

THE DISABILITY TAX CREDIT: WHY IT FAILS AND HOW TO FIX IT[†]

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SUMMARY

When the government establishes a social program whose primary purpose is to help provide support to low-income people with disabilities, its success should be measured on how well it achieves that purpose. Unfortunately, there are reasons to seriously question the usefulness of Canada's disability tax credit since it is helping so very few of the people it is intended to support. In fact, the credit is helping only a small number of Canadians with disability who qualify for it, and least of all those in the poorest families who receive an average of only \$29 annually.

The reason is not hard to see: Designing the support as a tax credit means that only those Canadians with disability who earn enough income to have them owing taxes can take advantage of it. Yet it is an unfortunate reality that people with disability are often at low incomes precisely because their disability leaves them unable to work in full-time, well-paid jobs. Thus, the very people who need this support most are the ones least able to take advantage of it. In other words, the neediest disabled Canadians are receiving the least benefit. Far from being a successful policy, the results of the disability tax credit can only be described as disappointing.

There is an uncomplicated way to begin rectifying this: By making the disability tax credit refundable. Along the same lines as a guaranteed minimum income, or negative income tax, those low-income Canadians with disabilities who qualify for the credit but lack sufficient income to benefit from the credit could simply be made eligible for a refund of the amount they cannot claim. Simply doing that, turning this non-refundable credit into a refundable credit, would increase the average benefit for Canada's poorest families with a disabled person from \$29 to \$511, increasing their total income by a meaningful 4.1 per cent. Just as importantly, where a meagre 0.2 per cent of these families now get any benefit at all from the credit, a refundable credit would now see a majority, 56.4 per cent, receiving benefits.

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We estimate that this would mean added costs to the federal program of a modest \$72 million, or a 17 per cent increase. A similar reform at the provincial level would cost an additional \$31 million.

An even more effective option for ensuring better outcomes for this policy, however, would be to both make the tax credit refundable and enhance it to triple its value. This would ensure that virtually every family with a disabled person below the low income cut-off, would benefit from the credit and this enhancement would raise their incomes a far more consequential 27 per cent.

The costs of this enhanced refundable disability tax credit would be, of course, notably higher, estimated at \$516 million federally and \$240 million provincially, but it would actually achieve the outcomes that this policy ostensibly intends. The current program may be cheaper, but the value it delivers is trifling and the money, therefore, is arguably heavily wasted. For years there have been calls to make this tax credit work better through refundability. We now have evidence that an enhanced refundable disability tax credit would make the significant difference in the lives of low-income Canadians with disabilities that the policy was designed to do, but has so far largely failed to do.

1. INTRODUCTION

One consequence of population aging is a rising incidence of disability, as older adults are more likely to suffer the onset of a physical or mental disability.¹ In addition, many Canadians face lifelong disabilities, including such neurodevelopmental disorders as cerebral palsy and autism, which are more prevalent at younger ages.² Whatever the source, these disabilities may result in barriers to employment that can have a dramatic impact on income. Hum and Simpson,³ for example, found substantial differences in employment, hours worked and earnings for working-age adults with disabilities compared to their counterparts without disabilities. These earnings differences are likely an important factor accounting for the higher incidence of poverty among persons with disabilities in Canada and their greater reliance on government transfers as an income source.⁴

One principal government transfer is the federal disability tax credit (DTC). The DTC is a non-refundable credit designed to assist persons with disabilities and their caregivers along with other related deductions for medical, child-care, and disability expenses. Disabled persons whose impairment is markedly restricted, or who are expected to restrict their activities of daily living for a continuous period of at least 12 months, are eligible for the DTC based on examination by a qualified practitioner and submission of a T2201 Disability Tax Credit Certificate to the Canada Revenue Agency for approval. Approval, which is potentially retroactive, allows the credit to be claimed as long as the disability persists. Although full utilization of the credit requires sufficient offsetting taxable income, all or part of the credit may be transferred to a spouse or common-law partner or to another supporting person. In addition, the provinces and territories have their own non-refundable disability tax-credit programs and tax-credit rates as part of their provincial tax systems. The provinces also offer social assistance benefits to qualifying persons with disabilities, either as distinct programs (such as in British Columbia, Alberta, Saskatchewan and Ontario) or as additional benefits for social assistance recipients classified as disabled.⁵

One of the important limitations of the DTC for low-income persons with disabilities is its design as a non-refundable credit. If persons with disabilities are limited in earning income and more likely to fall into poverty, then they are also more likely to have insufficient taxable income to take full advantage of the DTC. In other words, those with disabilities who are most in need of assistance may be given little support by the DTC in its current design even if the unused portion of the tax credit may be transferred in some cases. In discussing tax reform and income inequality before the House of Commons standing

¹ Derek Hum and Wayne Simpson, *Life Cycle Incidence and Employment of Persons with Disabilities in Canada* (Ottawa: Statistics Canada Employment Equity Data Program, 1995); Derek Hum and Wayne Simpson, "Disability Onset among Aging Canadians: Evidence from Panel Data," *Canadian Journal on Aging* 21, 1 (2002), 117-136.

² Christine Bizier et al., "Developmental Disabilities among Canadians aged 15 years and older, 2012," *Canadian Survey on Disability 2012* (Ottawa: Statistics Canada, December 3, 2015), <http://www.statcan.gc.ca/pub/89-654-x/89-654-x2015003-eng.pdf>.

³ Derek Hum and Wayne Simpson, "Canadians with Disabilities and the Labour Market" *Canadian Public Policy* 22 (3), 1996, 285-299

⁴ Council of Canadians with Disabilities, "As a Matter of Fact: Poverty and Disability in Canada" (2013), <http://www.ccdonline.ca/en/socialpolicy/poverty-citizenship/demographic-profile/poverty-disability-canada>.

⁵ See, for example, the Financial Consumer Agency of Canada website for specific provincial and territorial tax-credit programs for persons with disabilities at: <http://www.fcac-acfc.gc.ca/Eng/forConsumers/lifeEvents/livingDisability/Pages/Resource-Ressourc.aspx#provincial>.

committee on finance, Boadway⁶ recommended that Parliament should “significantly enhance the disability tax credit, make it refundable, and make it available to all persons receiving provincial disability support. It is a scandal that the most disadvantaged persons in society are given so little support by the federal government.” The Council of Canadians with Disabilities also recommends a refundable DTC as a crucial component, along with reforms to provincial welfare and disability supports, of a basic income plan for persons with disabilities.⁷

In this paper we take up the issues associated with improvement of the DTC, using the SPSD/M database and model. First, in Section 2 we examine the current level of support provided by the disability tax credit and assess its adequacy in terms of income support for those families most in need. In Section 3 we then explain how the current non-refundable credit could be extended to include a refundable credit and assess its impact on income support for persons with disabilities. In Section 4 we examine the impact of a comparable reform of the provincial credit and the impact of a combined reform of the federal and provincial disability tax credits. In Section 5 we consider behavioural response to our proposed changes to the DTC, particularly the issue of increased applications for coverage. Section 6 summarizes our results and suggests areas for further research.

