labour markets (for the better and worse) and facilitated immigration to Canada from all over the world. Such dynamics are unavoidable, and ultimately represent the ability of governments to fulfill desires of productivity growth and human advancement. As these changes have taken place, however, Canadian policymakers have failed to implement complimenting modifications to the country's social security and tax-transfer systems that are capable of tackling undesired effects of progress and development (Boadway,

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[19]See Frankel & Mulvale (2013) to review a number of additional important points in support of basic income. Some of their arguments include: "poverty reduction, labour market flexibility, low wage subsidization, improving of position of women, persons with disabilities and ethno-cultural minorities and welfare state downsizing."

2011). In fact, the current tax-transfer architecture has not experienced major reform since the 1980's. It is thus not designed to cope with the unique set of social problems that Canadians face today. To provide meaningful help in the 21st century, Canada's social security system requires major revamping, and basic income represents one policy the federal government has at its disposal to address these new social challenges.

4   BIG Canada: Harmonizing and Reforming the Tax-Transfer System

The concerns discussed above regarding the state of Canada's current tax-transfer system indicate a need for new, innovative income security solutions that protect the poor in the face of technological advancements and changing labour markets. A guaranteed income, by ensuring every individual is able to meet basic material needs, is one such solution. Defining basic income precisely is difficult given the wide range of designs and goals that advocates envision for the policy (Mulvale & Pasma, 2014). Most media outlets, however, seem to portray basic income in terms of the formal definition used by the Basic Income Earth Network; that is, "an income unconditionally granted to all on an individual basis, without means test or work requirement" (Basic Income Earth Network, 2016). Such a definition implies that all persons, regardless of employment or other earnings, would receive a basic income. In theory, this approach is reasonable and fair, but in practice, administering a guarantee large enough such that no or relatively few individuals remained in poverty, would be too costly. For instance, a universal basic income set at $20,000 per capita would roughly cost $568 billion.[20] Although some of this expenditure could be recaptured if the basic income were taxable, a universal basic income would inevitably result in

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[20] Calculation estimated by author using the SPSD/M.

a very expensive program that is most likely not feasible for Canada.

As such, the present paper argues that if Canadians desire a sustainable poverty reduction program that is more effective and more equitable than the current tax-transfer system, basic income in the form of a uniform refundable tax credit is the best approach. This type of design, consistent with Friedman's (1967) negative income tax proposal, involves defining a guarantee G for which individuals with no income would receive in its entirety, and a corresponding benefit reduction rate that effectively reduces the guarantee according to increases in some definition of income.[21] Indeed, this particular definition is but one of many seemingly small, though highly significant decisions that basic income engineers must make in designing a new social security infrastructure for Canada. There are an infinite number of ways to design a basic income guarantee, and it is not obvious that one particular method or approach is necessarily better than any other.

That said, considerable time and effort has been invested to determine what a practical basic income program may actually look like in Canada. Objectives of enhancing progressivity, ensuring equality, and improving the living standards of the poorest Canadians have informed all of the decisions leading to the final design presented here. A mixed welfare approach has been used to fulfill these goals, and consequently, the program is not fully universal due to means-testing (Young & Mulvale, 2009). This lack of universality, however, is required to ensure that the guarantee offered is large enough to significantly alleviate poverty.

Additionally, given that Canada is a federation with provincial governments currently assuming responsibility for the administration and maintenance of social assistance, any realistic design must acknowledge and accommodate existing federal-provincial welfare arrangements, and decentralization more generally. This dynamic,

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[21]There are many different definitions of income that policymakers can use to clawback the guarantee. For instance, policymakers must decide between using individual or family income (the latter being much more progressive). Other choices include using employment earnings, net income or after-tax income, each of which will generate different outcomes.

in particular, adds a complicating wrinkle to a scheme that otherwise seems straightforward. To overcome this issue, it is important that the federal basic income be well-integrated with existing programs that currently fall under the responsibility of the provinces. Integration is also key for political feasibility, as at some point, even the most well-thought out basic income proposal will require cooperation between the provincial and federal governments. It is also worth mentioning that the inclusion of First Nation members in BIG discussions is another important consideration for BIG advocates in Canada that is not explored in depth here.

Apart from accommodating jurisdictional responsibilities, BIG was designed to meet several other criteria, as well. These considerations include: conditionality requirements, sources of funding, administrative feasibility, the overarching objective of reducing the depth and incidence of poverty in Canada, assurance that low-income households would not be made worse off after the basic income reform – in particular, this is refers to seniors, families with children and disabled persons, – the necessity for BIG to be well-integrated with existing cash-transfer programs, recognizing that poverty is more than a lack of access to financial resources - i.e. employment services, disability supports and supplementary healthcare are still necessary, - and finally, highly targeting disabled persons and the working poor, who traditionally fare less well than other groups in Canada (Boadway, 2011).

The BIG proposal presented below represents a national, comprehensive reform to the current tax-transfer system. It involves removing most of the federal non-refundable tax credits and existing income transfer programs such as OAS, GIS, and the federal refundable credits, GST and WITB. Moreover, it seeks to complement existing provincial social assistance and disability supports by incorporating welfare income directly into the guarantee size. Lastly, to ensure children are not overlooked in the reform, I have designed BIG to work in tandem with the Canada Child Benefit (CCB). As readers will soon see, the featured basic income is delivered to individuals,

rather than families, through the income tax system, meaning that the guarantee is not adjusted according to family size. This is problematic given that families with more children face higher costs of living. This essentially means that giving a basic income to children, in addition to adults, is crucial for ensuring that families of different sizes are not disadvantaged by the policy. Accordingly, the present proposal argues that families with children should be given an additional $6,000 per child; however, this amount is not incorporated into the parents' guarantee amount. In fact, children are not included in the BIG design at all. This is because the recently implemented federal CCB program, which is based upon parents' tax returns, adequately takes care of children.

Introduced by the federal Liberal government in July 2016, the CCB represents a policy replacement for the Universal Child Care Benefit (UCCB) and Canada Child Tax Benefit (CCTB). In essence, the CCB is a highly-targeted, though generous financial support program consisting of a tax-free maximum annual benefit of $6,400 per child under the age of six, and $5,400 per child aged six through seventeen. It is paid in monthly installments and begins to phase out at $30,000 in family net income.[22] The CCB policy is important for several reasons: it acts as a basic income that parents receive on behalf of their children, while also addressing an equity deficiency not captured in the recommended BIG design (i.e. family size). More importantly, however, it serves as a sign of change in social policy, by highlighting the willingness and capability of the federal government to dismantle existing programs that are expensive and inefficient, and replace them with schemes designed to safeguard against poverty by providing well-targeted and generous aid. In what follows, readers will recognize that this is precisely the kind of action required for successful BIG implementation.

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[22]Table 15 in the appendix outlines specific phase-out rates of the CCB by income and family size for interested readers.

4.1 Implementation and Design

Administered using the existing federal income tax infrastructure, the proposed basic income takes the form of a uniform refundable tax credit, which is phased out with family net income and given to all adult tax filers eighteen years of age and older. While each province and territory traditionally determines its own age of majority, eighteen years of age has been set as the threshold of receipt in this study because of BIG's relationship with the CCB, which gives parents benefits until their children reach seventeen years of age.[23] Designing a BIG in the form of a RTC is preferable to other alternatives for many reasons. First, doing so essentially converts the tax system into a proper negative income tax scheme, thereby improving overall progressivity of the income tax. Second, refundable credits are typically well-received in Canada given their history of effectiveness (Boadway, 2011). In fact, Boadway (2011) notes that by establishing refundability and income-conditioning, RTCs have been "one of the most important innovations in tax-transfer policy" (Boadway, 2013). Finally, other scholars have also recognized the importance of refundable credits for improving equity in the tax system, and have subsequently noted that RTCs have yet to be used to their full potential (Simpson & Stevens, 2015). These observations suggest that the featured basic income proposal, which uses a RTC structure, is preferable to other guaranteed income schemes that simply seek to deliver benefits to *all* citizens using a means outside of the tax system.[24]

The BIG program has been designed to accommodate existing federal-provincial welfare arrangements, and must therefore be implemented in two distinct phases. To be clear, although BIG is primarily a federal policy, a two-stage approach is used to ensure that multiple levels of government share in the possibility of instituting

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[23]Sixteen and seventeen year olds without parental care have also been giving the basic income. This is consistent with current provincial social assistance programs that provide welfare income to teens living on their own.

