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MARGINAL EFFECTIVE TAX RATES ACROSS PROVINCES

High Rates on Low Income

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Contents

Executive summary

An examination of effective tax rates at the margin across the provinces shows something striking: individuals and families earning relatively modest income are the ones who face the highest marginal effective tax rates (METRs). For families with incomes between $30,000 and $60,000, METR averages are near to or exceed 50 percent; in Quebec, the METR is 53 percent for a representative family with combined income in this range. This is concerning from a policy perspective given how the tax and transfer system alters the incentives for individuals and families to seek out productive, income-generating opportunities. Currently METRs across provinces offer very low net-of-tax returns to earnings in the low to middle income range, discouraging the earning of additional income which is traded off against reduced transfer benefits.

Often discussions about the personal income tax system in Canada focus on statutory tax rates—the progressively tired system by which incremental income is taxed at increasingly higher rates. However, in assessing the overall impact of the tax-and-transfer system on individuals and families, it is effective tax rates at the margin that account for the combined effect of the tax-and-transfer system and illustrate the real net-of-tax returns to earned income. In comparison to statutory rates, METRs convey the impact of transfers on individuals and families, the effect of reductions to income-tested transfers as earnings increases, and the net result of the complex interaction between earnings, transfer programs, tax credits, and taxation of income.

This study provides a primer on interpreting METRs; it also gives measurements for the current set of METRs for working-age, two-earner families across provinces. It offers some background on the concerns associated with high marginal effective tax rates and concludes by looking at some proposals to reduce the negative impacts associated with high METRs.

The intention of this study is three-fold. First, to provide a survey of current METRs across provinces as a reference point for tax policy analysis and discussion in Canada. Second, to provide some background on the interpretation of METR figures and give an overview of some of the tax and transfer programs that determine their shape. And third, to highlight the fact that a survey of METRs in Canada leads to the troubling con-

clusion that individuals and families with relatively modest incomes are facing extremely burdensome effective tax rates—often higher than those earning in the top income brackets—and this is undoubtedly diminishing incentives to seek additional income and, by extension, is likely creating barriers to upward mobility.

Effective Tax Rates at the Margin: A Primer

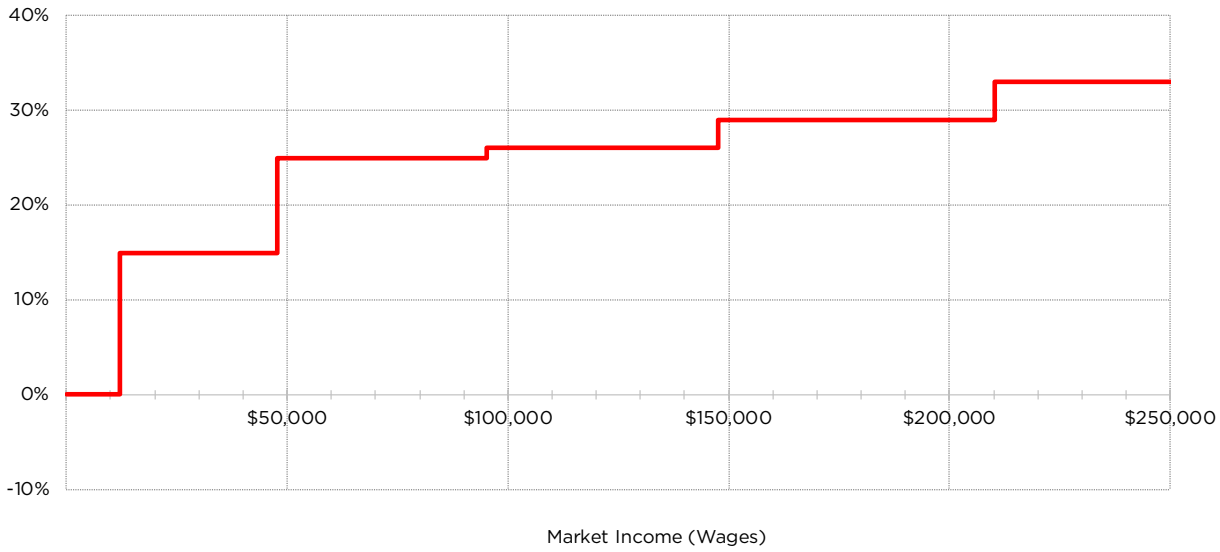
This section reviews how to interpret marginal effective tax rates, as they can produce visually complex and at times counterintuitive results. My hope is that this will lend clarity to the material covered in the paper and allow a broad cross section of readers to make use of the results presented. I'll do my best to keep the explanations short, clear, and punctuated with examples that should help illustrate the concepts. That being said, if you are well acquainted with interpreting METR graphs then you may wish to skip this primer section.

Marginal effective tax rates at the personal level, whether individual, family, or household, essentially account for the combined effect of the tax-and-transfer system and thus represent the real net-of-tax returns to earned income. Central to the concept is the *marginal* and *effective* nature of the measure.

The measure is *marginal* in the classical economic use of the term in that it is measured on the last dollar earned where decisions are affected by financial incentives. However, in modeling the METR curves, which will be presented below, the notion takes on additional meaning in that the result is continually evaluated as income increases, producing a continuous set of results that can be graphed as a curve. This modeled incrementing of income allows us to derive the METR at any point of income and compare that with any potential change in income to another point along the curve, further allowing us to see exactly how tax-and-transfer induced behavioural incentives change at different income levels.

The measure is *effective* in that it accounts for all aspects of the tax-and-transfer system to arrive at a net of tax-and-transfer result, accounting for the complex interaction between earnings, personal taxes on income, and the granting and reduction of tax credits and transfer benefits. Effective measures stand in contrast to something like a statutory tax rate schedule on personal income that illustrates only one aspect of the personal tax system in isolation. Absent the full picture revealed in an effective analysis, the tax rate schedule on personal income does not provide much insight into the difference between gross and net-of-tax income, or rather

Figure 1: Federal Statutory Income Tax Rates in Canada



Source: Canada Revenue Agency (2019a) and calculations by author.

the difference between what an individual or family earns and what it has to spend after its interactions with government are fully accounted for.