2. THE CURRENT DISABILITY TAX CREDIT AND POTENTIAL ENHANCEMENT

The SPSD/M package uses individual administrative data from personal income tax returns and unemployment claimant histories as well as survey data on family incomes, employment and expenditure patterns to provide a micro-statistically representative sample of Canadians.⁸ Using SPSD/M version 22.0 and projecting to 2014, we estimate the total number of adults who qualified for the disability tax credit for themselves to be 499,302.⁹ Another 180,883 adults qualified for the disability tax credit for dependents, for a combined total of 680,185 qualifying adults. Table 1 below shows the breakdown by taxable income status and whether the adult paid any federal income taxes.

Table 1 shows that the disability tax credit for oneself had no effect on 301,458 (60 per cent) of the 499,302 eligible for the credit because they either had no taxable income or their basic federal tax payable was less than the value of their combined non-refundable tax credits. An additional 5,895 filers of those eligible (one per cent) paid no federal taxes, thus limiting the value of the disability tax credit to only \$327. For the remaining 191,949 of those eligible for a disability tax credit (38 per cent), it resulted in a reduction of their federal taxes of \$1,163, just slightly lower than the maximum amount of \$1,165. As a result, the average value of the disability tax credit across all eligible claimants was only \$553.

⁶ Robin Boadway, “Submission to the House of Commons Standing Committee” (April 25, 2013), 3, http://www.parl.gc.ca/Content/HOC/Committee/411/FINA/WebDoc/WD6079428/411_FINA_IIC_Briefs%5CBoadwayRobinE.pdf.

⁷ Council of Canadians with Disabilities, “A Basic Income Plan for Canadians with Severe Disabilities” (2010), <http://www.ccdonline.ca/en/socialpolicy/poverty-citizenship/income-security-reform/basic-income-plan-for-canadians-with-severe-disabilities>.

⁸ Statistics Canada, “SPSD/M Product Overview” (Ottawa: Statistics Canada, 2013).

⁹ See Appendix B for a description of the methodology for growth projection in SPSD/M 22.0.

TABLE 1 NUMBER OF ADULTS CLAIMING A DISABILITY TAX CREDIT FOR SELF AND DEPENDENTS BY TAXABLE INCOME AND TAX-PAID STATUS – CANADA, 2014

Basic Federal Tax Payable by Any Federal Tax Paid Status	Total Adults	Disability Credit for Self		Disability Credit for Dependents		Total Disability Credit	
		Total Claiming Credit	Average Credit ¹	Total Claiming Credit	Average Credit ¹	Total Claiming Credit	Average Credit ¹
No Tax Payable	1,878,952	35,659	\$0	3,580	\$0	39,239	\$0
Basic Tax Payable <= Total NRTCs	7,890,823	265,799	\$155 ²	48,972	\$226 ²	314,771	\$166 ²
Basic Tax Payable > Total NRTCs	18,715,081	197,844	\$1,138	128,331	\$1,160	326,175	\$1,145
- No Fed. Tax Paid	162,073	5,895	\$327	128	\$186	6,023	\$324
- Any Fed. Tax Paid	18,553,008	191,949	\$1,163	128,203	\$1,158	320,152	\$1,161
TOTAL	28,484,856	499,302	\$533	180,883	\$883	680,185	\$626

Notes:

1. This figure is calculated as the difference in federal income taxes with and without a claim for the disability tax credit.
2. For these tax filers, the actual value in terms of reduced taxes payable would be \$0.

A similar picture emerges for those adults able to claim a disability tax credit for dependents. For the 71 per cent who paid any federal taxes, the disability tax credit resulted in a reduction of \$1,158 in taxes paid. Overall, it was worth only \$883. For the combined disability tax credit for self and dependents, 52 per cent had either no taxable income or taxable income less than the full value of their non-refundable tax credits, resulting in their disability tax credit having no effect on reducing tax payable. Another one per cent did not pay any federal tax and the disability tax credit was worth \$324 for them.¹⁰ Only for the remaining 47 per cent of adults with a disability tax credit did the credit reduce their tax payable by a substantial amount, \$1,161.

The total value of the disability tax credit in reducing tax payable for oneself was \$266 million in 2014, while the additional value for those claiming for dependents was \$162 million, resulting in a total reduction in federal tax payable under the current DTC of \$426 million. What impact did these tax credits have on recipient families? Table 2 estimates the total impact of the current DTC in reducing the average federal tax payable by each adult according to family income, which allows us to assess the impact of the DTC by level of need. We assess the impact for adults claiming the DTC either for themselves and/or a dependent member according to whether their family income is: below the Statistics Canada low income cut-off (LICO); one to two times the LICO; two to three times the LICO; or more than three times the LICO. At present, 9.1 per cent of adults with a DTC are below the LICO, receiving an average credit of \$29. Less than one per cent of them obtain a reduction in tax payable. In contrast, 32.3 per cent of adults receiving the DTC have a family income of one to two times the LICO and receive an average credit of \$368; 28.4 per cent of adults have a family income of two to three times the LICO and receive an average credit of \$707; and 30.2 per cent of adults have a family income three or more times the LICO and receive an average credit of \$1,006. In other words, the poorest Canadians claiming the DTC, those with a family income below the low-income standard, receive the

¹⁰ An important source of low income is the lack of employment and earnings, as suggested earlier. Only two per cent of those with no taxable income claiming the DTC were employed and only 35 per cent of those with federal tax payable less than the value of their non-refundable tax credits, including the DTC, were employed, well below the employment rates for those claiming the full DTC (65 per cent) and the employment rates in the corresponding categories for tax filers not claiming the DTC. See Appendix A, Table A1 for further details.

lowest average credit of any income group, illustrating the limitations of the current non-refundable-credit design in delivering benefits to those adults with disabilities most in need of the benefit. They receive only a small portion (4.6 per cent) of the average credit of \$626 paid to all adults claiming the DTC.

TABLE 2 ESTIMATED VALUE OF THE CURRENT (NON-REFUNDABLE) DISABILITY TAX CREDIT IN REDUCING TAX PAYABLE BY ADULTS BY THE TAX FILER'S AFTER-TAX LOW-INCOME FAMILY STATUS

After-Tax LICO Status	% of All Adults	Current Non-refundable Disability Tax Credit		
		% Benefiting From NRTC ¹	Average Value of Credit for Those Benefiting (All)	% of Total Income (All)
Below LICO	9.1%	0.2%	\$1,160 (\$29)	3.6% (0.2%)
1 - 2 x LICO	32.3%	24.1%	\$1,097 (\$368)	3.0% (1.5%)
2 - 3 x LICO	28.4%	54.2%	\$1,110 (\$707)	2.3% (1.9%)
3+ x LICO	30.2%	82.0%	\$1,182 (\$1,006)	1.5% (1.5%)
TOTAL (Number of Adults)	100.0% (680,185)	47.9%	\$1,145 (\$626)	1.9% (1.6%)

Note:

1. This is defined as those claiming a disability tax credit whose basic federal tax payable is greater than their total non-refundable tax credits.

One obvious way to enrich the credit would be to increase the maximum credit from the existing \$7,766 by more than simply an adjustment for inflation.¹¹ For example, if we triple the value of the current credit to \$23,298, then a maximum claim of 15 per cent of this credit would be \$3,495 or 45 per cent of the gross value of the maximum credit of \$7,766 in 2014. In the remainder of this section we consider a non-refundable DTC of this size to assess its impact on the circumstances of persons with disabilities claiming the credit before turning to an examination of the impact of a refundable DTC in the next section. Table 3 presents the results for the current non-refundable DTC with a maximum benefit of \$1,165 in 2014 and for an enhanced non-refundable DTC with a maximum benefit of \$3,495. Our estimates apply to an increase in the value of the DTC for the adult and any qualifying dependents, since we assume the continuation of provisions allowing the transfer of all or part of the credit to an eligible supporting person.