[24]These types of designs also fail to target basic income towards individuals at the bottom of the income distribution.

a basic income. That said, federal implementation of BIG, in this proposal, is not dependent upon achieving political consensus between governments. The first stage requires only the federal government to make changes to tax credits and other income assistance measures that currently fall under its own jurisdiction. Moreover, as readers will see, using two stages ensures that programs currently provided by provincial authorities are well-integrated with this new scheme, which mitigates the potential for disagreements regarding who has responsibility over the social domain. In this sense, given the difficulty of arranging a basic income program that requires consent from both federal and provincial governments, the BIG proposal invites, rather than necessitates, provincial participation for successful implementation.

Table 3 presents specific parameters of the proposed BIG reform for phase one. In this stage, the basic income guarantee is dependent upon whether the individual is a recipient of provincial welfare or disability supports. For all persons who are *not*, the basic income guarantee is $20,000 per adult. For those who are, the guarantee is determined by subtracting the weighted average of provincial social assistance incomes for each family type from $20,000, with weights being the proportion of welfare recipients in each province.[25] The basic income thus simply acts as a top-up on existing welfare income for social assistance recipients, bringing the income of all Canadians up to a social minimum of $20,000. Average provincial welfare and disability benefits are specifically used to calculate the top-up amount to minimize the incentive provinces would otherwise have to abuse the system by lowering welfare income. For all recipients, the guarantee is reduced by a constant benefit reduction rate of 55 percent that is applied to family net income (total income minus deductions) until the guarantee reaches $0. I specifically use family net income to reduce the BIG, to ensure that the proposal is consistent with current federal clawback practices.

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[25]See Table 16 and Table 17 in the appendix for the number of welfare cases and average social assistance income by province and family type in 2014, respectively.

Table 3: Parameters of the Proposed Basic Income Guarantee - Phase I

	Basic Income Guarantee	Reduction Rate	Exit Level
All Adults	$20,000	55%	$36,363.64
Provincial Welfare or Disability Recipients			
Single Employable	$12,479	55%	$22,698.09
Disabled Persons	$8,236	55%	$14,974.55
Single Parent	$9,003	55%	$16,369.09
Two Parent	$13,111	55%	$23,838.18

Note: The basic income guarantee for provincial welfare or disability recipients was calculated by subtracting the weighted average of provincial social assistance incomes for each family type, as displayed in the final row of Table 17, from $20,000.

Note: The exit level refers to the income at which BIG entitlement becomes $0.

Note that the SPSD/M package permits me to use a variant of net income that does not include worker's compensation or social assistance. I use this version rather than that used in line 236 of the personal income tax return to clawback the guarantee. This is to prevent double taxation of welfare income, and ensure that the effective tax rate on social assistance recipients is not higher than that for non-recipients. Keeping effective tax rates low is but another important design consideration for basic income pioneers. Kesselman (2014) has argued against guaranteed income on the basis that it creates high marginal effective rates, which, he suggests, affect the incentive to work, take overtime hours and undertake training or education to improve professional or technical skillsets. As such, I have attempted to mitigate this concern as much as possible. There is a trade-off, however, in terms of defining the guarantee size and clawback rate. In this proposal, the guarantee has been set quite high so as to ensure all Canadians can meet basic needs. Consequently, the clawback rate must also be high to keep BIG affordable and well-targeted.

In the second stage of implementation, provinces would be invited to eliminate their welfare and disability systems, allowing the federal government to, in turn, give

all persons $20,000. It would be at the discretion of each province to reallocate the revenue previously spent on welfare. In theory, however, the unused funds could be redirected towards other provincial specific poverty-reduction programs or in-kind benefits. This, in a sense, would allow provinces to direct relatively more money at programs that address the non-financial aspects of poverty, such as a lack of employable skills, affordable housing, or healthy food.

Finally, a brief discussion regarding administrative details also seems relevant here. By designing a basic income in the form of a RTC, BIG can be dispersed using the existing tax infrastructure administered by the CRA. This lowers potential costs and adds considerable ease to BIG implementation. Lamman & MacIntyre (2015) argue that basic income reform would require "large one-time costs." This is clearly avoided, however, by using the system that is already in place, and simply replacing all the NRTCs with one, single RTC. On a different note, it seems preferable that the basic income be rolled out gradually over a short period of time using probabilistic sampling. Random allocation of BIG would allow economists and policy analysts to use sophisticated, quasi-experimental techniques to assess the short and long term effects of a basic income on labour supply, education, health outcomes, crime, and overall economic productivity and growth (Mulvale & Pasma, 2014). Such a consideration is evidently important for policy evaluation and analysis in later stages. Gradual implementation may also promote political feasibility, as slowly phasing out existing programs and NRTCs would allow groups relatively more affected by the reform time to adjust.

4.2   Cost and Financing

One of the most appealing aspects of BIG is its affordability. The program has been designed to be completely revenue-neutral, despite the generous guarantee of $20,000 given to persons with no income. For feasibility purposes, expenditure on

basic income was one of the most important considerations in designing BIG. It was imperative that the scheme be affordable to counter critics' claims that a meaningful basic income would be too expensive to implement. The cost and sources of funding for BIG are given in Table 4. Using the SPSD/M package, the estimated cost of the proposed federal basic income guarantee in 2015 dollars is $109.96 billion. Compared to the $568 billion it would cost to give all adults $20,000 each, this figure is much more reasonable. This expenditure is, however, much greater than the $51.177 billion estimated by Stevens & Simpson (2016). This substantive difference is a direct result of the much larger guarantee given to tax filers under the BIG design.

Given the earlier discussion regarding inequitable NRTCs, I propose to eliminate the following non-refundable tax credits to partly finance the basic income reform: basic personal amount, age, married, married equivalent, employment, public transit, fitness, pension income, dependent caregiver, disability, all education credits, the family tax cut, family caregiver and infirm dependents. Together, expenditure on these credits amounted to $47.40 billion in 2015, which covers just under half of the BIG expense. The CPP, EI, political and charitable contribution tax credits have all been kept intact, as they incentivize behaviours associated with positive externalities.

Federal income transfers and refundable tax credits constitute the remaining sources of financing for BIG. Income support for the elderly, in particular, is eliminated to address issues discussed earlier regarding different segments of the population getting more or less support based on the governmental jurisdiction they reside in.[26] Besides lowering the guarantee for welfare recipients, which is solely a strategic decision aimed at easing federal-provincial relations and ensuring BIG is well-integrated, this proposal seeks to treat all individuals equally. It also seeks to guarantee that all persons, regardless of their individual characteristics or circumstances, are given

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[26]Pension income splitting has also been eliminated for this reason. However, because of the way it is programmed into SPSD/M, I am not able to precisely estimate what this would amount to in savings.

Table 4: Sources of Financing for the Basic Income Guarantee - Phase I, 2015

Non-Refundable Tax Credit	Expenditure ($ Billions)
Basic	$34.03
Age	$2.87
Married	$2.66
Married Equivalent	$0.00
Canada Employment Credit	$2.62
Public Transit	$0.18
Fitness	$0.13
Pension Income	$1.36
Dependent Caregiver	$0.06
Disability	$0.43
Interest on Student Loans	$0.43
Tuition	$0.33
Education Allowance	$0.21
Textbook	$0.03
Family Tax Cut	$2.00
Family Caregiver	$0.05
Infirm Dependents	$0.01
Total Non-Refundable Tax Credits	**$47.40**
Income Transfer	**Expenditure ($ Billions)**
Old Age Security	$40.77
Guaranteed Income Supplement & Spouse's Allowance	$12.24
Working Income Tax Benefit	$1.53
WITB Supplement	$0.02
Goods and Services Tax Credit	$4.60
Medical Expense Supplement	$0.18
Total Income Transfers	**$59.34**
Total Revenue ($ Billions)	**$106.74**
Total Expenditure on BIG ($ Billions)	**$109.96**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

the same basic living standards. As such, removing expensive income transfers currently directed at one specific group would allow the federal government to provide a relatively more generous guarantee to *all*.

Eliminating the OAS, GIS, spousal allowance, the WITB, the WITBS, the GST credit and medical expense supplement, provides an additional \$59.34 billion in financing. Between the NRTCs and this group of income transfers, then, there is almost enough revenue to cover the expense of the featured basic income.[27] It should also be emphasized that the proposed method of financing is simply a rearrangement of funds that, currently, are not being used efficiently. In fact, this simple costing exercise demonstrates that a substantial amount of government spending could be used more effectively by providing greater aid to the poor, instead of reducing the taxes of middle or upper class citizens.