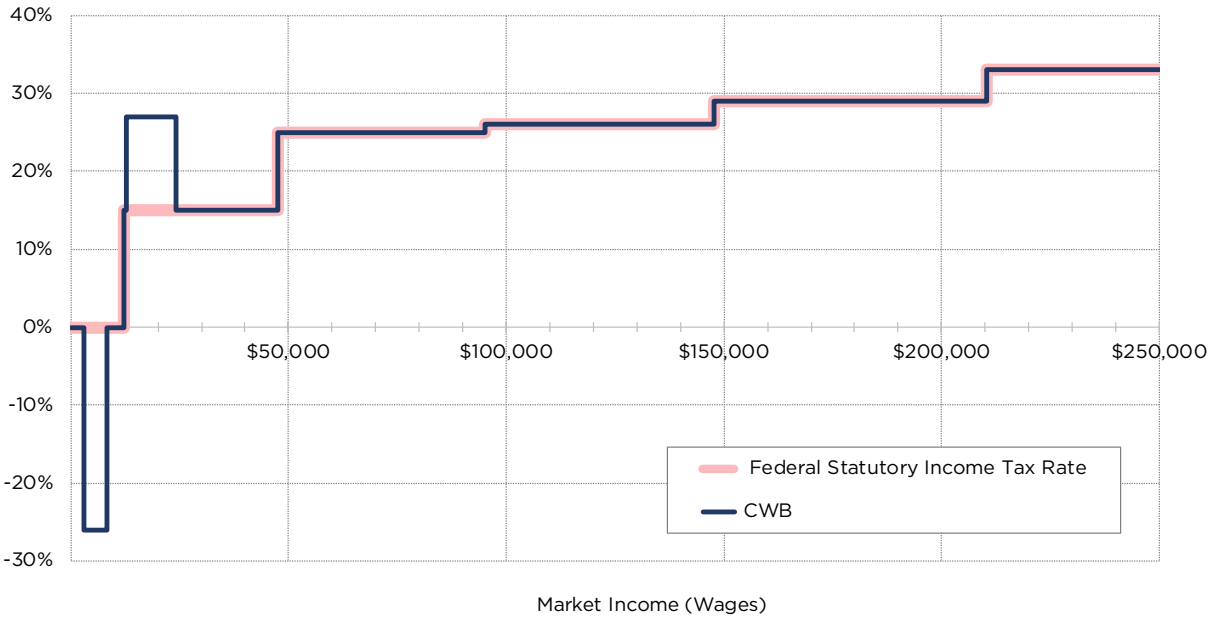
Figure 1 graphs the 2019 federal statutory tax rate on personal income. This graph does away with all the complexity of the transfer system and provincial programs and simply illustrates the relationship between earned income and federal income tax rates on net personal income.[1] As income goes up, so does the rate at which net income is taxed. Because these changes happen along discrete income brackets, the graph takes the shape of stepped stairs ascending to the right. This figure offers little in the way of surprises, and most notably illustrates the basic federal personal amount on income whereby the first $12,069 essentially goes untaxed, technically being returned as a non-refundable tax credit.[2]

This figure helps establish a few things to keep in mind for interpreting METR graphs. This is not a graph of an individual at a particular point in time, but rather the expected levels of taxation at each potential point of income that might be earned. With earnings along the bottom

[1] There is more information on the distinction between earned income and net personal income upon which statutory rates are applied later in the paper.

[2] For more information, see Canada Revenue Agency's publication *Canadian Income Tax Rates for Individuals – Current and Previous Years* (2019a).

Figure 2: Interaction between Federal Statutory Income Tax and Canada Workers Benefit



Source: Canada Revenue Agency (2019a) and calculations by author.

axis we can consider the personal income tax rate an individual would face as their income increases, 0% from $0-$12,069, 15% from $12,070-$47,630, and so on.[3]

The next example (figure 2) is intended to demonstrate the impact of a federal income transfer program, namely, the Canada Workers Benefit (CWB), and the associated reduction or "claw-back" of the same benefit as income increases. Here it is important to establish that for the purpose of METRs, the reduction of a transfer benefit as income goes up is treated the same as a form of taxation. This is due to the fact that it reduces the after or net-of-tax return on earnings just as a tax would.

Figure 2 is intended to illustrate the impact of a transfer program that grants a benefit as income increases, then claws it back as a single individual passes some higher income threshold. It contains the same federal statutory rate structure as figure 1 (red line), but includes the impact of the Canada Workers Benefit[4] transfer program (blue line) with the follow-

[3] Or rather as income is synthetically incremented from the perspective of modeling METRs.

[4] The Canada Workers Benefit, formerly known as the Working Income Tax

ing parameters: at $3,000 of earned income the individual becomes the recipient of the transfer—in the form of a refundable tax credit—which is phased in at a rate of 26% (or 26 cents on the dollar) to a maximum benefit value of $1,355 dollars. This benefit is then clawed back at 12% when earnings exceed $12,820 dollars. The math here is simple: for every dollar earned in excess of $3,000 the individual is taxed—or rather not—at 0%, and receives 26 cents in benefit. Taken together, this means that for every dollar an individual earns, he or she receives $1.26. Thus the individual's METR over this range is -26%.

With a maximum benefit of $1,355 phased in at 26%, the effective tax rate is altered over a range of $5,211 of earnings, from $3,000 to $8,211. As the threshold for the clawback does not occur until $12,820, the individual simply faces their statutory rate on earning between $12,069 and $12,820 of earnings—so the two lines converge. Once an individual crosses the $12,820 income threshold, additional earnings are taxed at the statutory rate on income, and are further reduced by the CWB clawback of 12 cents on the dollar, leading to a METR of 27% over the earnings range ($12,820 to $24,112), until the $1,355 benefit associated with the CWB has been completely taxed (clawed) back. At this point, the METR and statutory rate on income are the same—and the red and blue lines converge—as the range of income over which CWB program alters the effective tax rate has been exceeded.

The example in figure 2 is simple but covers all the mechanisms necessary to understand how METR curves are interpreted and why they can be counterintuitive to those who consider taxation primarily in terms of statutory rather than effective tax rates. The move from this simplified example to a full provincial METR shows that it is similarly composed of a base curve representing statutory tax rates on net personal income that is altered by payroll deductions, transfer benefits, and tax credits. Some of these credits and transfers are phased in then clawed back (such as the Alberta Family Employment Tax Credit), others are granted at zero earnings and clawed back as earnings increase (the Canada Child benefit), and still others are phased in to some defined benefit level but not withdrawn (Canada Pension Plan (CPP) and Employment Insurance (EI) contribution tax credits).

Benefit (WITB), represents an enhancement to benefits under WITB as well as higher thresholds for claw-back. In addition, values may differ for "Nunavut, British Columbia, Alberta and Quebec, for which there are unique calculations. These provinces and territories have entered into reconfiguration agreements with the federal government to make specific changes to the design of the benefit" (Canada Revenue Agency, 2019b).

Figure 2 illustrates how an individual or family with a relatively modest income can face a higher marginal effective tax rate than those in the highest statutory income tax bracket when faced with the prospect of multiple simultaneous claw-backs imposed by overlapping transfer programs. Though the figure 2 example is simplified for the sake of clarity because it represents a single transfer program that interacts with income taxes for an individual, it gives us all the tools we need to understand what is happening when we look at a METR curve with overlapping taxes, transfer programs, and clawbacks. In contrast to the simplicity of the figure 2 example, the complexity of an METR graph for a given province is derived from the fact that it represents *all* tax and transfer program features for a number of benefits and tax credits at both the federal and provincial levels simultaneously. So, while the individual programs themselves are as simple as the example above, the resulting graph is complex given the overlap and interactions between the numerous programs at any given level of earnings.