¹¹ The maximum credit for 2015 is \$7,899, an increase of 1.7 per cent over 2014, which follows on an increase of 0.9 per cent from 2013 to 2014.

TABLE 3 IMPACT OF AN ENHANCED DTC FOR ADULTS AND DEPENDENTS BY THE TAX FILER'S AFTER-TAX LOW-INCOME FAMILY STATUS

After-Tax LICO Status	% of all adults	Current Non-refundable DTC ¹		Enhanced Non-refundable DTC ²		Additional Benefit of Enhanced DTC ³	
		Av. Bft.	% of Total Income	Av. Bft.	% of Total Income	Av. Bft.	% of Total Income
Below LICO	9.1%	\$29	0.2%	\$30	0.2%	\$2	0.01%
1-2 x LICO	32.3%	\$368	1.5%	\$625	3.5%	\$257	1.0%
2-3 x LICO	28.4%	\$707	1.9%	\$1,437	3.9%	\$735	2.0%
3+ x LICO	30.2%	\$1,006	1.5%	\$2,490	3.7%	\$1,483	2.2%
TOTAL	100.0%	\$626	1.6%	\$1,366	3.4%	\$740	1.8%
(N)	680,185						
Total Benefits Payable		\$426.0M		\$929.3M		\$503.3M	

Notes:

1. With the current DTC, the benefits represent the reductions in tax paid by those claiming the disability tax credit for self and dependents only, as in Table 1.
2. With the enhanced DTC, the benefits represent the reductions in taxes paid by increasing the value of the disability tax credit from \$7,766 to \$23,298 (\$3,495 = \$23,298 x 0.15).
3. The benefits represent the *additional* reductions in taxes paid by increasing the value of the disability tax credit from \$7,766 to \$23,298.

Table 3 shows that an enhanced DTC that increases the potential benefit for adults to 45 per cent of the gross value of the maximum credit of \$7,766 in 2014 would provide benefits of \$929.2 million, or more than twice as much as the current DTC. Very little of that benefit would go to the families most in need, however. The final column in Table 2 shows the incremental effect of the enhancement would only be \$2 on average for families below the LICO or less than 0.1 per cent of the taxable income for this group, as most of the individuals in this group would not have sufficient taxes owing to take advantage of the enhanced credit.¹² In comparison, adults with disabilities in families above the LICO would benefit much more: Families with incomes one to two times the LICO would add \$257 or 1.0 per cent to their income; families with incomes two to three times the LICO would add \$735 or 2.0 per cent to their income; and families with incomes more than three times the LICO would add \$1,483 or 2.2 per cent to their incomes. This is a fairly stark illustration of the limitations of the DTC in its current non-refundable design in helping those adults with disabilities most in need.

3. A REFUNDABLE DISABILITY TAX CREDIT

One limitation of the current DTC is its design as a non-refundable credit, which means that it can only be used to reduce tax liabilities arising from other income sources that may be limited for persons with disabilities. Thus, the current credit of \$7,766 provides a benefit of \$1,165 that can only be subtracted from federal tax owing on taxable income, denying

¹² Of 499,302 persons eligible to claim the DTC, 35,659 (7.1 per cent) had no taxable income and 17,220 (3.4 per cent) had a level of taxable income below the total value of all non-refundable tax credits they could claim. These individuals would be particularly disadvantaged by the non-refundable design of the current DTC.

benefits in the form of a reduction in taxes to families with insufficient taxable income.¹³ When taxes owing after all other tax credits are applied are less than \$1,165 for a tax filer claiming the DTC in its current form, no taxes are paid. If the DTC were a refundable tax credit, on the other hand, the tax filer would be entitled to a benefit corresponding to the difference between taxes owing and the tax credit. An individual with no taxable income and hence no taxes owing after all other credits were applied would receive a benefit payment of \$1,165 under a refundable DTC. The value of the benefit would decline with additional taxable income by the amount of taxes owing, or 15 per cent of taxable income, until additional taxes owing reached \$1,165, at which point no refundable DTC benefit would be paid. Additional taxable income at this point would be taxed in the current fashion.

A refundable DTC benefit would conform to the principle of a negative income tax or what has been more commonly referred to as a guaranteed annual income in Canadian policy discussion.¹⁴ The maximum benefit at zero taxes owing after deduction of other tax credits would constitute an additional income guarantee to support persons with disabilities who lack taxable income, while the rate of reduction in the benefit as taxable income increased would constitute the benefit-reduction rate corresponding to the negative income-tax rate. Based on the current DTC design, individual tax filers who qualified for the DTC would be guaranteed a maximum benefit of \$1,165 in additional income assistance with a benefit-reduction rate of 15 per cent when additional taxable income results in taxes owing. An illustrative enhanced- and refundable-DTC design would triple the maximum benefit to \$3,495 while retaining the 15 per cent benefit-reduction rate. Our methodology therefore determines the net value or benefit of the refundable disability tax credit for each qualifying adult tax filer to be:

$$\begin{aligned} \text{Benefit} &= \text{Maximum Benefit} - (0.15 \text{ Taxable Income}) \\ &= \begin{cases} \$1165 - 0.15 \text{ Taxable Income} & \text{(Refundable DTC)} \\ \$3495 - 0.15 \text{ Taxable Income} & \text{(Enhanced and Refundable DTC)} \end{cases} \quad [1] \end{aligned}$$

This refundable credit can be added to the existing non-refundable benefit to provide additional assistance to persons with disabilities in low-income households, although it could also be conceived as a replacement for the current non-refundable credit. Our approach is to treat it as an additional, more targeted benefit. Table 4 shows our estimates of the benefits derived from the current non-refundable disability tax credit in reducing taxes payable, as in Table 3, and the additional value to adults with disabilities that would be realized by first making the credit refundable at its present value and, secondly, by making the credit refundable and enhanced at three times its present value of \$1,165, as in Equation [1].

¹³ Several other non-refundable tax credits, including the basic personal amount, will be available to tax filers at the standard 15 per cent minimum federal tax rate. We assume in what follows that these credits have been applied to determine remaining taxes owing prior to consideration of the credit available under the DTC.

¹⁴ Derek Hum and Wayne Simpson, "A Guaranteed Annual Income? From Mincome to the Millennium," *Policy Options* (January-February, 2001): 78-82; Wayne Simpson and Harvey Stevens, "The Impact of Converting the Federal Non-refundable Tax Credits Into Refundable Credits," University of Calgary School of Public Policy Research Paper 8, 29 (2015), <http://www.policyschool.ucalgary.ca/?q=content/impact-converting-federal-non-refundable-tax-credits-refundable-credits>.