In phase two, should all provinces choose to dismantle their welfare and disability support systems, the total federal expenditure on BIG would increase an estimated \$11.52 billion (\$109.96 billion to \$121.48 billion). In 2015/16, the federal government transferred \$12.96 billion to provinces through the Canada Social Transfer (CST) (Department of Finance Canada, 2015). Considering that these payments would cease once the federal government takes full control of Canada's social assistance programs, the BIG reform is just short of being revenue-neutral. In the long run, assuming phase 2 has been successfully negotiated, total revenue that can be used for financing BIG is \$119.70 billion, which includes the savings from NRTCs, income transfers and the CST. This is only \$1.78 billion short of covering the full BIG expense, which, given Canada's GDP of approximately \$1000B in 2015, is perfectly acceptable.

Such affordability is a huge feat for basic income advocates. Using this design, a federal basic income in Canada would be completely revenue-neutral. It would not

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[27]Also note that the total expenditure of \$110.55 billion on BIG corresponds to the total change or loss in disposable income resulting from the elimination of the aforementioned NRTCs and income supports.

require governments to increase tax rates or lower spending on other services and transfer payments. It would also not involve hundreds of billions of dollars of debt. It simply encourages the government to re-evaluate how revenue is currently being spent and, more importantly, stop wasteful spending.

5 The Impact of BIG Reform

This section will examine the impact of the basic income reform on family disposable income, the depth and incidence of poverty, income inequality and labour supply. To begin, however, it is important to analyze how BIG is distributed amongst various income groups in Canada. Ultimately, this is to ensure that the proposed design is successful at directing the refundable tax credit to low-income persons. Table 5 displays the distribution and average value of BIG by income quintile for individuals and nuclear families.[28] Overall, it is clear that average basic income is highest for individuals in the first quintile. The third column indicates that individuals in the bottom of the income distribution get an average basic income guarantee of $15,483, which is significantly higher than the average of $408 for those in the middle. The final column, which presents the average value of BIG for nuclear families, confirms the redistributional success of a basic income.

To illustrate this point further, Table 6 displays the same data, but instead uses family disposable income as the categorical variable. This presentation is perhaps more salient for readers, as it demonstrates the favourable distribution of BIG in defined income intervals. Observe that persons and families with net income greater than $40,000 do not receive any BIG monies. The first column indicates that a

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[28] For this table I have used nuclear family income to define the quintiles, as this, rather than individual income, is used to reduce the basic income guarantee. For this reason, some of the quintiles in the individual units column correspond to more or less than 20 percent of the population. Take, for example, the number of individuals in the top quintile: rather than suggesting that there are 7,689 individuals in the highest quintile, this cell indicates that there are 7,689 individuals whose total family income falls in the top income category. Please note that the same definition of income is used in all subsequent analyses involving quintiles as well.

Table 5: Distribution and Average Value of the Basic Income Guarantee by Income Quintile - 2015

	Expenditure ($Billions)	Individuals		Nuclear Families	
		Units (000s)	Average BIG	Units (000s)	Average BIG
Bottom Quintile	$69.6	4,498	$15,483	4,114	$16,930
Second Quintile	$38.0	4,882	$7,786	4,118	$9,232
Middle Quintile	$2.3	5,646	$408	4,114	$559
Fourth Quintile	$0.0	6,659	$0	4,114	$0
Top Quintile	$0.0	7,689	$0	4,121	$0
Total	**$109.96**	**29,374**	**$3,744**	**20,581**	**$5,343**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

significant portion of the expenditure on BIG is directed towards individuals who have a family net income between $0 and $5,000, meaning that it is mainly reaching those who are truly in need of income assistance. The average guarantee for all Canadians is $3,744, which interestingly, is similar to the average of total NRTCs that individuals in the top income quintile were receiving prior to their removal in Table 2. While these findings mostly confirm the conclusions drawn about Table 5, the results presented here reiterate that the uniform refundable tax credit is successful in providing substantial income assistance to Canada's poorest citizens.

5.1 Family Disposable Income and Taxes Owed

Besides improving the financial position of the poor, the complete revamping of the tax-transfer system discussed in this paper will inevitably have other effects. For instance, the removal of NRTCs will increase individuals' federal taxes owed, while the elimination of OAS and GIS will considerably reduce the after-tax income for elderly persons. Thus, while the previous tables successfully demonstrate that BIG is capable of distributing large benefits to low income Canadians, they do not show whether after-tax income improves or deteriorates. Accordingly, I use the SPSD/M

Table 6: Distribution and Average Value of the Basic Income Guarantee by Family Net Income - 2015

	Expenditure	Individuals		Nuclear Families	
	($Billions)	Units (000s)	Average BIG	Units (000s)	Average BIG
$0 - $5,000	$40.4	2,412	$16,734	2,236	$18,053
$5,001 - $10,000	$19.1	1,299	$14,730	1,174	$16,299
$10,001 - $20,000	$32.9	2,977	$11,041	2,658	$12,369
$20,001 - $30,000	$15.0	2,585	$5,792	2,076	$7,206
$30,001 - $40,000	$2.6	2,487	$1,056	1,884	$1,394
$40,001+	$0.0	17,614	$0	10,553	$0
Total	**$109.96**	**29,374**	**$3,744**	**20,581**	**$5,343**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

Note: Family net income refers to total after-tax income of nuclear families prior to the introduction of basic income.

Note: Similar to table Table 5, some of the quintiles in the individual units column do not correspond to 20 percent of the population. Again, this is because nuclear family income is used to define the quintiles.

to estimate the impact of BIG on disposable income and taxes paid.

The estimated average impact on family disposable income for each income quintile is presented in Table 7. Families in the bottom quintile realize an average increase of 113.30 percent in family disposable income after BIG implementation, which is a substantial improvement in income for roughly 20% of the Canadian population. On average, after-tax income for this group increases by $13,357. This increase not only captures BIG monies, but also the lost transfer income that initially came from the WITB, OAS, GIS, and GST tax credit, suggesting that BIG is sufficient enough to adequately replace these transfer programs. In addition, while the second lowest income group receives a comparatively modest increase in disposable income of only 10.29%, the remaining families have very slight negative changes, most likely reflecting the loss in tax savings from NRTC removal. The middle class is affected the most by the reform, which is some cause for concern, since improving the financial position

of this income group has recently been a large part of political campaign promises. Overall, the final row indicates that the total change in disposable income across the entire population is essentially zero on average.

Table 7: Average Impact on Family Disposable Income by Income Quintile - 2015

	Percent of Nuclear Families	Average Family Disposable Income		Average Change in Disposable Income	
		Before BIG	After BIG	($)	(%)
Bottom Quintile	19.9%	$11,789	$25,146	$13,357	113.30%
Second Quintile	20.0%	$24,782	$27,331	$2,549	10.29%
Middle Quintile	19.9%	$40,702	$35,246	-$5,456	-13.40%
Fourth Quintile	19.9%	$63,232	$57,811	-$5,421	-8.57%
Top Quintile	20.0%	$134,289	$129,162	-$5,127	-3.82%
Total	**100%**	**$54,982**	**$54,961**	**-$21**	**-0.04%**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

To compliment the foregoing analysis on disposable income I have also included Figure 3, which depicts the estimated impact of BIG on disposable income for nuclear families in Canada's bottom income quintile.[29] Note that data for disabled persons has also been included, since directing substantial aid to this group is a key feature that separates BIG from the existing system; as the figure shows, disabled persons in the bottom quintile gain more than $10,000 in after-tax income upon BIG receipt. On average, each of the other different family groups also appear to benefit quite a bit from the basic income. Nuclear families comprised of two adults have the most noticeable changes in disposable income; this seems obvious given that two individuals rather than one are receiving the basic income in these households. That said, the observed change for elderly singles is not positive: this group loses $950 on average, which represents a 4.80 percent decrease in average family disposable income. In

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[29]Table 18 in the appendix presents the precise data for the net impact on average taxes paid and average family disposable income by family type for those in the bottom quintile.