An important distinction must also be introduced at this point: the earnings definition on which personal income taxes are levied is different than the earnings definition on which transfer benefits are evaluated for families. For instance, in the calculation of income taxes, first an individual's net or taxable income is calculated, then the corresponding federal and provincial rates are applied, and finally any tax credits reduce the amount of taxes owing. The statutory rate will always be determined by an individual earner's net income, and never the combined income of an earner plus a spouse—though tax credits and deductions are determined in part by the earnings of a spouse or circumstance of a child. In contrast, transfer benefits are generally based on combined net family income that accounts for the earnings of both spouses. In addition, some transfer programs use an "adjusted" net family income definition for evaluating benefits, which will often exclude the income associated with other transfer programs to limit the interaction and compounding effects between two income-tested programs. For instance, the Canada Workers Benefit transfer program modeled above establishes an adjusted net income definition that excludes income associated with the Canada Child Benefit. In addition, tax credits and transfer benefits may vary with number of children or other circumstances such as disability of a family member.

The next section explores how the design of the underlying tax and transfer programs gives shape to the METR curve for a particular jurisdiction, altering financial incentives and thus decisions regarding labour participation or hours worked. This issue of labour participation incentives represents a central concern in policy design where individual program parameters as well as the combined impact of overlapping tax and transfer policies significantly alter the net-of-tax returns to paid work.

Economic Impact of Transfer Programs on Labour Incentives

The results for average METRs across provinces along with the model results for the base case family presented below clearly illustrate that low- and modest-income families in Canada face high effective tax rates at the margin, often near or exceeding 50% in the earned income range of $30,000 to $60,000. As such, current net-of-tax returns to additional earned income are substantially lower than one might conclude by looking at statutory tax rates. Perhaps the most immediate and concerning consequences of such high METRs over this range is the altering of incentives to seek or take on additional earned income.

By substantially lowering the net-of-tax returns to earnings over this critical income range, the overall impact of the tax-and-transfer system reduces the incentive to seek opportunities to earn incremental income, and in turn to improve the financial standing of low-income families. This has broader socioeconomic implications in the long-run for families trapped in the inter-generational cycle of poverty.

Families at the low end of income see returns to labour diminished beyond the point where taking on additional work becomes attractive. This dynamic also applies to higher income ranges but has much more concerning implications for low-income families. Whereas high METRs discourage additional work and savings for higher income individuals—with the broader implication of reduced growth and productivity at the national level—at the low end of income this can reinforce the cycle of poverty by encouraging people to rely on benefits.

In contrast, if low-income families were not so heavily penalized by overly burdensome METRs, opportunities to earn additional income would offer more attractive net-of-tax returns and lower the cost of trading off additional earned income against benefit reductions. In this way, high METRs also diminish incentives to boost skills and education in order to secure incremental career growth that would enable higher savings over the long run and reduce instances of poverty later in life. In addition, high METRs increase the incentive for tax avoidance, making employment

opportunities in which income is not reported and taxes uncollected more attractive at lower levels of pre-tax pay. This comes with increased incentives for individuals to take on employment that is more precarious or transient, and in which benefits, employment insurance, and CPP, are not accrued.

Evidence from the literature on this topic—for Canada and abroad—confirms that policy determinants translate to concrete impacts on labour force participation and hours worked. Studies such as Causa (OECD, 2009), Eissa et. al (NBER, 2005), Poschmann (CD Howe, 1999), and Davies (CD Howe, 1998) draw on empirical studies of labour market responses to changes in METRs and offer compelling evidence for labour force responses to taxes at the margin.

Evidence in Eissa's 2005 paper for the National Bureau of Economic Research further suggests that program design as a driver of these responses can produce disparate outcomes across different family structures. Similar and less ambiguous findings in Causa's 2009 paper for the OECD *Journal of Economic Studies* establish "that policies and institutions have a differential impact on working hours of different groups in the labour force"; it specifically identifies a much larger response to high METRs for women compared to men. The study also establishes further differences in the response for women with varying levels of education, with more educated women showing less labour response to taxation. Causa's findings offer a conclusive response to a central question explored in the microeconomic literature on labour supply behavior in response to taxation and it confirms the "importance of the disincentive effects attached to marginal taxation for women, who are most often second earners."

These studies are only a few examples in a broad literature establishing that METRs have a direct impact on labour force participation and so present a critical concern in the design or modification of income-tested transfer programs whether at the federal or provincial level.

The next section will fully deconstruct the METR for a chosen province on a turn-by-turn basis. This will serve to fully and unambiguously illustrate how the cumulative effect of the tax-and-transfer system shifts as income increases, and will also introduce the primary federal and provincial programs that alter the net-of-tax return to earned income.

Deconstructing Alberta's Marginal Effective Tax Rate

This section will build on the above primer and provide a detailed analysis of effective tax rates for a base case family in the province of Alberta in 2019. This will include a full account of the federal and provincial programs that give shape to the METR curve in the province. Each province will have its own curve, given the variation in provincial programs, but for the purposes of this paper we will be deconstructing one as an example.

Before proceeding it is important to establish the structure of our base case as well as some of the assumptions embedded in the METR graphs. For the modeling of all the METR graphs presented below, we have used the same family used across provinces.[5] It is composed of two working-age parents, both of whom earn income, and two children aged 8 and 5 years.[6] The family was chosen on the basis of simplicity and in an attempt to avoid triggering any programs that would be highly case specific, as this would give rise to an METR that was then representative of that particular family's circumstance rather than a broad cross-section of the most common tax and transfer features. For instance, a family with distinct medical needs or a child with disabilities would qualify for several medical expense and disability tax credits that would alter the shape of their METR curve, making it very specific to that particular family context.

The presentation of the METR curves in this paper is based on an x-axis variable of earned income, and the base case family was chosen in part because their income is entirely composed of wage income rather

[5] This analysis is based on Statistics Canada's Social Policy Simulation Database and Model (SPSD/M), the assumptions and calculations underlying the simulations results were prepared by the author, and all responsibility for use and interpretation of these data lies with the author.

[6] Our two earners are assumed to earn income in equal levels at the same rate. This assumption is not trivial and will produce a different METR curve than a case that assumes a single earner, or earners who bring in unequal amounts of income. Neither case is problematic, and a different assumption would likely result is small adjustments to the income thresholds at which benefits are triggered. The modeling exercise here necessitates establishing a base case, so the two-earner family was chosen for comparability.

than dividend or capital gains income, which attract different income tax rates.[7] In addition, only taxes on income are considered; the impact of consumption taxes is not reflected.

Figure 3 shows the METR curve for our base case family in Alberta. To differentiate the impact of federal from provincial programs, the figure also shows METR curve for underlying federal programs. This is helpful to visualize the federal tax and transfers that underlie all provincial METR curves. The provincial curve can be thought of as modifying a base federal curve by adding additional taxes to it—in which case the provincial curve will be higher—or by adding additional transfers and so further reducing the effective rate—in which case the provincial curve will lie below the federal curve.