TABLE 4 IMPACT OF A FEDERAL REFUNDABLE DTC FOR ADULTS BY THE TAX FILER'S AFTER-TAX LOW-INCOME FAMILY STATUS

After-Tax LICO Status	Current Non-refundable DTC ¹			Refundable DTC ²			Enhanced and Refundable DTC ³		
	% with Benefits	Av. Bft. (All)	Av. Bft. % of T.I. ⁴	% with Benefits	Av. Bft. (All)	Av. Bft. % of T.I.	% with Benefits	Av. Bft. (All)	Av. Bft. % of T.I.
Below LICO	0.2%	\$29	0.2%	56.4%	\$511	4.1%	99.9%	\$2,526	20.3%
1-2 x LICO	24.1%	\$368	1.5%	12.7%	\$96	0.4%	65.8%	\$949	3.7%
2-3 x LICO	54.2%	\$707	1.9%	8.6%	\$57	0.2%	38.3%	\$503	1.4%
3+ x LICO	82.0%	\$1,006	1.5%	4.6%	\$38	<0.1%	17.3%	\$259	0.4%
TOTAL	47.9%	\$626	1.6%	13.1%	\$106	0.3%	46.5%	\$758	1.9%
Total Claimants	680,185			72,742			316,182		
TOTAL BENEFIT	\$426.0M			\$ 71.8M			\$515.6M		

Notes:

1. Benefits represent the reductions in tax paid by those claiming the current credit. See also Table 3.
2. Benefits represent the value of the refundable disability tax credit paid to those whose taxable income is less than \$7,766.
3. Benefits represent the value of the enhanced refundable disability tax credit paid to those whose taxable income is less than \$23,298.
4. T.I. denotes total family income.

The impact of making the current DTC refundable is to direct benefits to families with disabilities at the low end of the income spectrum. The poorest families with incomes below the LICO receive a refundable tax credit worth an average of \$511 compared to \$29 for the same families under the current non-refundable DTC. This represents an increase of 4.1 per cent of total income of tax filers living in low-income families. Much of this improvement in benefits is an improvement in coverage, since 56.4 per cent of families below the LICO would receive the refundable credit compared to only 0.2 per cent of families under the current non-refundable scheme. In other words, the refundable credit brings benefits for a majority of the poorest families who had insufficient taxes owing to benefit from the current credit.

For higher-income filers the additional benefits provided by the refundable credit are modest. For those with a family income between one and two times the LICO, average benefits rise by \$96 (0.4 per cent of total income). For those with incomes between two and three times the low-income line, disability tax benefits rise by \$57 (0.2 per cent of total income); and, for those with incomes three or more times the low-income line, disability tax benefits rise by \$38 (less than 0.1 per cent of total income). We estimate the cost of making the current disability tax credit refundable and improving benefits for the poorest families claiming the DTC to be only \$72 million, an increase of 17 per cent from the current program cost of \$426 million.

If the refundable disability tax credit were tripled in value to \$3,495 and the non-refundable portion is maintained at its current value, then the results are quite striking and remain targeted to the poorest families. Those adults with incomes below the LICO now see their after-tax incomes increase from \$29 to \$2,526, a meaningful increase in their incomes of 20.3 per cent in contrast to the negligible improvement realized from the enhanced non-refundable DTC in Section 2 (Table 3). Moreover, this benefit is provided to almost every family, as 99.9 per cent of these poorest families benefit from the enhanced and refundable

credit. Better-off families also improve their incomes but much more modestly: Those with family incomes one to two times the LICO would improve their benefits by \$949, an improvement of 3.7 per cent to their income; those with family incomes two to three times the LICO would improve their benefits by \$503 or 1.4 per cent of their income; and adults with family incomes more than three times the LICO would improve their benefits by \$259 or 0.4 per cent of their taxable income. The overall cost of this enrichment to the refundable disability tax credit would be \$516 million, or an increase in cost of 121 per cent from the current program.¹⁵ Although many alternative designs are possible, in terms of the size of the credit and the claim rate, our simulations illustrate the main point that making the current DTC refundable would be an effective measure to help those adults with disabilities that most need income assistance.

4. PROVINCIAL DISABILITY SUPPORT

The federal DTC provides a framework for provincial disability income support along with the additional support for persons with disabilities provided by the provincial welfare system. Tax filers who qualify for the federal DTC also qualify for provincial disability income tax credits, although the levels of provincial support, in terms of the size of the tax credit and the non-refundable tax-credit rate, vary quite substantially as indicated in Table 5. In this section we use the existing provincial tax credits and rates as set out in Table 5 to assess the impact of making the tax credit refundable and enhancing it in the fashion of our simulation scenarios for the federal DTC in Section 3.

TABLE 5 2014 VALUE OF PROVINCIAL DISABILITY TAX CREDITS AND THE NON-REFUNDABLE TAX-CREDIT RATE

Province	Tax Credit	Non-refundable Tax-Credit Rate
NF	\$5,788	7.7%
PE	\$6,890	9.8%
NS	\$7,341	8.79%
NB	\$7,668	9.68%
QC	--	--
ON	\$7,812	5.05%
MB	\$6,180	10.8%
SK	\$9,060	11.0%
AB	\$13,720	10.0%
BC	\$7,402	5.06%

Source: SPSPD/M Parameter File.

Table 6 reports our results for the establishment of a provincial refundable disability tax credit in the first instance and then an enhanced and refundable credit at triple the maximum benefit for each province, corresponding to Table 3 for the federal DTC but

¹⁵ Since the figures in Table 4 represent additional costs and benefits of an enhanced and refundable tax credit, an alternative interpretation of these results is that the enhanced and refundable disability-tax-credit plan could replace the existing non-refundable disability tax credit for an additional cost of about \$90 million. The enhanced and refundable credit would direct much larger benefits to far fewer claimants at the lower end of the income spectrum, as indicated in Table 4.

applying the provincial tax-credit amounts and rates in Table 5. We report the totals for each province as well as our estimate of the total benefits realized for all provinces. We will then turn to the distributional impact of total benefits for all provinces.

TABLE 6 A COMPARISON OF THE PROVINCIAL NON-REFUNDABLE TAX CREDITS WITH A BASIC AND ENHANCED REFUNDABLE TAX CREDIT FOR PERSONS CLAIMING A PROVINCIAL DISABILITY TAX CREDIT

Province	Total Adults Claiming a Provincial Disability Tax Credit	Current Non-refundable DTC		Refundable DTC		Enhanced and Refundable DTC	
		% with Benefits	Av. Benefit (all)	% with Benefits	Av. Benefit (all)	% with Benefits	Av. Benefit (all)
NF	12,104	57.0%	\$278	14.4%	\$377	40.4%	\$772
PE	2,660	65.7%	\$474	8.8%	\$284	33.9%	\$960
NS	27,491	52.1%	\$375	11.4%	\$429	48.7%	\$921
NB	15,427	59.4%	\$441	4.0%	\$286	41.8%	\$872
ON	309,205	53.2%	\$268	12.8%	\$299	46.3%	\$537
MB	46,247	54.5%	\$385	9.0%	\$565	32.5%	\$957
SK	19,927	46.5%	\$529	9.8%	\$549	47.8%	\$1,353
AB	65,533	38.6%	\$601	19.0%	\$869	63.1%	\$2,259
BC	90,248	56.7%	\$194	11.4%	\$192	43.7%	\$511
TOTAL	588,872	52.2%	\$322	12.6%	\$409	46.5%	\$877
TOTAL BENEFITS			\$189.9 M		\$30.8 M		\$240.3 M

As anticipated by the substantial variation in tax-credit amounts and rates across the provinces, there is considerable variation in the average value of the benefit received from the current non-refundable provincial tax credits, from an average benefit for all claimants of \$194 in British Columbia to \$601 in Alberta. This result is to be expected, since Alberta's tax-credit amount and rate are both about double those of British Columbia. While there are notable differences in benefits and in the proportion of claimants receiving benefits across provinces, our main focus in this section is the total benefits provided by the provinces under their current non-refundable disability tax-credit plans. That is, we consider the cost to the provinces of the current non-refundable disability tax credit and the incremental cost of making the credit refundable in the first instance and then providing an enhanced and refundable credit under the assumption that the provinces do not adjust their tax-credit levels and rates.