comparison, non-elderly singles realize a 187.74 percent increase in family disposable income. This substantial difference is most likely attributable to the loss of OAS and GIS income, which can be quite large for the poorest elderly.
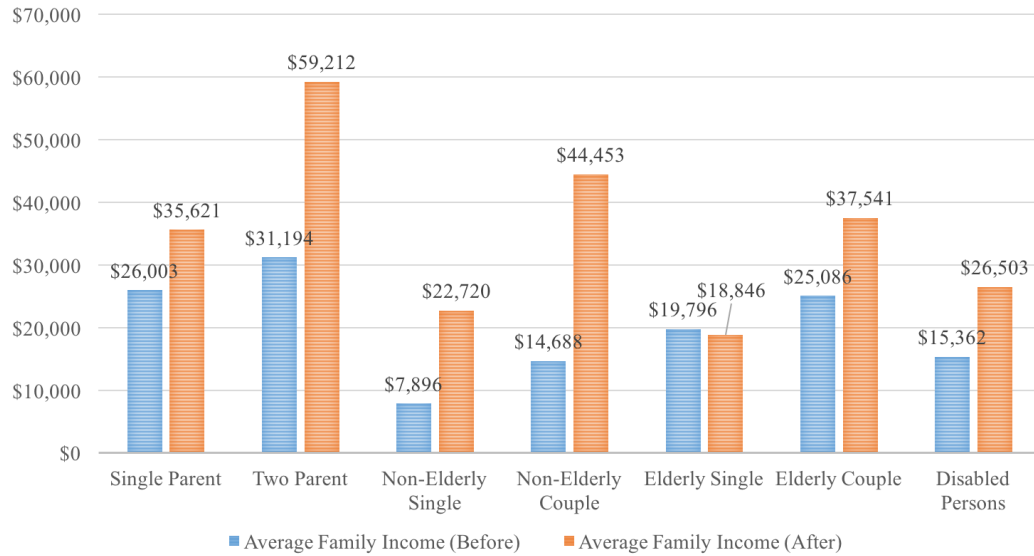
Figure 3: Impact on Family Disposable Income for Nuclear Families in the First Quintile - 2015
Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

Table 8 displays the percentage of families gaining income by income quintile and type of nuclear family. The data displayed here essentially reiterates that Canada's poorest families benefit considerably more from the BIG reform than those in higher income categories. One issue worth noting, however, is the relatively worse off position of elderly singles compared to all other groups in the first column. Almost all non-elderly singles have a higher disposable income after BIG, compared to only 26.5 percent of households comprising one elderly individual. Again, this result is a direct consequence of the traditionally generous federal support that elderly individuals have received relative to other groups. The national basic income, by treating all individuals the same, eliminates this differential treatment. Thus, while it appears that low-income elderly are not gaining as much as other groups, in reality they are

subject to the exact same tax-back rate and basic income guarantee as all other adults. If it were not for their privileged status in the existing transfer system, this would be better reflected in the figure. Table 8 also reveals that, besides non-elderly singles and couples, essentially no families in the top three income quintiles are gaining income after BIG is introduced. Disposable income is, however, higher for a large majority of families in the bottom two income categories.

Table 8: Percentage of Families Gaining Income by Income Quintile and Family Type - 2015

Type of Nuclear Family	Bottom Quintile	Second Quintile	Middle Quintile	Fourth Quintile	Top Quintile	Total
Single Parent	96.5%	66.9%	0.2%	0.0%	0.0%	40.8%
Two Parent	98.9%	85.2%	4.7%	0.0%	0.2%	11.3%
Non-Elderly Single	99.6%	95.5%	5.9%	0.0%	0.0%	60.3%
Non-Elderly Couple	100.0%	90.0%	9.4%	0.5%	1.3%	11.2%
Elderly Single	26.5%	11.5%	0.0%	0.0%	0.0%	10.1%
Elderly Couple	80.3%	11.0%	0.0%	0.6%	2.7%	6.8%
Disabled Persons	81.3%	41.0%	3.5%	0.2%	1.4%	31.6%
Total	**89.3%**	**63.4%**	**4.1%**	**0.2%**	**0.9%**	**31.6%**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

In terms of the increase in taxes paid due to the removal of NRTCs, there is, overall, a positive net impact.[30] As the bottom row in Table 9 indicates, the total average guarantee received covers just over half of the total average increase in taxes. For families in the two poorest income groups, the basic income received is large enough to significantly offset the increase in taxes paid. Given that these groups are not benefiting from NRTCs in the existing system, this result is not surprising. The negative net impact for the remaining groups may be a cause for concern, as middle

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[30]Net impact refers to the difference between the average BIG received and the average increase in taxes paid. A positive net impact thus means that the basic income received is greater than the increase in taxes owed.

and high income individuals tend to hold a lot of clout in Canadian politics - especially in regard to tax policy. A good marketing strategy that highlights the benefits a basic income reform will generate in society as a whole (i.e. significant poverty reduction) may thus be necessary to harness political support from these groups.

Table 9: Average Net Impact on Taxes Paid for Nuclear Families by Income Quintile - 2015

	Average BIG	Average Increase in Taxes Paid	Average Net Impact (BIG - Tax Increase)
Bottom Quintile	$16,930	$549	$16,381
Second Quintile	$9,232	$2,107	$7,125
Middle Quintile	$559	$2,907	-$2,348
Fourth Quintile	$0	$3,563	-$3,563
Top Quintile	$0	$4,291	-$4,291
Total	**$5,343**	**$2,684**	**$2,659**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

The average net impact on taxes paid for families in the first quintile is depicted in Figure 4. Observing the figure, it is evident that the basic income outweighs any increases in taxes paid for each family type. There is only a slight increase in taxes paid for these groups after the reform is estimated – this increase reflects the partial benefits that low-income tax filers receive from NRTCs. Nonetheless, these individuals are undoubtedly in a better position after the introduction of BIG. As Table 18 in the appendix displays, the overall net impact of BIG is $16,930 on average for Canadians in the bottom quintile. Note that elderly singles have a similar average basic income guarantee to those who are non-elderly. This confirms that, even though the disposable income of elderly singles decreases slightly after BIG reform, it is not because they are receiving considerably lower, or different guarantees than other family types comprised of one adult. The fall in after-tax income is simply a result of losing OAS and GIS income payments. There also seems to be some indication

that disabled persons are much better off under this scheme, as they receive around a 66 percent increase in disposable income post-BIG. This result is important, as it demonstrates how BIG is able to successfully target a group that has fared less well than others in the existing tax-transfer system.
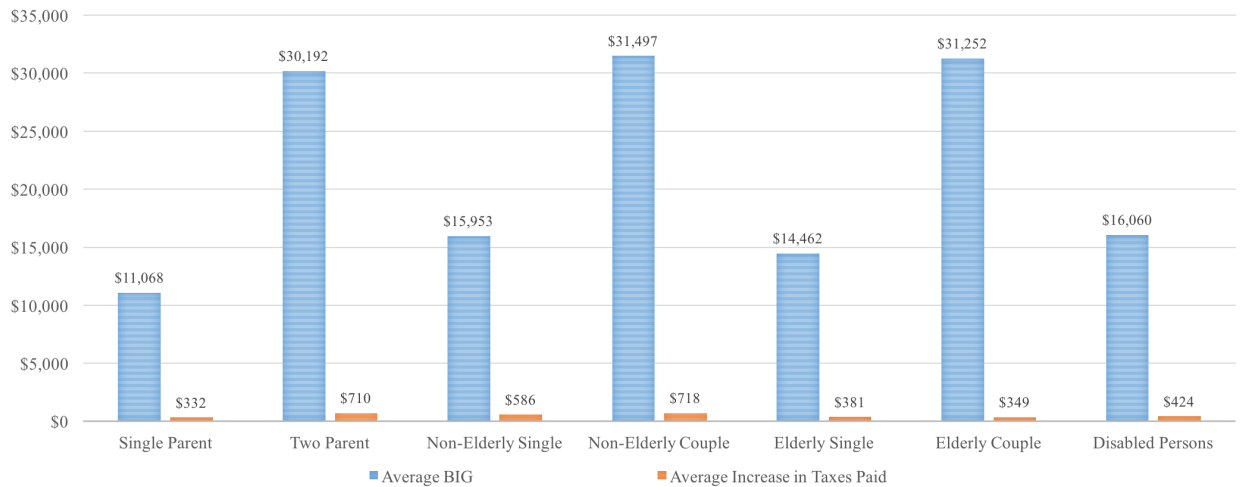
Figure 4: Average Net Impact on Taxes Paid for Nuclear Families in the First Quintile - 2015
Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

In summary, the results of this section suggest that low-income persons would be relatively better off under the comprehensive BIG reform in terms of their after-tax position. In fact, 89.3 percent of families in the bottom income quintile gain an average of $13,000, which certainly eases financial pressures and makes meeting basic needs considerably easier. This conclusion holds across all family types in the bottom income quintile, except elderly singles, though their disposable income after BIG estimation is not significantly lower. The removal of federal non-refundable tax credits has essentially no impact on taxes owed for the bottom 20 percent, as well. That said, because BIG is fully phased out at $40,000 of family income, middle and high income households will be required to pay quite a bit more taxes than they do under the current system. This, however, is simply a consequence of having an

enhanced and well-functioning redistribution system.