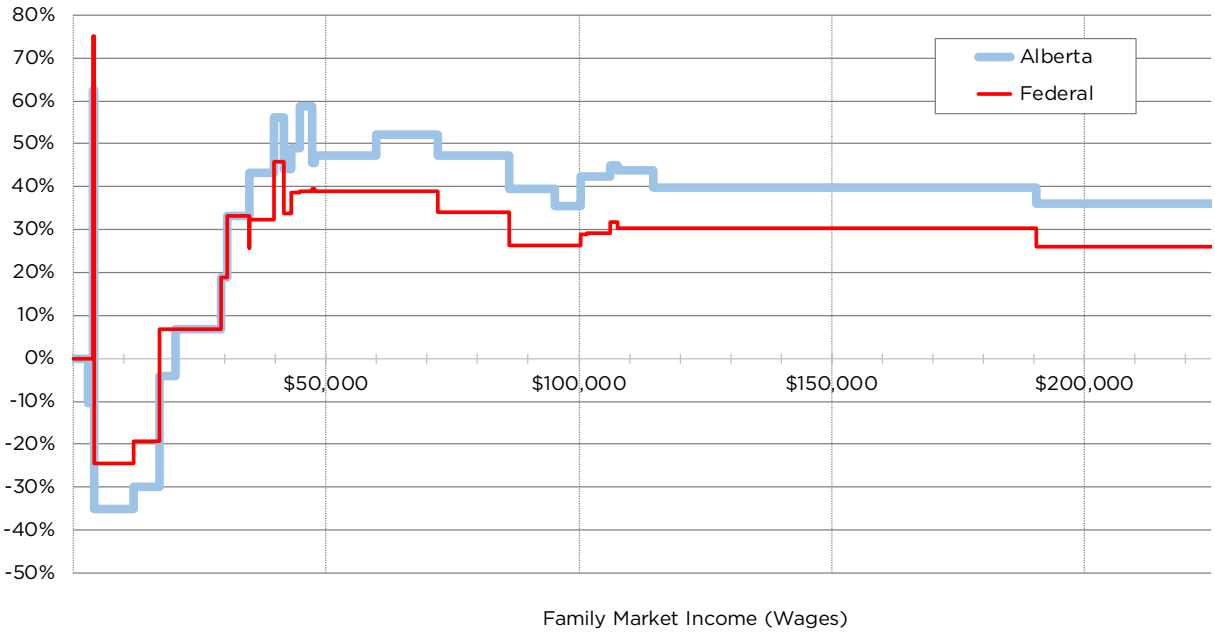
Figure 4 shows the METR curve for three different cases: one is the base case from figure 3 with no changes; the second is for a single earner family with the same structure as our base case; and the third explores a scenario in which one spouse's income is fixed at $15,000 while the primary earning spouse's income is incremented as usual. This figure serves to illustrate a few different points which we will explore below.

Families with a primary earner will generally face higher METR rates at lower income levels, but also at the higher end of earnings. This is owing to the simple fact that total family earnings in this scenario largely represent the taxable income of a single individual. For example, a single earner bringing home $45,282 in net income in 2019 will be taxed at the first bracket of 15%. If their income were to double, they would pay 20.5% on the next $45,282. However, if instead their non-working spouse was to bring home that additional $45,282 of net income—also facing 15% in the first bracket—the whole amount would be taxed at 15%, as compared to the single-earner family who would face a 20.5% bill at the margin and an average tax rate of 17.75%. Thus, a given level of net family earnings spread between two earners will attract a lower marginal statutory rate on income than the same amount earned by one.

This dynamic persists when considering the net impact of transfer programs as well, given that programs are evaluated based on net family income, which accounts for the earnings of both spouses. This is illustrated by the fact that the METR curve, representing the primary earner case (green), is most often above that of the base case (blue) where income

[7] In addition, there is the potential to use total income including transfer income as the X-axis variable. This has the benefit of indicating the value of all transfers when zero dollars are earned, but also obscures the picture with regards to earned income. As a central focus of this paper concerns the negative impact of high effective tax rates on the incentives for earnings, we made the choice to frame the METR graph in the context of earnings.

Figure 3: Marginal Effective Tax Rates in Alberta for a Two-Earner Family with Two Children



Source: Statistics Canada's Social Policy Simulation Database and Model (SPSD/M) and calculations by author.

Notes for Figure 3

$0: At zero earnings, all family income is composed of transfers. For our base case family, this translates to $15,230 of federal-provincial transfer income, primarily composed of the Canada Child Benefit at roughly $12,200, plus the refundable federal sales tax credit and the Alberta Child Benefit.

$0 - $2,800: Over this range, the METR is 0%, as this initial bit of earned income attracts no income tax and triggers no additional employment tax credits or program claw-back.

$2,801 - $4,000: Here we see a two-leg drop in the METR, first as the Alberta Family Employment Tax Credit (refundable at 10%) becomes active, followed by the federal refundable Canada Workers Benefit (25%)

$4,001 - $4,064: The spike here is associated with federal Employment Insurance contributions (EI). Over this narrow range, income is fully clawed-back dollar for dollar. If there were not additional tax credits reducing the METR over this range, the spike would reach 100%.

$4,065 - $12,000: In this earnings range, Canada Pension Plan contributions begin, but the METR remains low due to the above-mentioned benefits in addition to the CPP & EI tax credits (15% of contributions) which are provided at both the federal and provincial levels. The step up at roughly $12,000 represents the range of income over which the provincial and federal "married or equivalent" tax credit begins to be clawed back.

$12,001 - $16,000: This section sees a relatively large step up from -30% to -5%, representing the plateau of the Canada Workers Benefit (26%). Though the program is not yet being clawed back, the end of its payout

Notes for Figure 3 *(continued)*

phase increases the METR as the ratio of incremental earnings to disposable income is lowered, given the credit's absence at the margin.

$16,001 - $29,000: This range is defined by the interaction of several programs mentioned earlier. The additional income triggers the income-tested claw-back threshold for the Working Income Tax Benefit. The claw-back occurs at a lower rate of 12%, as compared to the 25% rate at which the program is initially granted.