The impact of these program revisions at the provincial level is comparable to the federal counterpart. Table 7 reports the distribution of non-refundable and refundable tax credits by the after-tax low-income status of the tax filer's economic family for all provinces combined as a provincial counterpart to the federal results presented in Table 4. It again shows that the impact of making the current DTC refundable at the provincial level is to boost benefits to low-income families that contain persons with disabilities. The poorest families with incomes below the LICO receive a refundable tax credit worth an average of \$256 compared to only \$12 for the same families under the current non-refundable provincial DTC plans, an improvement in total income of two per cent for these families. Much of this improvement again represents increased coverage, since 52.2 per cent of families below the LICO would receive the refundable credit compared to only 0.3 per cent of these families under the current non-refundable scheme. The benefits provided by the

refundable provincial credit are again more modest as family income rises: \$54 (0.2 per cent of total family income) for families between one and two times the LICO, \$28 (0.1 per cent of income) for families between two and three times the LICO, and \$19 (0.03 per cent of income) for families three or more times the low-income line. We estimate the cost to the provinces of making the current disability tax credit refundable to be only \$30.8 million, an increase of 16.2 per cent from the current non-refundable credits program cost of \$189.9 million or a similar increase in cost to its federal counterpart.

TABLE 7 IMPACT OF A PROVINCIAL REFUNDABLE DTC FOR ADULTS BY THE TAX FILER'S AFTER-TAX LOW-INCOME FAMILY STATUS

After-Tax LICO Status	Current DTC ¹			Refundable DTC ²			Enhanced and Refundable DTC ³		
	% with benefits	Av. Bft. (all)	Av. Bft. % of T.I. ⁴	% with benefits	Av. Bft. (all)	Av. Bft. % of T.I.	% with benefits	Av. Bft. (all)	Av. Bft. % of T.I.
Below LICO	0.3%	\$12	0.1%	52.2%	\$256	2.1%	99.1%	\$1,167	9.7%
1-2 x LICO	28.4%	\$184	0.7%	13.3%	\$54	0.2%	67.3%	\$557	2.2%
2-3 x LICO	61.7%	\$357	1.0%	9.4%	\$28	0.1%	39.5%	\$293	0.8%
3+ x LICO	81.6%	\$515	0.7%	4.8%	\$19	0.03%	17.9%	\$167	0.2%
TOTAL	52.3%	\$322	0.8%	12.6%	\$52	0.1%	46.5%	\$408	1.0%
Total claimants	588,872			74,255			274,085		
TOTAL COST	\$189.9 M			\$30.8 M			\$240.3 M		

Notes:

1. Benefits represent the reductions in tax paid by those claiming the current non-refundable disability tax credit for their province of residence.
2. Benefits represent the value of the refundable disability tax credit paid to those whose taxable income is less than the appropriate provincial tax-credit threshold set out in Table 5.
3. Benefits represent the value of the enhanced refundable disability tax credit paid to those whose taxable income is less than three times the appropriate provincial tax-credit threshold set out in Table 5.
4. T.I. denotes total family income.

If the refundable disability tax credit for each province were tripled in value while leaving the non-refundable portion at its current value, corresponding to our enhanced scenario at the federal level in Section 3, then adults with disabilities in families with incomes below the LICO again see a more substantial increase from \$12 to \$1,167, or from 0.1 per cent to 9.7 per cent of their total income. This enhanced benefit is again widespread, covering 99.1 per cent of families below the LICO compared to only 0.3 per cent of these families currently. Benefits are also improved from \$184 (0.7 per cent of family income) under the current credit to \$557 (2.2 per cent of family income) under the enhanced and refundable credit for families with incomes one to two times the LICO. Families with incomes more than twice the LICO receive lower benefits than they would receive under the current non-refundable provincial DTC schemes, bearing in mind that these are viewed here as additional benefits under our assumption that the current non-refundable scheme would remain in effect.¹⁶ This enhanced and refundable credit would cost the provinces an additional \$240.3 million, an increase of 126.5 per cent over the current program, which is again similar to the increased cost at the federal level.

¹⁶ Again, an alternative interpretation is that our estimates indicate that the enhanced and refundable disability tax-credit plan could replace the existing non-refundable disability tax credit at the provincial level at an additional cost of \$50.4 million. The enhanced and refundable credit would direct much larger benefits to fewer claimants at the lower end of the income spectrum, as indicated in Table 7.

Our results in this section have assumed that the provincial revisions to the DTC are conducted in the absence of any comparable decision at the federal level. Our results show that the program costs and DTC benefits at the provincial level are more modest but similar in proportion and impact by family-income level to those at the federal level reported in Section 3. Indeed, since tax filers who qualify for the federal DTC also qualify for provincial disability income tax credits, it is not surprising that there is a strong overlap between federal and provincial claimants of the current non-refundable DTC and hence claimants of the revised program scenarios we have considered to date.¹⁷ That is, all those eligible for the provincial DTC are also eligible for the federal DTC which, as tables 7 and 4 indicate, represents 86.6 per cent (588,872 of 680,185) of all claimants. Given this overlap, the interdependence of the federal and provincial schemes in most provinces, and the expectation that the federal government would play the leading role in revising and expanding the current DTC, we now consider the combined effect of providing a refundable DTC and an enhanced and refundable DTC corresponding to our earlier scenarios for the federal and provincial governments alone. Our results are presented in Table 8.

TABLE 8 IMPACT OF A COMBINED FEDERAL AND PROVINCIAL REFUNDABLE DTC FOR ADULTS BY THE TAX FILER'S AFTER-TAX LOW-INCOME FAMILY STATUS

After-Tax LICO Status	Refundable DTC ¹			Enhanced and Refundable DTC ²		
	% with benefits	Av. Bft. (all)	Av. Bft. % of T.I. ³	% with benefits	Av. Bft. (all)	Av. Bft. % of T.I.
Below LICO	56.6%	\$701	5.6%	99.9%	\$3,390	27.3%
1-2 x LICO	13.7%	\$144	0.6%	69.2%	\$1,433	5.6%
2-3 x LICO	9.3%	\$82	0.2%	41.5%	\$764	2.1%
3+ x LICO	4.8%	\$55	0.1%	18.4%	\$405	0.6%
TOTAL	13.7%	\$150	0.4%	48.8%	\$1,111	2.8%
Total claimants	92,912			331,855		
TOTAL COST	\$102.1 M			\$755.8 M		

Notes:

1. Benefits represent the value of the refundable disability tax credit paid to those whose taxable income is less than the tax-credit thresholds established by the federal government and the appropriate provincial government as set out in Table 5.
2. Benefits represent the value of the enhanced refundable disability tax credit paid to those whose taxable income is less than three times the tax-credit thresholds established by the federal government and the appropriate provincial government as set out in Table 5.
3. T.I. denotes total family income.