5.2 The Incidence and Depth of Poverty

In this section of the analysis, Statistics Canada's low-income cutoffs (LICO) are used to measure the incidence and depth of poverty, since Canada has no official poverty line. The LICOs are, however, highly regarded by many non-governmental organizations as an unofficial poverty line, and are thus the most commonly used poverty thresholds in Canada (Hum & Simpson, 2005; Tweddle et al., 2014). As Table 10 shows, the cut-offs vary quite a bit depending on family size and population density in the area of residency. For instance, the after-tax LICO for a lone individual residing in a rural area is $13,925; the comparable amount for a lone individual living in a city with a population greater than 500,000 is $21,288. Alternatively, the same figures for a family of four are $26,329 and $40,248, respectively. The LICOs are thus a suitable measure for the analysis on poverty, as they capture the real costs of living that inevitably vary by family size and location.

Table 10: After-Tax Low-Income Cut-Offs by Family Size and Degree of Urbanization - 2015

Number of Persons	Population Density in Area of Residence				
	Rural	<30,000	30,000 - 99,999	100,000 - 499,999	>500,000
1	$13,925	$15,937	$17,778	$18,003	$21,288
2	$16,948	$19,397	$21,639	$21,910	$25,908
3	$21,104	$24,152	$26,944	$27,284	$32,261
4	$26,329	$30,132	$33,615	$34,038	$40,248
5	$29,981	$34,312	$38,278	$38,760	$45,831
6	$33,249	$38,053	$42,452	$42,985	$50,828
>7	$36,518	$41,794	$46,623	$47,211	$55,824

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M).
Version 22.1.

Table 11 displays the incidence and depth of poverty before and after the implementation of basic income for each type of nuclear family in 2015. To clarify, the poverty rate refers to the ratio of people whose income falls below a LICO. In contrast, depth of poverty, also known as the poverty gap, measures how far, on average, low-income families are from a LICO. In other words, it captures how poor the poor really are. As the last row indicates, the overall poverty rate is reduced by approximately 55 percent, and the impact on depth of poverty is of a similar amount. This is an astounding impact given that the BIG reform is financed solely by revenue currently spent on the present tax and transfer infrastructure, which is ultimately just a patchwork of unintegrated programs. These programs, which are also designed to reduce poverty, are thus evidently much less effective in doing so.[31] This suggests that a major federal spending reform, such as BIG, would have a larger impact on poverty in Canada than the current system.

To remind readers, earlier in the paper I discussed two papers by Simpson and Stevens that attempt to design and estimate a basic income for Canada. In the first, Simpson & Stevens (2015) simply convert all federal NRTCs to RTCs. The second proposal, on the other hand, is more similar to the basic income discussed in the present paper, but differs significantly from BIG in terms of specific design features (Stevens & Simpson, 2016).[32] The authors estimate the impact of both of these schemes on poverty reduction, achieving a decrease of only 5.8 percent in their conversion scheme (Simpson & Stevens, 2015), and 46 percent in the alternative guaranteed income proposal (Stevens & Simpson, 2016). These are both much smaller impacts compared to the BIG reform, which reduces poverty by about 10 percent more than the authors' second paper. This substantial difference suggests that if the overall goal of reform or basic income is poverty reduction, the BIG design is most effective.

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[31]While non-refundable tax credits are not specifically intended to reduce poverty, they are a part of the larger tax system that exists to redistribute income and improve equality. Both of these functions play an important role in poverty reduction Sefton & Stewart (2009).

[32]See the literature view section for the specific differences which were discussed in depth there.

Table 11: BIG Impact on the Rate and Depth of Poverty for Nuclear Families Below Canada's After-Tax LICO - 2015

Nuclear Family	Rate of Poverty			Depth of Poverty		
	Pre-BIG	Post-BIG	Impact (%)	Pre-BIG	Post-BIG	Impact (%)
Single Parent	15.9%	0.2%	-98.74%	27.1%	24.0%	-11.44%
Two Parent	4.9%	0.6%	-87.76%	22.8%	23.9%	4.82%
Elderly Single	10.3%	18.3%	77.67%	9.7%	13.7%	41.24%
Elderly Couple	2.3%	9.1%	295.65%	36.9%	14.2%	-61.52%
Non-Elderly Single	26.0%	4.5%	-82.69%	43.3%	18.6%	-57.04%
Non-Elderly Couple	4.3%	0.4%	-90.70%	33.8%	50.4%	49.11%
Disabled Persons	16.4%	9.7%	-40.85%	32.0%	16.1%	-49.69%
Total	**11.9%**	**5.3%**	**-55.46%**	**34.4%**	**15.9%**	**-53.78%**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

In regard to the various family types that are included in Table 11, poverty reduction seems to be well-distributed. The low-income status of single parents is impacted most by BIG, as only 0.2 percent of the group remains in poverty after implementation. Non-elderly couples and two parent families also benefit quite a bit from the basic income in terms of its effect on their rate of poverty. Observe, however, that for the 0.4 percent of non-elderly couples who continue to fall below a LICO, depth of poverty has increased by 49.11 percent. This does not necessarily mean that these families are worse off or that they are not receiving the basic income. Instead, this increase most likely indicates that non-elderly couples with little or no income other than BIG make up the 0.4 percent of this family type who remain in poverty. The impact of basic income on disabled persons is also noteworthy, as poverty incidence is reduced 40 percent. This is not near as large as the estimates for some of the other family types, but it does successfully indicate that BIG is a better alternative for this group than the unjustifiably low disability benefits they now receive.

Notice, however, that although these results demonstrate that a basic income is relatively more effective at reducing poverty than the current system, the impact on elderly families is a little alarming: poverty increases 77.67 percent for elderly singles and 295.65 percent for elderly couples. It is possible that this outcome is again just reflecting the loss of fairly substantial OAS and GIS benefits. However, by significantly increasing poverty among the elderly, the current recommended reform proposal may be suppressing the full poverty reducing potential of BIG. This indicates that a different approach may be needed to ensure that in attempting to aid more groups, the BIG reform does not disadvantage those who justifiably have no employment income. One solution to this issue is estimating an alternative scenario that involves giving a guarantee of $26,000 rather than $20,000 to the elderly only, which is subsequently clawed back using the same benefit reduction rate of 55 percent as in the original BIG design. The guarantee of $26,000 is explicitly used to maintain affordability and ensure that poverty reduction for the elderly is comparable to other groups. It is also the minimum value required to ensure that elderly persons are better off under this scheme than in the previous OAS/GIS system.

Table 12: BIG Impact on the Rate and Depth of Family Poverty (After-tax LICO) by Family Type Under Alternative Scenario - 2015

Nuclear Family	Rate of Poverty			Depth of Poverty		
	Pre-BIG	Post-BIG	Impact (%)	Pre-BIG	Post-BIG	Impact (%)
Single Parent	15.9%	0.2%	-98.74%	27.1%	24.0%	-11.44%
Two Parent	4.9%	0.6%	-87.76%	22.8%	23.9%	4.82%
Elderly Single	10.3%	4.6%	-55.34%	9.7%	34.6%	256.70%
Elderly Couple	2.3%	0.8%	-65.22%	36.9%	34.0%	-7.86%
Non-Elderly Single	26.0%	4.5%	-82.69%	43.3%	18.6%	-57.04%
Non-Elderly Couple	4.3%	0.4%	-90.70%	33.8%	50.4%	49.11%
Disabled Persons	16.4%	4.4%	-73.17%	32.0%	25.4%	-20.63%
Total	**11.9%**	**2.3%**	**-80.67%**	**34.4%**	**25.2%**	**-26.74%**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

The results of this alternative scenario are presented in Table 12. Observe that elderly families are significantly better off once their loss in transfer income is taken into account. The depth of poverty may still be troubling, but the poverty rate has decreased by over 55 percent for elderly singles and roughly 65 percent for couples. Readers are also asked to note how much more total poverty has been reduced after making this slight change. As the final row indicates, overall poverty is reduced by 80 percent. As such, under this scheme, only 2.3 percent of the population would continue to fall below the LICOs, compared to 11.9 percent before BIG reform. Of course, modifying the guarantee for elderly persons would raise the total cost the program to an estimated $127.99 billion, which is over budget, though not significantly or unreasonably so.[33] Politically, this scheme may not be practical since the whole premise of basic income is to treat all individuals equally. Thus, while this second estimation exercise demonstrates the full potential of BIG, providing relatively more aid to one group of the population may not be fully supported in the political realm.

In terms of poverty reduction across Canada, there a few noticeable differences between the provinces. As Figure 5 illustrates, under the original scenario, the largest fall in poverty incidence occurs mostly in the Maritimes; more specifically, it falls by 78.46 percent in Prince Edward Island (PEI) and 71.11 percent in Newfoundland. In contrast, BIG has a much lower impact in Alberta, Québec and New Brunswick, reducing poverty by only 42.44 percent, 41.46 percent and 27.94 percent respectively in each province. This suggests that there is a large discrepancy regarding how BIG reduces poverty across Canada. One possible explanation for this outcome is differences in provincial costs of living, since the LICOs are a function of population in the area of residency. As such, provinces with relatively more cities (or rural areas), may, on average, face higher (or lower) LICO thresholds.