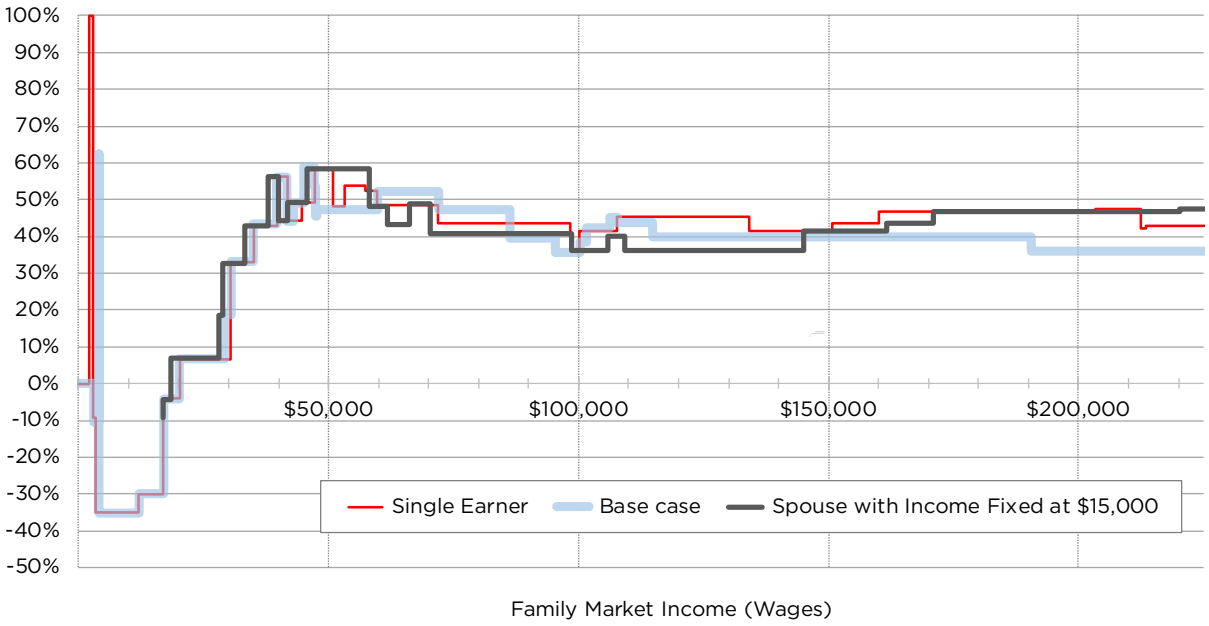
$29,001 - $48,000: This section sees a series of stair-steps upward along with the METR moving into the range over 50%. The first step up from roughly 5% to 20% is the point where the basic federal amount (basic income exemption tax credit) is exhausted and federal taxes on taxable income become payable at a rate of 15%. The next step up into the roughly 35% range represents the clawing back of the Alberta Child Benefit at 10.5% for a family with two children. Following this, a brief dip represents the end of the claw-back range for the married or equivalent tax credit, lowering the METR. This is followed by two steps up to the highest sustained METR of roughly 59%. This represents a move into the claw-back ranges for the first phase of reduction for Canada Child Benefit (13.5%) and federal sales tax refund (5%) respectively. Finally, as we approach the $50,000 earnings range, there is a dip owing to the end of the claw-back ranges for the Alberta Child Benefit and the provincial married or equivalent tax credit, but also accompanied by the start of income tax payable at the provincial level.

$50,000 - $100,000: The initial drop preceding $50,000 represents the end of the federal sales tax credit claw-back range. The next step up back over the 50% METR threshold represents the claw-back range for the Alberta Family Employment Tax Credit (5%), and the following step down then signals its complete reduction. The leg down at roughly $86,000 in this range represents a lower claw-back rate associated with the second phase of the Canada Child Benefit reduction, which sees the claw-back rate drop from 13.5% to 5.7%.

$100,000 - $195,000: The initial 2 legs up at $100,000 represent the point at which both earners cross into the second federal income tax bracket, along with a plateau in the provincial Employment Insurance tax credit. At roughly $114,000, both EI and CPP contributions are complete, accompanied by a plateau in the corresponding federal and provincial tax credits. This is shortly followed by a cross into the third federal income tax bracket for both earners at 26%. At roughly $195,000 there is a step down as the Canada Child Benefit claw-back range comes to an end.

$195,000+: At this point, all federal and provincial transfers have been clawed back, along with income-tested tax credits. Non-income-tested tax credits, such as those associated with EI and CPP, have plateaued at their maximum values, and thus no longer contribute to the METR. The METR from $195,000 onward essentially converges with the combined statutory rate on taxable income until it reaches the maximum value of 48% in Alberta.

Figure 4: METRs in Alberta for a Base Case, Single Earner, and Primary Earner Family



Source: Statistics Canada's Social Policy Simulation Database and Model (SPSD/M) and calculations by author.

is earned at equal rates by both spouses. It is important to remember here that in the fixed earner case, the family is essentially a single earner family above roughly $30,000 in pre-tax family earnings, whereas in the base case, income is generated in equal amounts by two earners all the way up.

Let's focus in on our primary earner case (spouse with a fixed income at $15,000) for a moment, as this case is particularly helpful for considering the interaction between labour participation incentives and taxes for a secondary earner. Let's imagine the green curve represents a family with a primary earner and one spouse who prefers to spend most of their time at home with the children, but also works 15 hours a week to help cover expenses for the family and brings in about $15,000 a year. A look at the corresponding green curve beyond $30,000 of family income shows that the METR we see is essentially a product of the income generated by the primary earning spouse. However, it also represents the METR that the secondary earner would face *should* they choose to take on additional work and generate income beyond the $15,000 where their income has been fixed for the purpose of this exercise.

From here we can imagine a scenario in which the primary earner brings home $40,000 in addition to the secondary earner's fixed $15,000,

Table 1: Average Marginal Effective Tax Rates for Select Income Levels Across Provinces

Total Household Market Income	$0 to $30,000	$30,001 to $60,000	$60,001 to $100,000	$100,001 to $150,000	$150,001 to $200,000	$200,001 to $300,000	$300,001 to Max	All
Newfoundland & Labrador	17%	47%	37%	42%	43%	42%	45%	37%
Prince Edward Island	18%	44%	43%	41%	43%	42%	46%	39%
Nova Scotia	17%	45%	39%	41%	42%	43%	45%	38%
New Brunswick	15%	42%	39%	40%	41%	42%	41%	36%
Quebec	16%	53%	47%	45%	48%	45%	44%	43%
Ontario	14%	44%	37%	37%	40%	41%	44%	35%
Manitoba	13%	45%	39%	41%	41%	42%	41%	36%
Saskatchewan	9%	40%	39%	38%	41%	38%	40%	34%
Alberta	14%	38%	37%	37%	38%	38%	40%	35%
British Columbia	9%	42%	32%	35%	39%	38%	40%	32%
All	14%	46%	40%	39%	41%	41%	43%	37%

Notes:

1) Colors represent high to low values per row. The color gradient starts at bright green for low values and moves to bright red for high vales, with tinted colours in the mid-range.

2) The 'All' column represents the average across all incomes for $0-Max.

Source: Statistics Canada's Social Policy Simulation Database and Model (SPSD/M) and calculations by author.

placing the family's METR in the highest sustained range of roughly 60%. Remembering the lessons learned in the earlier "Economic Impact of Transfer Programs on Labour Incentives" section, how should we imagine that a net-of-tax return of 40 cents on the dollar earned will affect the choice of our secondary earner should they consider taking on additional hours of work? At the very least, the net-of-tax return is a factor that most will consider as they ponder this decision. In some cases it may alter the outcome, in others not.