The cost of the establishment of a refundable DTC at the federal and provincial levels is \$102.1 million, an increase of 16.6 per cent over the combined costs of the current non-refundable DTC programs (\$615.9 million) at the federal and provincial levels. The benefits are concentrated in the poorest families with incomes below the LICO, who receive benefits of \$701 that improve family income by 5.6 per cent. Families with incomes one to two times the LICO receive benefits of \$144 or 0.6 per cent of income, while families with

¹⁷ We consider the implications of our scenarios for an increase in applications for DTC eligibility in Section 5.

incomes more than twice the LICO receive negligible benefits. A majority of the poorest families (56.6 per cent) would receive some benefit, albeit modest, if the DTC were simply made refundable.

A DTC that is refundable and enhanced at three times the current value of the federal and provincial credits would cost \$755.8 million, an increase of 122.7 per cent over the current DTC plan, but would expand benefits quite dramatically to the poorest families containing eligible persons with disabilities.¹⁸ Families with incomes below the LICO would receive a benefit of \$3,390 that represents a 27.3 per cent improvement in their income, and families with incomes one to two times the LICO would receive benefits of \$1,433 that would raise income by 5.6 per cent, while other higher-income families would receive almost no benefit. As we saw in Section 2 with regard to the federal DTC, the enhanced DTC can be effective in assisting those families with disabilities most in need, provided that it is also designed as a refundable credit.

Additional income support for persons with disabilities is provided by provincial welfare programs, but this support also varies considerably by province. The Council of Canadians with Disabilities¹⁹ observes that support

“varies from one jurisdiction to another in terms of eligibility for assistance, the amount of basic assistance, types and amounts of special assistance, enforcement policies and provisions governing the appeal process.... With the demise of federal cost-sharing under the Canada Assistance Plan, abolished in 1995, welfare programs no longer are required to meet any national objectives, standards or requirements (except not to discriminate against applicants who have immigrated from other provinces). Because of the many different laws, it is difficult to generalize about welfare in Canada: Usually there is at least one province or territory that is the exception to almost anything.”

It is beyond the scope of this paper to consider the issues surrounding the design and delivery of disability-support benefits in provincial welfare systems. We do, however, consider the overlap between the DTC and existing disability assistance provided by provincial welfare programs in terms of the potential for expansion of a refundable DTC to new claimants in the next section.

5. BEHAVIOURAL RESPONSE

Provision of a refundable disability tax credit could have some adverse labour-supply consequences along the lines of the implementation of a guaranteed annual income. Simpson and Stevens²⁰ calculate reductions in earnings of about 10 to 20 per cent in the labour force affected by a refundable tax credit of this nature, but there are good reasons to believe that the effects would be much smaller in the case of a disability tax credit. Since

¹⁸ We repeat that an alternative interpretation of our estimates is that this enhanced and refundable disability tax-credit plan could replace the existing non-refundable DTC at the federal and provincial levels for \$139.9 million. The enhanced and refundable credit would direct much larger benefits to fewer claimants at the lower end of the income spectrum, as indicated in Table 8.

¹⁹ Council of Canadians with Disabilities, “A Basic Income.”

²⁰ Simpson and Stevens, “The Impact.”

many persons with disabilities are unable to work or unable to work more than part time, the reduction in labour supply would be expected to be much smaller than in the general population, although evidence is scant and empirical research is limited by significant identification issues.²¹

One innovative study by Campolieti²² found that a large change in disability benefits in the Quebec Pension Plan did not increase the non-participation of older men in Quebec relative to older men elsewhere in Canada whose disability benefits did not change. These results are consistent with earlier research by Bound²³ who found that evidence of substantial work disincentive effects for those receiving disability-insurance benefits in the U.S. was misinterpreted or flawed. Using rejected disability-insurance applicants as a natural control group, he finds the work disincentive effects of disability-insurance benefits to be small, suggesting that additional benefits to persons with disabilities in low-income families from the establishment of a refundable disability tax credit would likely be small as well.

We expect that a more important behavioural response would be increased applications for DTC status if the current non-refundable tax credit were made refundable and perhaps enhanced. The current non-refundable DTC provides no direct incentive to apply for disability status to low-income families without taxable income, since they receive no benefit.²⁴ Providing a refundable benefit, however, would also provide a direct incentive for these families to apply for disability status, which could substantially expand the coverage of the DTC and the disability benefits paid. We consider the scant literature on the size of this response. We then use our results in sections 3 and 4 and estimates of the prospective applicant pool to provide some rough estimates of upper and lower bounds for the growth in applications for the DTC that might be realized from those persons with disabilities who do not currently benefit from the credit and do not claim it. We also consider how the growth in applications for the DTC might affect the Registered Disability Savings Plan.

The evidence in the literature on the response to improvements in disability benefits, while limited, suggests that the reaction of adults with a disability to these benefits would not be negligible and might be quite important. Campolieti²⁵ finds that time-series evidence relying on variation in disability benefits suggests an application elasticity—that is, a percentage change in applications for disability benefits arising from a one per cent improvement in disability benefits—of 0.4 to 0.6 in the U.S., while comparable evidence from microdata yields a wider range from 0.2 to 1.3. Using more flexible state-space models with varying coefficients that she estimates using the Kalman filter on annual data from the Quebec Pension Plan disability program between 1970 and 2012, she obtains an application

²¹ Andreas Ravndal Kostol and Magne Mogstad, “Earnings, Disposable Income, and Consumption of Allowed and Rejected Disability Insurance Applicants,” *American Economic Review* 105, 5 (2015): 137-141.

²² Michele Campolieti, “Disability Insurance Benefits and Labour Supply: Some Additional Evidence,” *Journal of Labor Economics* 22, 4 (2004): 863-889.

²³ John Bound “The Health and Earnings of Rejected Disability Insurance Applicants,” *American Economic Review* 79(3), 1989, 482-503

²⁴ We consider later in this section one important indirect benefit, the Registered Disability Savings Program (RDSP), which might account for some current DTC applications in low-income families where no direct benefits from the tax credit are available. The RDSP, which requires DTC eligibility, provides incentives in the form of a Canada Disability Savings Bond to RDSP holders in low-income families as well as matching grants for contributions to the RDSP.

²⁵ Michele Campolieti, “Forecasting Applications to Disability Insurance Programs: Evidence for the Quebec Pensions Disability Insurance Program,” *Canadian Public Policy* 41, 3 (2015): 223-240.

elasticity of 0.22. She finds that benefits, along with contribution requirements, have substantial effects on out-of-sample forecasts of the number of applications to the Quebec plan, albeit smaller than suggested by some earlier, less sophisticated analyses.

Using Campolieti's results,²⁶ we first consider the results in Table 4 on the impact of establishing a refundable DTC to supplement the current non-refundable DTC at the federal level alone. Individuals who benefit would receive an average increase of \$106 compared to the average benefit of \$626 for the 680,185 individuals eligible for the non-refundable credit; that is, a benefit increase of 16.9 per cent. Campolieti's application elasticity of 0.22 implies only a 3.7 per cent increase in applications for the revised DTC on the current population of 680,185, or 25,339 new applicants. Similarly, we estimate that the implementation of a refundable tax credit that is enhanced to three times the current credit level would increase benefits by \$758 or 121.1 per cent, resulting in a more substantial 26.6 per cent increase in applications for the DTC or 181,194 new applicants.