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[33]Reminder: total revenue that can be used to finance BIG, including the CST in the long run, is $119.70 billion. This modified scheme is thus only about $8 billion over budget. Calculations by author using the SPSD/M.
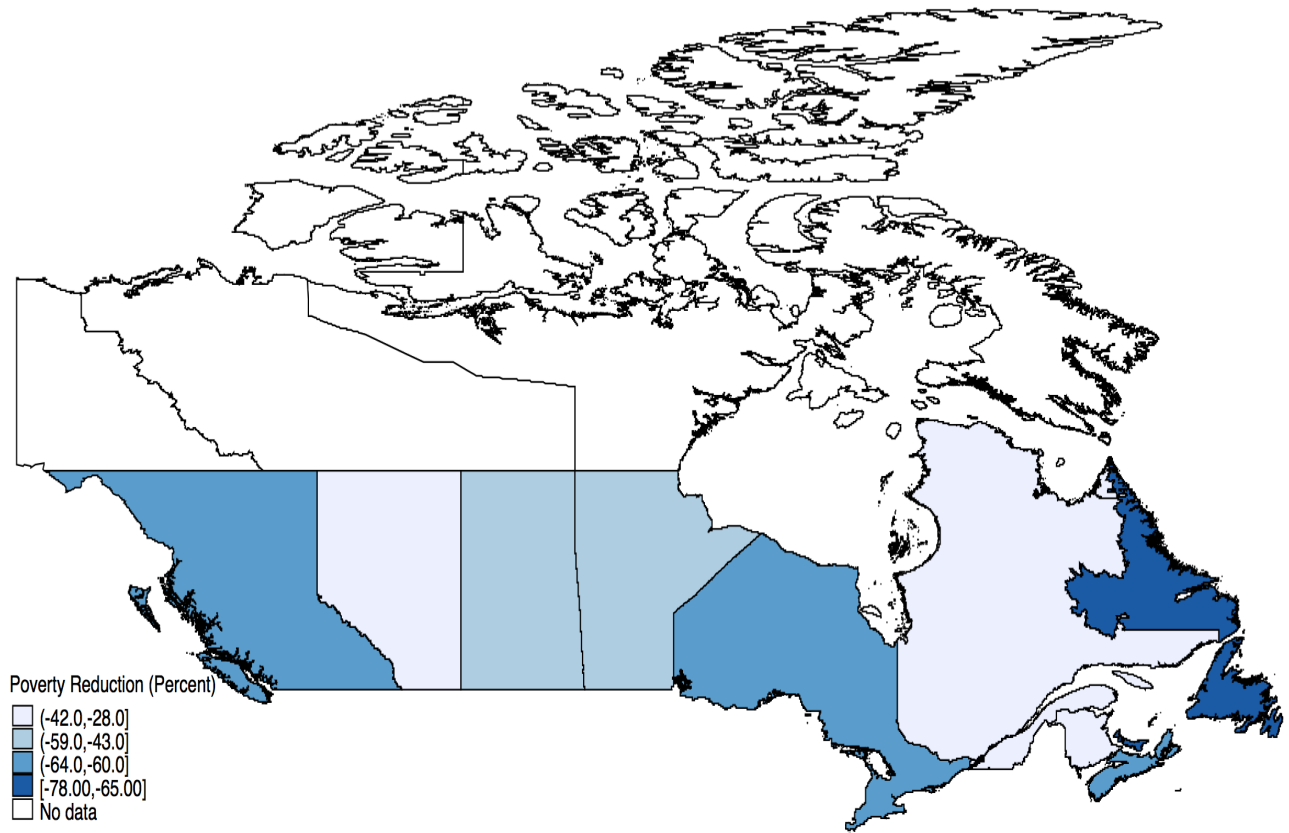
Figure 5: Percentage Change in the Poverty Rate for Provinces Measured by the After-tax LICO - 2015
Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.
Note: Table 19 in the appendix presents the precise estimates for the depth and incidence of poverty before and after BIG implementation by province.

To verify this, I have included Table 20 in the appendix, which displays average total household expenditure by province in 2014.[34] Some of the poverty results are consistent with the provincial costs of living shown here. For instance, Alberta is the most expensive province to reside in, and is also one of the provinces comparatively less impacted by BIG. PEI is another province that supports this theory. That said, there are also a number of contradicting results. New Brunswick, which has the smallest change in poverty, is the second least expensive province to reside in. In

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[34]Total household expenditure, which includes food, shelter, income taxes and CPP and EI contributes (and more), serves as a proxy for cost of living, since Canada has no official estimates available.

addition, Ontario and British Columbia (BC), which have the second and third highest average household expenditures, are two of the provinces that have relatively high reductions in poverty. This, evidently, is a somewhat puzzling and counterintuitive outcome.

There are a few other possible explanations for this provincial variation. For example, the depth of poverty pre-BIG may be higher in the provinces experiencing relatively smaller reductions in poverty. This, however, does not appear to be the case. As Table 19 demonstrates, some of the provinces that had a high poverty gap before the introduction of BIG, also had fairly substantial reductions in poverty (see Nova Scotia, Saskatchewan and Ontario). Alternatively, recall that the guarantee amount for social assistance recipients is reduced by the average of all provincial welfare rates. This creates an anomaly: welfare recipients in provinces with social assistance income above the average will end up with more than $20,000. Observing Table 17, it appears that this unique feature of BIG may indeed be responsible for the very different changes in poverty incidence across Canada. The three provinces with the highest poverty cuts (Newfoundland, PEI and Ontario) also have welfare incomes noticeably larger than the average. In contrast, New Brunswick and Québec, which fared the least well in terms of poverty reduction, have welfare incomes much smaller than the average. Therefore, if achieving consistent poverty reduction across the provinces is a desired goal of basic income policy, this is an issue that may require more attention in subsequent BIG analyses.

In general, this section has demonstrated that the BIG proposal is very effective at reducing the incidence and depth of poverty in Canada. While elderly families may require a little more income support than other groups, an overall poverty reduction of 55 percent in the original scenario is a tremendous achievement for BIG. More importantly, though, this result suggests that current federal revenue could be spent much more wisely and effectively. In fact, BIG reveals that Canadians benefit much

more from a single, harmonized program, than a handful of disjointed ones.

5.3   Labour Supply

One of the main critiques of basic income policy is the potential impact that large, unconditional income payments could have on recipient labour supply (Kesselman, 2014; Lamman & MacIntyre, 2015). This argument, consistent with predictions of economic theory, is indeed a rational concern, and is accordingly explored in depth here. In simple labour supply theory, income support payments, such as BIG, are thought to alter labour market behaviour by affecting recipients' time available for nonmarket activities (i.e. leisure), and their marginal after-tax wage rate (if and only if benefits are reduced by some tax-back rate). In economic terminology, these two dynamics are correspondingly referred to as income and substitution effects.

The income effect captures how labour supply responds to changes in income, holding the wage rate constant. In theory, by redistributing income from high to low-income persons, the BIG reform would thus impact the labour supply of tax filers in every quintile. More specifically, after-tax income will increase for those in the bottom of the distribution who are receiving the basic income, and decrease for those who now owe more taxes as a result of removing the NRTCs to finance BIG. For the former individuals, as long as the guarantee is greater than the increase in taxes paid, disposable income will be higher post-BIG reform. Assuming leisure is a normal good, this additional income will consequently encourage recipients to consume more leisure and reduce labour supply. BIG is thus theorized to generate a negative income effect for low-income persons. In contrast, the loss in after-tax income for relatively wealthier individuals will generate a positive income effect, and thus higher labour supply for this group. Overall, then, the income effect suggests that BIG will reduce work incentives for low-income persons and increase them for their high-income counterparts.

Alternatively, the substitution effect indicates how changes in the marginal after-tax wage rate affect labour supply, holding real income constant. According to labour theory, the tax-back rate used to reduce the basic income guarantee is thus also expected to impact labour supply, as it ultimately changes the effective tax rate of individual tax filers (Stevens & Simpson, 2016). To this effect, BIG reduces labour supply, since a higher marginal tax rate on income disincentivizes work by making leisure less expensive. The substitution effect for BIG recipients should thus be negative.[35] Overall, combining the income and substitution effects of a BIG reform would result in a reduction of the after-tax wage rate of BIG recipients and an increase in their income. Theory thus suggests that labour supply for these individuals should fall. For high income persons, on the other hand, disposable income will decrease, but their after-tax wage rate could rise as a consequence of NRTC removal. To this effect, their labour supply is expected to increase.