The data appendix (Appendix 1) presents the METR curves for the remaining provinces. Those interested in further analyzing or deconstructing the curve for a particular province should see the government of Canada's list of provincial and territorial programs to get a sense of the program parameters that augment the baseline federal METR curve

presented in figure 3 and give shape to the METR curve in a particular province (Canada, 2014). In addition, appendix 2, "Large Variations in METRs across Provinces and Income Levels" contains a figure showing METRs across provinces for families with $30,000, $40,000, and $50,000 of market income. This figure allows for a quick reference and comparison of the METRs faced by families at the lower end of income, and visually highlights the steep escalation of METRs that occurs over relatively modest changes in earnings.

A look at the METR curves across provinces shows that families with earnings below $20,000 benefit from negative METRs due to the federal and provincial basic exemptions amounts and employment tax credits. Families earning below $35,000 also benefit from the full value of the Canada Child Benefit along with provincial counterpart programs such as the Alberta, Ontario, and Manitoba Child Benefit, with each province providing some additional support for families with children. But above $20,000 in earnings there is a clear, characteristic steep rise in METRs, which tend to reach a sustained peak near or above 50% in the $40,000 to $60,000 range of earnings—ignoring the brief spike associated with the beginning of EI contributions.

Table 1 includes a critical difference from the METR curves and figure presented earlier in the paper and in the appendix. Whereas METR curves represent a modeled or synthetic exercise that allows us to derive the METR at any point of income for a particular family type, table 1 represents the actual METRs averaged across families in various income groups and provinces in Canada. Table 1 includes a broad number of family structures including households with one or two parents, one or two earners, and between 1 and 3 children, all of whom are under age 18. The range of scenarios in table 1 is wide-ranging, and aims to convey a sense of what is happening with family METRs in Canada in general, rather than with just one particular family type.

Table 1 is primarily intended to highlight the real average net-of-tax returns to work across provinces and income groups, and further establish that current METRs in Canada have the most harmful effect on incentives for additional work at the low end of household income. In the majority of the provinces, the first income bracket ($0 to $30,000) benefits from the lowest average METR, while those in the second income bracket ($30,000 to $60,000) face the highest average METR across income groups. This applies in Newfoundland, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, British Columbia, and the average across all provinces.

However, the results in table 1 taken together with those in figure 4 also beg the question: Do families struggling with poverty face METRs as high as 30%, 40%, or 50%? The results would suggest they do.

One point to keep in mind here is that METRs in figure 4 and table 1 are presented in the context of earnings. However, total disposable income for families is determined not by earnings alone, but also by transfer income. Disposable income is also the basis on which we tend to measure economic well-being and establish poverty thresholds. So we must first convert earnings to disposable income in considering the question set out above. Returning to our base case family, earnings for 2019 in Alberta in the range of $35,500—in that critical high METR $30,000 to $60,000 range—would roughly correspond to a total disposable income of $46,400 once federal and provincial transfer income is accounted for; in Ontario the same family with earnings of $35,500 would have a disposable income of roughly $48,100.

The 2017 average Canadian LICO (Low-income Cut-offs) published by Statistics Canada adjusted to 2019 dollars establish a disposable income threshold of $41,381 for a 4-person family in population centers of over 500,000 people. The alternate LIM (Low Income Measure, 2015, converted to 2019 dollars) establishes a threshold of $47,455, while the MBM (Market Based Measure, 2017, converted to 2019 dollars) establishes a disposable income threshold of 43,233 in Toronto, and 42,026 in Calgary.[8]

Compared with the total household disposable income of $46,400 for our base case family of four in Alberta and $48,100 in Ontario,[9] we see these families have income roughly 12% and 16% above provincial LICO thresholds for large population centers, -2.2% below and 1.4% above with respect to province-wide LIMs, and 11% and 10% above the MBM thresholds for the major population centers of Calgary and Toronto respectively. This represents a thin margin of disposable income in excess of the MBM or LICO standards of poverty, and little variation from the LIM standard. This implies a very likely constraint on savings, if not a more immediate constraint on day-to-day spending for essential goods and services among many families in the earnings range between $30,000 and $40,000, the range corresponding to the most burdensome METRs and thus lowest net-of-tax incentives to seek or take on additional paid work.[10]

[8] The MBM was recently adopted by the government of Canada as the official standard for benchmarking economic well-being and poverty. Previously the government also tracked and used LICO and LIM.

[9] This corresponds to $35,500 in household earnings before tax and transfers.

[10] For more information on the LICO, LIM or MBM as a measure of 'economic well-being' see Statistics Canada, Income Statistics Division (2016) and Statistics Canada (2019). Note that LICO and LIM presented here are both after-tax household income for a family of four. These are two of Canada's primary measures of economic well-being, along with the MBM (Market Based Measure). In my experience, few agree which measure should take precedence while others argue for more stringent

If we truly wish to help Canadian families with low income escape the intergenerational cycle of poverty, it seems starkly counterintuitive that governments burden precisely these families with the highest METRs among any income group, greatly diminishing their incentives to seek or take on additional work, and by extension, potentially technical training, or education that might serve such goals.

measures of economic well-being, such as food insecurity. This comparison is intended to be informative, but by no means definitive.

Marginal Effective Tax Rates in Canada: Recent Policy Design in Family Targeted Benefits

Finn Poschmann's earlier work on effective tax rates at the margin provides a point of historical comparison with the current estimates presented here, along with an excellent overview of the development of targeted family benefits prior to 2011.[11] Following 2011, the most significant change to targeted family benefits at the federal level has been the 2016 replacement of the Canada Child Tax Benefit and Universal Child Care Benefit with the Canada Child Benefit. For comparison, in 2019 our base case family in Alberta with $0 of earnings would receive roughly $15,200 of income support, with the bulk ($12,230) coming from the Canada Child Benefit, along with the Federal Sales Tax Credit, Alberta Child Benefit, and Alberta Climate Leadership Adjustment Rebate. In 2010, this same family would have expected only roughly $9,900 (in 2019 dollars), with the majority coming from the Canada Child Tax Benefit at $7,600, and the remainder from the Federal Sales Tax Credit and Universal Child Care Benefit.[12]

All things considered, the current Canada Child Benefit represents a marked improvement in policy design from precursor programs, and among families with small to modest earnings it represents a tangible positive development with regards to income support. The CCB changes are a major development as the program is the federal government's primary targeted family benefit, significantly augmenting the income of its recipients.

With higher earnings thresholds and lower claw-back rates (in the first phase of reduction) the Canada Child Benefit implies less burdensome METRs and increased support for families with modest incomes

[11] For an overview of provincial and territorial benefits and credits see Canada (2014). For a historical point of comparison with current METRs as well as a more in-depth discussion of the development of family oriented tax and transfer programs, see Poschmann (2008) and Poschmann and Laurin (2011).

[12] In 2015, the per-child Universal Child Care Benefit payments increased, but this is not be reflected in the 2010 values represented here.

across provinces. However, an unfortunate drawback of the change sees families with earnings in $30,000 to $60,000 range—corresponding to the second phase of the claw-back under both the new Canada Child Benefit and former Canada Child Tax Credit—find their METRs increased by 1.7%.