We can also consider the results in Table 8 on the impact of establishing a refundable DTC to supplement the current non-refundable DTC at both the federal and provincial levels. The establishment of a refundable DTC would then result in an increase in benefits of \$150 across all claimants or a benefit increase of 15.8 per cent that would increase applications for the DTC by 23,677 or 3.5 per cent, similar to the figures for the federal program alone.²⁷ The implementation of a refundable tax credit that is enhanced to three times the current credit level would increase benefits by \$1,111 or 117.2 per cent and increase applications by 175,370 or 25.8 per cent.

Who would these new applicants be and are there enough of them to suggest a new applicant pool of this size or larger? One way to identify prospective applicants is to enumerate those families with a disabled adult that receive social assistance. Table 9 presents our estimates of this population from SPSD/M. There are a total of 680,258 adults receiving provincial social assistance disability benefits as of 2014, or almost exactly the same number as the population of current beneficiaries of the federal DTC. Only 52,345 (7.7 per cent) of these provincial recipients of disability benefits currently receive provincial non-refundable disability tax credits, however, implying that most of them would be new beneficiaries of a federal and provincial refundable DTC. Moreover, these population figures are consistent with the recent report from Caledon Institute of Social Policy,²⁸ which puts the total caseload of persons with disability on social assistance at 642,227.²⁹ Of those adults 18 to 64 receiving any social assistance income, Caledon estimates that only 49,538 (again, 7.7 per cent) claimed the non-refundable disability tax credit. In summary, a reasonable estimate of the social assistance population that might benefit from a refundable DTC is similar to the population of current DTC beneficiaries or an additional 680,000.

²⁶ *ibid.*

²⁷ This is not incidental since, as we indicated earlier, the provincial results are similar in proportion to the federal results. We have used the average benefit for all claimants at the federal level of \$626 and at the provincial level of \$322 from tables 4 and 7, respectively, in our calculations.

²⁸ Caledon Institute of Social Policy, "Canada Social Report: Social Assistance Combined Summaries, 2014" (2015), <http://www.caledoninst.org/Publications/PDF/1062ENG.pdf>.

²⁹ Caledon's study estimates that this figure now represents 51.6 per cent of all adults on social assistance between 18 and 64 years of age.

TABLE 9 ESTIMATED NUMBER OF ADULTS RECEIVING PROVINCIAL SOCIAL ASSISTANCE DISABILITY BENEFITS BY THE AVERAGE VALUE OF THE SA BENEFIT AND TOTAL TRANSFER INCOME - CANADA 2014

Receipt of the Non-refundable Disability Tax Credit	Total Number of Adults	Average SA Benefit	Average Total Transfers
No	627,913	\$10,315.64	\$15,682.72
Yes ¹	52,345	\$8,800.97	\$16,409.33
Total	680,258	\$10,199.09	\$15,738.63

Note:

1. This group is defined as having a self-identified disability with any income from social assistance and no employment income.

Source: Authors' calculations from SPSD/M 22.0.

Since the implementation of a refundable federal DTC was estimated to cost an additional \$71.8 million in Table 4, a 3.7 per cent increase in applicants would be expected to increase costs by that amount, or \$2.6 million, if the taxable-income profile of new applicants resembled the profile of current DTC claimants that would benefit from a refundable credit. It might be expected, however, that the population of new applicants, if they largely come for those currently receiving social assistance disability benefits, would have lower taxable incomes than current DTC beneficiaries. If, for example, we considered only low-income DTC beneficiaries below the LICO in Table 4, individuals who would benefit from the conversion of the non-refundable DTC to a refundable DTC would receive an average increase of \$511 compared to the average benefit of \$29 for all individuals eligible for the current non-refundable credit, which would imply a benefit increase of 1,762 per cent! Using Campolieti's estimated application elasticity of 0.22, this would lead to an estimated 388 per cent increase in applications. Given our estimate that the prospective applicant pool is about the same size as the current population of DTC beneficiaries, we suggest a more modest upper bound of a 100 per cent increase in applicants, which would potentially double the cost to federal coffers, or an increase of \$71.8 million.³⁰

Since Campolieti's estimate of the application elasticity is at the lower end of previous estimates in the literature, we view the 3.7 per cent (\$2.6 million) estimate as a lower-bound estimate of the cost of additional applications arising from a refundable DTC. Similarly, our estimate of the effect on applications of an enhanced and refundable DTC is 26.6 per cent of the estimated cost of \$515.6 million, which would correspond to a lower-bound increase in costs of \$137.4 million. For combined federal and provincial implementation of a refundable DTC and an enhanced refundable DTC, the corresponding lower-bound cost figures would be 3.5 per cent of \$102.1 million, or \$3.6 million, and 25.8 per cent of \$755.8 million, or \$194.9 million.

While we have considered only direct benefits of a refundable DTC to this point, expansion of DTC applications arising from increased direct benefits under a refundable credit would also expand eligibility for the Registered Disability Savings Program (RDSP).³¹ The RDSP, a relatively new initiative begun in 2009, allows Canadian residents under 60 years of age

³⁰ Table 4 indicates that lower-income beneficiaries of the refundable DTC receive by far the largest increase in benefits, so these calculations represent an overstatement of the cost of new applicants who are not from the lowest family-income category.

³¹ We thank Herb Emery for pointing out this link between the DTC and the RDSP.

who are eligible for the DTC to open an RDSP with a co-operating financial institution and register it with the Canada Revenue Agency. The holder of the plan, or anyone with written permission, can make a contribution to the plan. Contributions are matched by a Canada Disability Savings Grant of \$3 for every \$1 contributed to a maximum of \$3,500 per year.³² In addition, an annual Canada Disability Savings Bond of \$1,000 is provided for 20 years for those with low incomes.³³ The maximum annual federal payment (grant plus bond) is currently capped at \$4,500 for 20 years or \$90,000, although contributions to the plan are only limited by a lifetime cap of \$200,000.

Despite its generosity, the take-up rate on the RDSP has been modest. A CBC News report³⁴ put the take-up rate at only one out of every six eligible persons with disabilities because of onerous enrolment restrictions.³⁵ A report from the standing Senate committee on banking, trade and commerce³⁶ cited the legal-capacity requirements for enrolment, the complexity of enrolment forms, the limitations on fund withdrawals, and inadequate communication of the plan as barriers to its growth. Nonetheless, if the enhanced refundable DTC increased applications by 26 per cent among low-income persons with disabilities, our lower-bound estimate, we might expect a corresponding increase in RDSP applications, assuming that the propensity to apply for the RDSP is similar across income groups. This would provide another form of increased income support for persons with disabilities in low-income families, especially if access to the RDSP program is improved.

6. CONCLUSION

An important limitation of the disability tax credit is its design as a non-refundable credit, since many eligible claimants have work limitations that increase the likelihood of low income and insufficient taxable income to benefit from the credit. In this paper we investigate potential reforms to the DTC that might address this issue. Using the SPSD/M 22.0 model, we show that the current non-refundable DTC, even if enhanced to three times its current value, would be an ineffective instrument to assist those adults with disabilities in low-income families. In contrast, a refundable DTC, which would entitle these tax filers to a benefit corresponding to the difference between taxes owing and the tax credit, would direct benefits primarily to these families most in need.