In light of the discussion on substitution effects, it is important to emphasize the impact that BIG has on effective marginal tax rates and, by extension, labour supply. To be clear, effective marginal tax rates capture the combined effect of all tax-back rates on income. By targeting the basic income towards low-income persons using a clawback of 55 percent, effective marginal tax rates will thus inevitably increase. For instance, in 2016 the first $45,282 of taxable income was subject to a tax rate of 15 percent. After BIG introduction, the marginal tax rate on income for individuals in this tax bracket would implicitly increase to 70 percent. This is quite steep and has the potential to significantly distort labour decisions. Note, however, that because the exit level of BIG is $40,000, it is only individuals in this bracket that will face a higher effective marginal tax rate.

Since most of the non-refundable and refundable tax credits are also clawed

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[35]Note that the substitution effect depends on the joint consequence of the 55 percent guarantee clawback rate and the elimination of non-refundable tax credits (some of which are conditioned on income).

back, their removal will also change the implicit marginal tax rate. In this sense, I am eliminating additional taxes on income that existed prior to BIG. Due to the number and structural variety of NRTCs, an illustrative calculation capturing the extent to which EMTRs would change after their removal is far too difficult. As such, I will simply note that for persons at the top of the income distribution, the EMTR will decline slightly. According to theory then, these individuals will increase their labour supply. Because I am unable to capture this change in the analysis below, the estimates reported are ultimately overestimating negative labour supply responses.

Recall that the SPSD/M package is static, and hence not able to estimate behavioural impacts of policy or tax changes. As such, I use the same methodology as Stevens & Simpson (2016) to estimate the labour supply effects of BIG. The direction and size of the income and substitution effects discussed above ultimately depend on each recipients' financial position before BIG, and their substitution and income elasticities. To obtain these elasticities, Stevens & Simpson (2016) draw upon recent work by McClelland & Mok (2012), which suggests that income elasticities for both men and women most likely fall between 0.0 and 0.1, while substitution elasticities likely range between 0.1 to 0.3 for men and single women, and 0.2 to 0.4 for married women. To measure labour supply responses, the authors then take "the midpoint of these ranges and assign an income elasticity of 0.5, and substitution elasticities of 0.2 for men and single women and 0.3 for married women" (Stevens & Simpson, 2016). The income effect is then calculated by multiplying the income elasticity by 1) the share of employment income in total income, and 2) the change in disposable income due to the basic income. In contrast, the substitution effect is derived by multiplying the substitution elasticity by 1) the change in the combined personal income and BIG tax rates, and 2) baseline employment income.[36]

Finally, and perhaps more importantly, it is imperative to recognize the potential

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[36]Please refer to the appendix in Stevens & Simpson (2016) for more details regarding the methodology used for estimating the labour supply response of BIG.

impact that BIG may have on the labour supply of recipients at the extensive margin. To this effect, the basic income could significantly alter incentives to participate in the labour market, as beneficiaries could base employment decisions on how much basic income is lost by accepting work. Though I am not able to measure them using the SPSD/M, participation tax rates (PTR) are one method that can be used to evaluate the extent to which this may or may not occur. More specifically, the PTR considers the net additional tax payment incurred when an individual's labour status moves from unemployed to employed. In making this calculation, the researcher must make an assumption about what income would be earned if a job were accepted. For this reason, I am not able to estimate PTRs in this paper. In general, however, encouraging participation in the labour market is a serious consideration that does require attention from BIG innovators.

5.3.1 Substitution and Income Effects

In this section, I attempt to measure labour supply effects through income changes resulting from the income and substitution effects. Table 13 displays the results of this estimation for each quintile. In the second column, the directional change of income due to the substitution effect is consistent with the theory described above, and dominates the income effect for individuals in the first three quintiles. Essentially, data in this column are capturing changes in income due to the higher marginal tax rate BIG recipients face. Accordingly, the substitution effect for individuals in the top two income quintiles, whose income is not impacted by the clawback rate of 55 percent, is relatively small. Note that the increased tax rate on earnings reduces employment income by 11.4 and 11.0 percent for individuals in the bottom two quintiles, respectively. As income increases, however, this effect essentially disappears. In terms of the overall substitution effect, then, labour supply changes seem to be concentrated amongst the poorest Canadians.

Compared to the substitution effect, the income effect is much less negative for those in the bottom two quintiles, and actually changes sign for those in the middle. The positive effect for persons in the middle to high income categories reflects the decline in after-tax income from removing the federal NRTCs. Note, however, that the positive income effect is not significantly large for these groups, as employment income increases by less than 0.5 percent. Overall, it appears that the tax-back rate used to reduce BIG (i.e. the substitution effect) impacts labour supply more than the actual income entitlement.

Table 13: Substitution and Income Effects of Individual Tax-Filers by Income Quintile - 2015

	Average Earnings Per Adult	Average Dollar Value			Percent of Employment Earnings		
		Substitution Effect	Income Effect	Total Effect	Substitution Effect	Income Effect	Total Effect
Bottom Q.	$2,862	-$299	-$213	-$512	-11.4%	-8.1%	-19.5%
Second Q.	$11,914	-$1,105	-$110	-$1,215	-11.0%	-1.1%	-12.1%
Middle Q.	$27,603	-$455	$58	-$397	-2.3%	0.3%	-2.0%
Fourth Q.	$56,111	-$3	$76	$73	0.0%	0.2%	0.2%
Top Q.	$141,515	-$33	$88	$55	0.0%	0.1%	0.1%
Total	**$48,009**	**-$327**	**$1**	**-$326**	**-1.0%**	**0.0%**	**-1.0%**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

5.3.2 Labour Supply Effects: Employment Earnings and Subsequent BIG Received

Assuming that the BIG reform does indeed affect labour supply as described above, employment earnings will necessarily change as well. By using changes in income due to the income and substitution effects reported above, I am able to observe how much, on average, employment income will change as a result of BIG introduction. The effect on earnings is summarized in Table 14. As the final row indicates, overall earnings decrease $465 on average. The largest reduction in earnings occurs for those in the

second quintile, while that for individuals in the first and third quintile are of similar magnitude (around \$500). To put these figures into perspective, the labour supply effects induced by BIG are estimated to reduce employment earnings for persons in the bottom two income quintiles by roughly 24 and 14 percent, respectively. The change in earnings for the remaining groups, who receive relatively little or no BIG payment, are quite small and inconsequential. Overall, average earnings decline by less than one percent.

Once individuals have adjusted to the reformed social system and behavioural changes (i.e. work intensity) have taken place, reduced earnings will inevitably result in higher BIG benefits on average. To account for larger BIG payments, I have included a few additional columns in Table 14, which attempts to measure how much average BIG payments will increase as a result of lower earnings. The largest change occurs for individuals and families in the second quintile. Given that persons in this group were estimated to change labour supply the most, this result is consistent with expectations. For both individuals and nuclear families in the bottom quintile, the basic income guarantee will increase by approximately \$200, which is not too substantial. Finally, note that reduced employment earnings, as a result of changing labour supply in receipt of BIG, will also increase the total cost of the program by \$5.88 billion (\$109.96 billion to \$115.84 billion).[37]

In sum, the results presented here are compatible with the theorized labour supply effects of BIG, or income assistance programs more generally. The basic income does seem to reduce employment earnings for those in the bottom quintile quite a bit (roughly 20 percent). This may be concerning for critics. It is important, though, to realize that (in reality) reduced labour supply in response to BIG receipt may correspond to favorable activities such as more time spent at home for child care or returning to school to improve education. As such, reductions in labour

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[37]Calculation by author using the SPSD/M.

supply must be critiqued with caution: it is not only important to recognize that labour supply has reduced, but it is equally important to determine what individuals are instead doing with this now free time. Also note, that saving decisions are not considered or captured in the estimates discussed here. Thus, rather than reducing labour supply, individuals or families may decide it is utility-maximizing to maintain current employment levels and instead increase savings. These types of behavioural assessments are additional considerations that are not measurable using the SPSD/M package.