At the provincial level there have also been a number of incremental updates to provincial programs targeted to family support, along with the introduction of new programs in Alberta, BC, and Ontario after 2011. While in some cases these changes have represented little more than inflation-adjusted incremental updates to program payouts, in the case of newly introduced programs such as the Alberta Child Benefit, BC's Early Childhood Tax Benefit, and Ontario's Low-income Individuals and Families Tax Credit (LIFT), we have seen substantial additions to family-targeted income relief programs.[13] Across provinces the introduction of new income support programs has created additional relief for families with modest incomes. But, with income-testing, these programs also bring additional claw-backs that push METRs even higher in the low- to middle-income range.

The introduction of the Alberta Child Benefit in 2015 created an income-tested transfer in the form of a refundable tax credit based on the number of children in a family. It has a maximum payout of roughly $1,150 for the first child plus $575 for each additional child with benefit reduction starting at $26,600 of taxable income. The BC Early Childhood Tax Benefit is similarly designed as an income-tested refundable tax credit, but with a maximum benefit of $660 per child that is gradually reduced above $100,000 in net family income.

The different approaches that Alberta and BC have taken are informative for those looking to understand how choices made in transfer program design ultimately affect the METRs, given differing benefit levels and income testing thresholds. For example, the new BC Early Childhood Tax Benefit has a much higher income threshold before the payouts are reduced, but the overall payout is lower than the new Alberta Child Benefit. In this difference we are seeing BC make two tradeoffs: one is low-income targeting against elevated METRs at the lower end of earnings, and the second is overall benefit levels against the total cost for the province. With its higher income-testing threshold, the BC Early Childhood Tax Benefit will push METR impacts above the $30,000 to $60,000 range. This implies a higher overall program cost—at a given benefit level—since a greater number of families will qualify for the full transfer amount, which leads to the necessity of a lower per-family benefit in order to keep the cost down for the province.

[13] The BC Early Childhood Tax Benefit is due to be replaced with the Child Opportunity Benefit in 2020 (British Columbia, undated).

In contrast, the Alberta Child Benefit, with its lower income-testing threshold, is more tightly targeted to lower income households and thus allows for a higher benefit level. In contrast to BC, Alberta's policy design tradeoff will see the METR impact associated with program claw-backs pushed into the lower income range, and so it will elevate the METR where it tends to already be the highest.

The different approaches to family targeted transfer design in Alberta and BC highlight the fact that consideration of METRs in transfer program design is a complicated balance of goals in a framework of tradeoffs. There is no simple win-win way to lower METRs. One program objective, such as low-income targeting, must be traded off against another, like maximum benefit levels, METR impacts, or program costs.

No Easy Solutions to Marginal Effective Tax Rates (Simple, But Not Easy)

As suggested earlier, there are no easy, win-win solutions to high METRs on low-income families. Program costs constrain the parameters with which policymakers shape income-tested transfer programs, and tax relief comes at the expense of increased payouts. As such, increased costs imply a need to generate more revenue, which shifts the tax burden onto another group: a politically costly avenue.

As the title of this section suggests, the mechanisms by which METRs can be reduced are simple. In short, lower the claw-back rates, raise the earned income thresholds for reduction, increase the basic exemption amounts on earned income, and lower statutory tax rates at the low end of income. All these would flatten the METR curve over the low- to mid-income range, pushing the peaks down in favour of a longer range of sustained METRs driven by transfer claw-backs. Among these options, Poschmann (2008) advocates for a limit on reduction rates associated with child benefits at 10%, highlighting the tradeoff between the METR impact and low-income targeting. At the time of his proposal, the 23% reduction associated with the Canada Child Tax credit was significantly more burdensome than the equivalent 13.5% under the current Canada Child Benefit. Even so, a 10% limit on child benefits, if applied to current federal child benefits, would still provide welcome relief for working families with modest incomes. Davies (1998) proposed that finding itself in a fiscal setting that allowed for personal tax cuts, the federal government should aim to reduce the personal tax rate on the lowest income bracket, 17% at the time, now 15%. Further reductions to rates in the first bracket continue to offer an effective solution. Currently with a bottom rate of 15% on the first $47,000 of taxable income for an individual, a rate reduction to 13% would chip away at METRs over an extended earnings range for a two-earner family.

Though the issue of government budgets and program spending falls outside the scope of this paper, one trend is clear: the minimum level of income support for the lowest-earning families has increased in real terms

over the last decade. With the reworking of Canada's federal child benefits, the base level of income support has increased along with notable additional child support programs in BC, Alberta, and Ontario. This implies that transfer program spending reductions, a politically unpopular and perhaps socially unpalatable option, are likely off the table. Such reductions would, of course, create positive incentives with regards to labour participation, but unavoidably imply a tradeoff against income support and so a tangible reduction in quality of life for Canada's lowest income earners.

Conclusion

The issue of high marginal effective tax rates on families with low and modest income continues to present a challenge for policymakers in Canada. Average rates approaching 50% on families with income between $30,000 and $60,000 are found across provinces, with average METRs reaching as high as 53% in Quebec. Such high rates are a real concern as they diminish the net-of-tax return to taking on paid work, and so reduce the incentive for individuals to seek additional income and thereby creating a potential barrier to socioeconomic advancement.

Though we have seen positive changes to the primary family-targeted income-support programs at the federal level, marginal effective tax rates remain burdensome. The development of new family-targeted transfers in Alberta and BC offer contrasting approaches to compromise and tradeoffs in the design of transfer programs and highlight the fact that choices in program structure necessarily trade one goal off against another, in this case concentration of benefits among low income households against METR impacts.

The priorities that will emerge from future transfer policy design compromises and tradeoffs will ultimately be determined by—and reflect the values of—voters and policymakers across provinces.

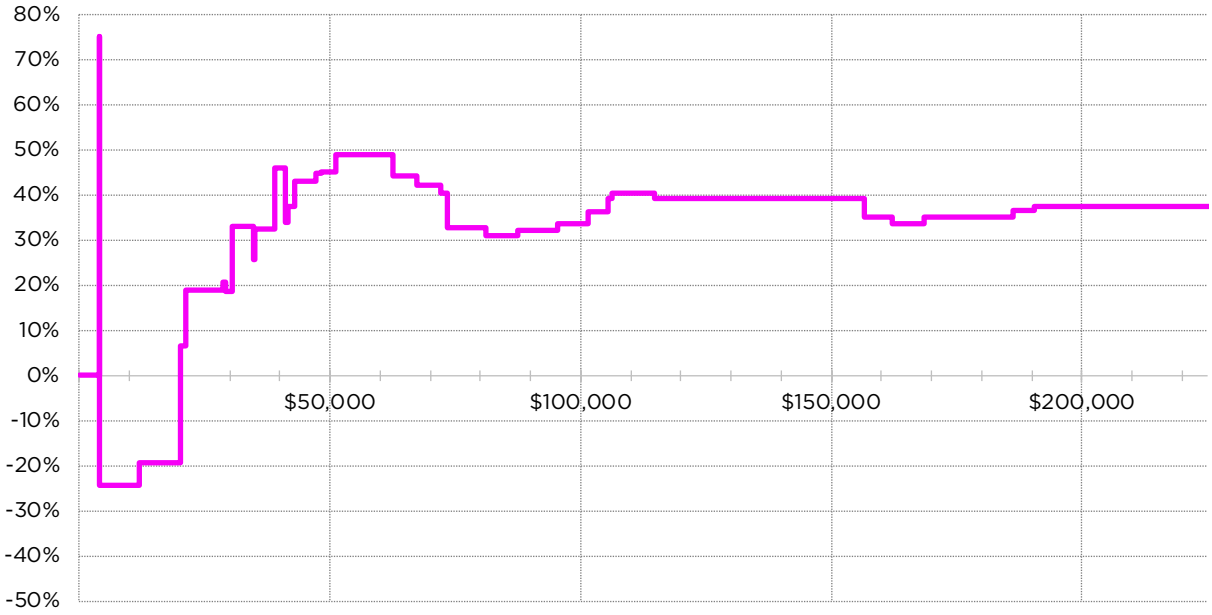
Appendix 1: METRs on Family Market Income Across Provinces in 2019