Our simulations include a simple refundable DTC at current levels of the credit and an enhanced refundable credit at three times the current levels of the credit for the federal and provincial tax systems and for the combined federal and provincial arrangements. We find

³² There is a family-income limit for the Canada Disability Savings Grant, currently \$87,123. Plan RDSP website, <http://www.rdsp.com/>.

³³ The current low income cut-off is \$25,356 for the full bond of \$1,000 but a partial bond is available for incomes up to \$43,561. Plan RDSP website.

³⁴ Amber Hildebrandt, "Canada Disability Savings Fund Called a 'Fiasco,'" CBC News, May 30, 2013, <http://www.cbc.ca/news/canada/canada-s-disability-savings-fund-called-a-fiasco-1.1317777>.

³⁵ The CBC report uses figures provided by Human Resources and Skills Development Canada of 68,000 RDSP accounts opened between 2009 and 2013 out of 500,000 eligible DTC recipients for a take-up rate of 13.6 per cent. Plan RDSP puts the take-up rate at one in five of those eligible, but provides no official figures. Plan RDSP website.

³⁶ Standing Senate Committee on Banking, Trade and Commerce, "The Registered Disability Savings Program: Why Isn't It Helping More People?" (March 2014), <http://www.parl.gc.ca/Content/SEN/Committee/412/banc/rep/rep03mar14-e.pdf>.

that the cost of simply adding a refundable component to the current non-refundable DTC is modest, about \$72 million at the federal level and \$31 million at the provincial level. The impact of such a scheme is to extend DTC benefits to more than half those families with incomes below the LICO, but incomes are raised only by a modest six per cent. Our estimates suggest an enhanced refundable DTC, on the other hand, would provide benefits to almost every family below the LICO and raise their incomes by 27 per cent at a cost of about \$516 million federally and \$240 million provincially. These refundable DTC schemes focus benefits on the poorest families, who are the primary recipients of the additional funds.

Our simulations are intended to be illustrative and warrant further exploration of potential DTC schemes to assist low-income families. An enhanced and refundable DTC might be accompanied by an enhanced non-refundable DTC or it might replace the current non-refundable DTC in whole or in part, leading to program costs and benefit impacts we have not considered. Moreover, we have not considered alternative benefit-reduction rates that might accompany the design of a refundable DTC and provide more effective targeting of benefits along the lines that Simpson and Stevens³⁷ have explored for the general population.

An important consideration in any simulation of tax changes is the potential behavioural response. In this regard, there is a dearth of research to date and much needs to be done. We have provided our assessment, which suggests that the labour-supply response for persons with disabilities is not likely to be important, particularly for those with work limitations in low-income families who would be major beneficiaries of any refundable DTC scheme. Potentially more important, however, are the induced DTC application increases that would arise for persons with disabilities in low-income families who would receive a substantial boost in benefits. Based on a study of application response in Quebec by Campolieti,³⁸ we estimate that the extension of the current non-refundable DTC to make it refundable would increase applications by only about four per cent, but that the enhanced and refundable DTC would increase applications by about 26 per cent. We view these estimates as lower bounds and the size of the prospective application pool of adults receiving provincial social assistance disability benefits suggests that the upper bound might be as high as 100 per cent or a doubling of program costs. Since the Registered Disability Savings Plan requires eligibility for the DTC, we might expect corresponding increases in disability benefits and program costs for this plan. More research in this area would be necessary to sharpen these estimates.

³⁷ Simpson and Stevens, "The Impact."

³⁸ Campolieti, "Forecasting."

APPENDIX A

TABLE A1 EMPLOYMENT RATE AND AVERAGE EMPLOYMENT INCOME BY TAXABLE-INCOME GROUP

Taxable-Income Group	Per Cent Employed		Average Employment Income - All		Average Total Income - All	
	All Adults	Adults Claiming a Dis. NRTC	All Adults	Adults Claiming a Dis. NRTC	All Adults	Adults Claiming a Dis. NRTC
No Taxable Income	3.1%	2.0%	\$851	\$906	\$7,726	\$12,968
Taxable Income <= NRTCs	52.6%	35.2%	\$4,690	\$4,219	\$14,771	\$21,635
Taxable Income > NRTCs	83.9%	64.3%	\$47,086	\$34,498	\$62,210	\$61,433
No Fed. Tax Paid	38.3%	19.5%	\$7,843	\$1,265	\$33,395	\$37,063
Any Fed. Tax Paid	84.3%	65.1%	\$47,429	\$35,123	\$62,432	\$61,891
TOTAL	69.9%	47.2%	\$32,291	\$18,548	\$45,474	\$40,220

APPENDIX B

Growth-Projection Methodologies for the SPSD/M Package – Version 22.0

SPSD/M's base year (2010) demographic data comprise a probability sample from provincial populations representing individuals and their living arrangements (i.e., individuals grouped in families and households). The demographic structure of the database is subsequently “grown” as follows:

- i. By adjusting household weights according to the change in Statistics Canada's provincial age-sex population estimates from the base year to each succeeding year. Provincial age-sex counts used to generate household weights for off-base years come from Statistics Canada's annual population estimates at July 1, and from its Population Projections for Canada, Provinces and Territories. These estimates are re-based to Dec. 31 in order to match the SPSD reference period prior to the weighting process. To derive the provincial population by age and sex for 2019, for example, the SPSD population is adjusted by the change in the annual population estimates' population from the base year to 2019.
- ii. By simultaneous adjustment of household weights to agree with Labour Force Survey data on annual average unemployment rates and employment to population ratios by age and sex and by province and sex for the years in which survey data are available. For future years, the participation rate is kept constant while the unemployment rate by age, sex, and province are modified by the growth rate of the projected national unemployment rate, which come from published estimates.

Statistics Canada's population estimates are revised on an ongoing basis between censuses; consequently, the population of off-base years may differ between versions of the SPSD/M.

In addition, database “growth” involves adjustment of dollar-denominated components of income and tax to account for inflation, real growth and/or other trends affecting aggregate amounts. This is done by adjusting individual dollar-denominated items in order to bring the growth rates into line with growth rates from T1 tax data, national-accounts data, or published projections. Static demographic and economic “growth” of this form assumes that the population remains unchanged in relative terms. For example, provincial population growth due to migration is accounted for by adjusting the base-year household weights. That is, the characteristics (e.g., family size, income, etc.) of persons already resident in a province are used to represent the characteristics of migrants to that province. Thus, some aspects of the relative distributional impacts of variant tax/transfer models will represent the base year regardless of the nominal year in which they are implemented or the growth parameters used.

Static database adjustments force agreement with aggregate control totals by minimal change (if any) to the underlying microdata. More ambitious attempts to project microdata would have to explicitly assign new characteristics to individuals, families and households. These characteristics would have to represent labour-market activity, personal finances and demographic events that are likely in light of 2010 microdata. Moreover, the assigned characteristics have to make sense in combination: migrants often change jobs and income

levels and are more likely to be young and unmarried than the general population. Each modification made to microdata will either weaken or distort correlations that should be present or introduce spurious correlations. Keeping microdata changes to a minimum guarantees that the correlations present in the data have an empirical basis.

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