Table 14: The Impact of Reduced Earnings on Subsequent BIG Received by Income Quintile -2015

	Average Change in Earnings	Individuals			Nuclear Families		
		Pre-Labour Supply Effects	Post-Labour Supply Effects	Difference	Pre-Labour Supply Effects	Post-Labour Supply Effects	Difference
Bottom Q.	-$560 (-24.33%)	$15,483	$15,756	$273	$16,930	$17,228	$298
Second Q.	-$1,441 (-13.76%)	$7,786	$8,456	$670	$9,232	$10,026	$794
Middle Q.	-$545 (-2.01%)	$408	$651	$243	$559	$893	$334
Fourth Q.	$118 (0.21%)	$0	$0	$0	$0	$0	$0
Top Q.	$103 (0.07%)	$0	$0	$0	$0	$0	$0
Total	**-$465 (-0.98%)**	**$3,744**	**$3,944**	**$200**	**$5,343**	**$5,629**	**$286**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

6   Concluding Remarks and Policy Implications

The results of the above analysis demonstrate that a national basic income is indeed feasible within Canada. More specifically, this study shows that by eliminating inequitable non-refundable tax credits, and refundable credits that fail to offer meaningful income support – in particular, to disabled persons and the working poor – the federal government would be able to administer an income-tested basic income of \$20,000. Furthermore, given expenditures on existing income transfer programs, such a reform would also be affordable, and thus does not require the government to increase tax rates or reduce spending on other social programs or segments of the economy. Most importantly, however, this rearrangement of funds has the potential to reduce overall poverty by 80 percent.

This paper, however, merely represents a preliminary analysis of how a basic income may work in Canada. As such, I believe that there is much more work that needs to be done in the area. For instance, most of my efforts in this paper have focused on phase 1 of the BIG proposal. Recall, though, that the second stage is essential for ensuring that social assistance and disability recipients no longer experience the stigmatization and disgraceful income support they currently do under the existing social security infrastructure. I am currently exploring this stage of BIG in a similar paper with Dr. Robin Boadway and Dr. Katherine Cuff.

There are a number of additional issues also worth exploring in future research. First, in terms of labour supply, the estimates reported above do not include family labour supply dynamics. More specifically, they fail to capture joint decision-making that may occur in the household regarding labour supply and the maximization of benefit entitlements. Second, this paper does not perform a sensitivity analysis, meaning that it does not estimate simulations that use alternative parameters, such as different clawback rates or different labour supply elasticities. In future work, it is thus important to consider how different BIG structures could potentially influ-

ence labour supply, poverty and of course, expenditure. This type of research may involve evaluating a basic income that is not reduced until after some specified level of income (for example, $5,000 of employment income). In this sense, the effective marginal tax rate of individuals in the very bottom of the distribution would not change following BIG introduction. Such a design would therefore, at the very least, reduce employment disincentives. Alternatively, it may be worth examining a BI that is similar in design to the WITB, which has both phase-in and phase-out rates. Third, there many other behavioural responses, in addition to labour supply, that should be considered. This includes the impact a basic income might have on savings or investment decisions, for example. As noted above, an analysis examining how BIG impacts participation tax rates is also necessary. Finally, this paper does not consider how a basic income would be administered to First Nation Canadians on reserves, which have their own unique political systems in place. Accordingly, future basic income dialogue in Canada must consider how to integrate this important group into the framework.

In conclusion, basic income, as presented here, partly serves as a response to issues of poverty, extreme income inequality, and changing labour market conditions resulting from automation and globalization more generally. Predominantly, however, it is preferred to Canada's current social security infrastructure on the basis of superior efficiency and its ability to inject considerably more equity in the tax system. As this paper has demonstrated, Canadian social policy has not received significant reform since the 1980s, and thus fails to reflect these 21st century issues. Accordingly, dynamic socio-economic, demographic and policy trends have left some groups relatively worse off than others. In an era of globalization and unacceptable income inequality, it is time, then, to revamp tax-transfer policy in Canada.

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A   Appendix

Table 15: Phase-Out Rates for the Canada Child Benefit Program - 2016

Number of Eligible Children	AFNI over $30,000 and up to $65,000	AFNI over $65,000
1 child	7.0	3.2
2 children	13.5	5.7
3 children	19.0	8.0
4 or more children	23.0	9.5

Source: Canada Revenue Agency, Canada Child Benefit, 2016.
Note: AFNI refers to adjusted family net income.

Table 16: Number and Proportion of Social Assistance Cases by Province - 2014

Province	Cases	Proportion
Newfoundland	23,528	0.019
Prince Edward Island	4,964	0.004
Nova Scotia	28,500	0.023
New Brunswick	24,421	0.020
Quebec	319,601	0.256
Ontario	566,800	0.455
Manitoba	35,611	0.029
Saskatchewan	27,821	0.022
Alberta	80,873	0.065
British Columbia	134,591	0.108
Total	**1,246,710**	**1.0**

Source: The Caledon Institute of Social Policy
Social Assistance Combined Summaries, 2014

Table 17: Social Assistance Income by Province and Type of Nuclear Family - 2014

Province	Type of Nuclear Family			
	Single, Employable	Disabled Persons	Single Parent, One Child	Two Parent, Two Children
Newfoundland	$10,446	$10,446	$14,994	$15,588
Prince Edward Island	$7,152	$9,468	$12,868	$19,194
Nova Scotia	$6,660	$9,480	$9,900	$13,710
New Brunswick	$6,444	$9,058	$11,790	$13,274
Quebec	$7,320	$11,124	$9,840	$12,602
Ontario	$7,602	$13,080	$11,267	$13,959
Manitoba	$7,440	$10,037	$10,609	$14,517
Saskatchewan	$8,490	$10,843	$13,331	$17,249
Alberta	$7,524	$9,708	$11,196	$15,275
British Columbia	$7,355	$10,912	$11,427	$13,578
Weighted Average	**$7,521**	**$11,764**	**$10,997**	**$13,777**

Source: Tweddle, Battle & Torjman, Welfare in Canada, 2014

Note: The weighted average is calculated using the proportion of recipients in each province, as displayed in the last column of Table 16.

Table 18: Net Impacts of BIG for Nuclear Families in Canada's Bottom Income Quintile - 2015

		Average Family Taxes			Average Family Disposable Income		
	N (000s)	Average BIG	Increase in Taxes Paid	Net Impact (BIG - Tax Increase)	Before BIG	After BIG	$ Change	% Change
Single Parent	198	$11,068	$332	$10,736	$26,003	$35,621	$9,618	36.99%
Two Parent	132	$30,192	$710	$29,482	$31,194	$59,212	$28,018	89.82%
Non-Elderly Single	2,989	$15,953	$586	$15,367	$7,896	$22,720	$14,824	187.74%
Non-Elderly Couple	138	$31,497	$718	$30,779	$14,688	$44,453	$29,765	202.65%
Elderly Single	541	$14,462	$381	$14,081	$19,796	$18,846	-$950	-4.80%
Elderly Couple	115	$31,252	$349	$30,903	$25,086	$37,541	$12,455	49.65%
Disabled Persons	1,656	$16,060	$424	$15,636	$15,362	$26,503	$11,141	72.52%
Total	**5,769**	**$16,930**	**$549**	**$16,381**	**$11,789**	**$25,146**	**$13,357**	**113.30%**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

Table 19: BIG Impact on the Rate and Depth of Poverty (After-Tax LICO) by Province - 2015

Province	Rate of Poverty			Depth of Poverty		
	Pre-BIG	Post-BIG	Impact (%)	Pre-BIG	Post-BIG	Impact (%)
Newfoundland	4.5%	1.3%	-71.11%	47.9%	44.7%	-6.68%
PEI	6.5%	1.4%	-78.46%	46.8%	44.1%	-5.77%
Nova Scotia	9.2%	3.5%	-61.96%	52.4%	37.5%	-28.44%
New Brunswick	6.8%	4.9%	-27.94%	48.0%	32.9%	-31.46%
Quebec	12.3%	7.2%	-41.46%	42.4%	28.1%	-33.73%
Ontario	12.5%	4.4%	-64.80%	48.2%	31.9%	-33.82%
Manitoba	12.2%	6.5%	-46.72%	42.3%	32.4%	-23.40%
Saskatchewan	5.7%	2.4%	-57.89%	54.2%	40.3%	-25.65%
Alberta	9.0%	5.2%	-42.22%	45.0%	31.7%	-29.56%
British Columbia	15.6%	6.1%	-60.90%	46.4%	33.0%	-28.88%
Total	**11.9%**	**5.3%**	**-55.46%**	**46.1%**	**31.1%**	**-32.54%**

Source: Statistics Canada, Social Policy Simulation Database and Model (SPSD/M). Version 22.1. Tabulations by author.

Table 20: Average Household Expenditure by Province - 2014

Province	Total Expenditure
Newfoundland	$77,339
PEI	$68,358
Nova Scotia	$70,501
New Brunswick	$68,650
Quebec	$69,215
Ontario	$84,406
Manitoba	$76,434
Saskatchewan	$85,456
Alberta	$100,957
British Columbia	$80,776
Canada	**$80,728**

Source: (Statistics Canada, 2016).