General notes on the figures

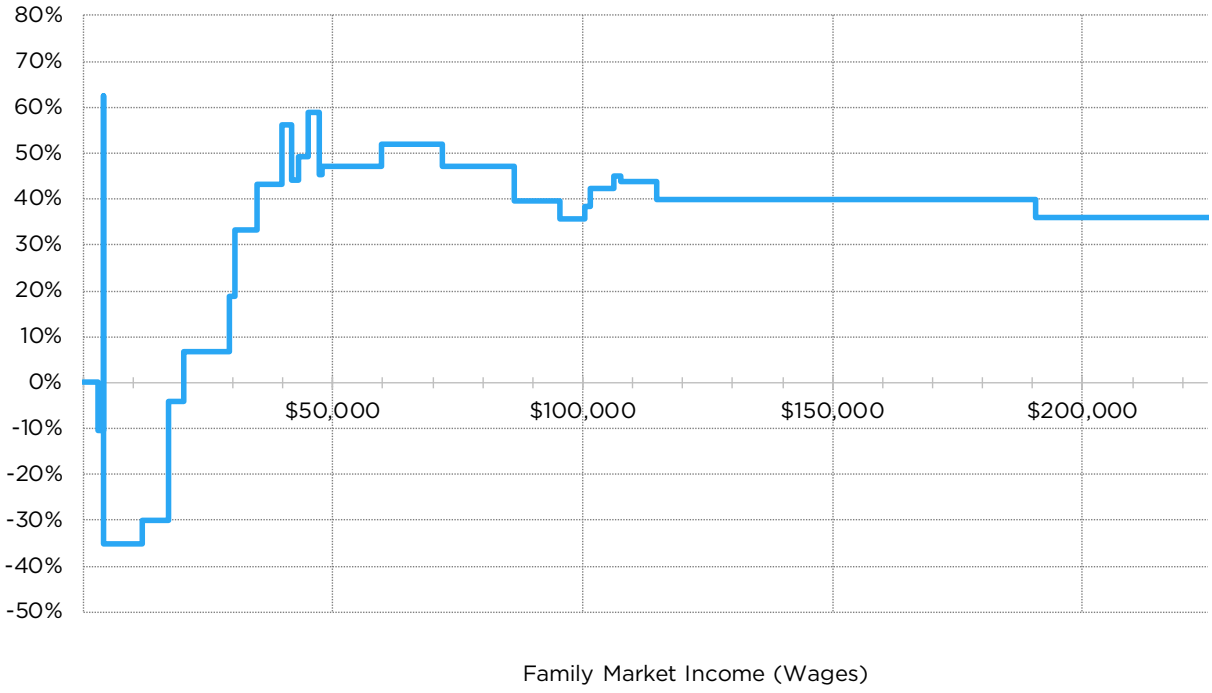
- The figures have been truncated to allow for a clearer picture below $225,000 of income, above which METRs converge with statutory rates on net income due to the absence of transfer programs over this range of income.
- The base case family in each figure presented in this appendix shares the same structure as outlined in the section "The Deconstruction of Alberta's METR" in the main paper.
- Provincial figures in this appendix maintain a constant set of dimensions and scale. As such, they can be easily overlaid in an image-editing program for comparison.

All figures in this paper are based on Statistics Canada's Social Policy Simulation Database and Model (SPSD/M); the assumptions and calculations underlying the simulation results were prepared by the author, and all responsibility for use and interpretation of these data lies with the author.

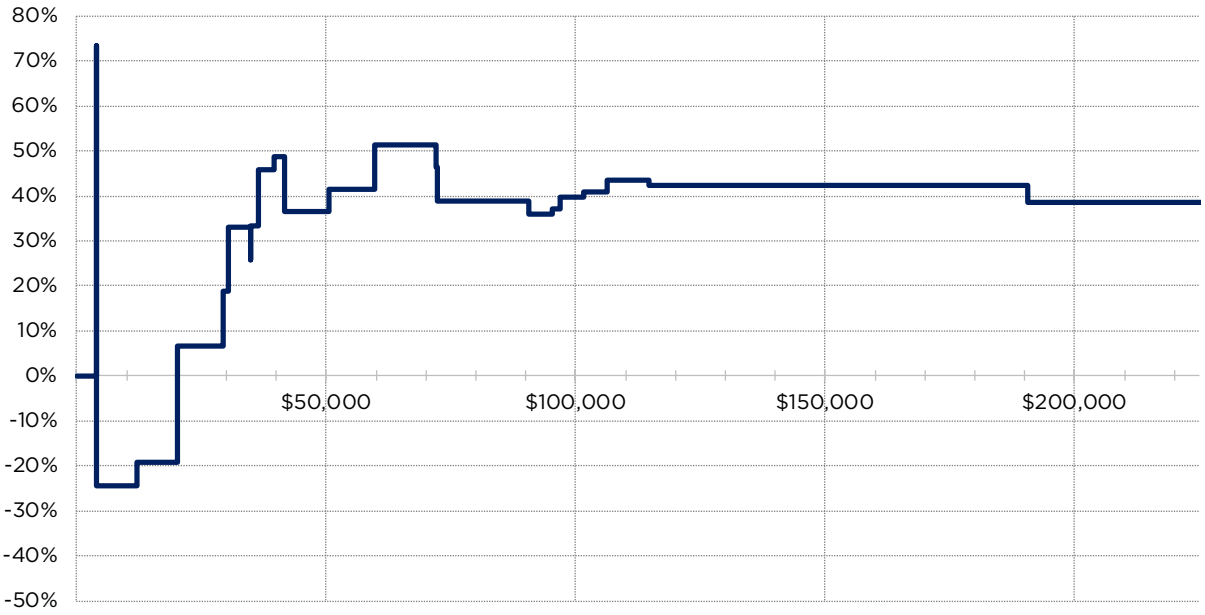
British Columbia



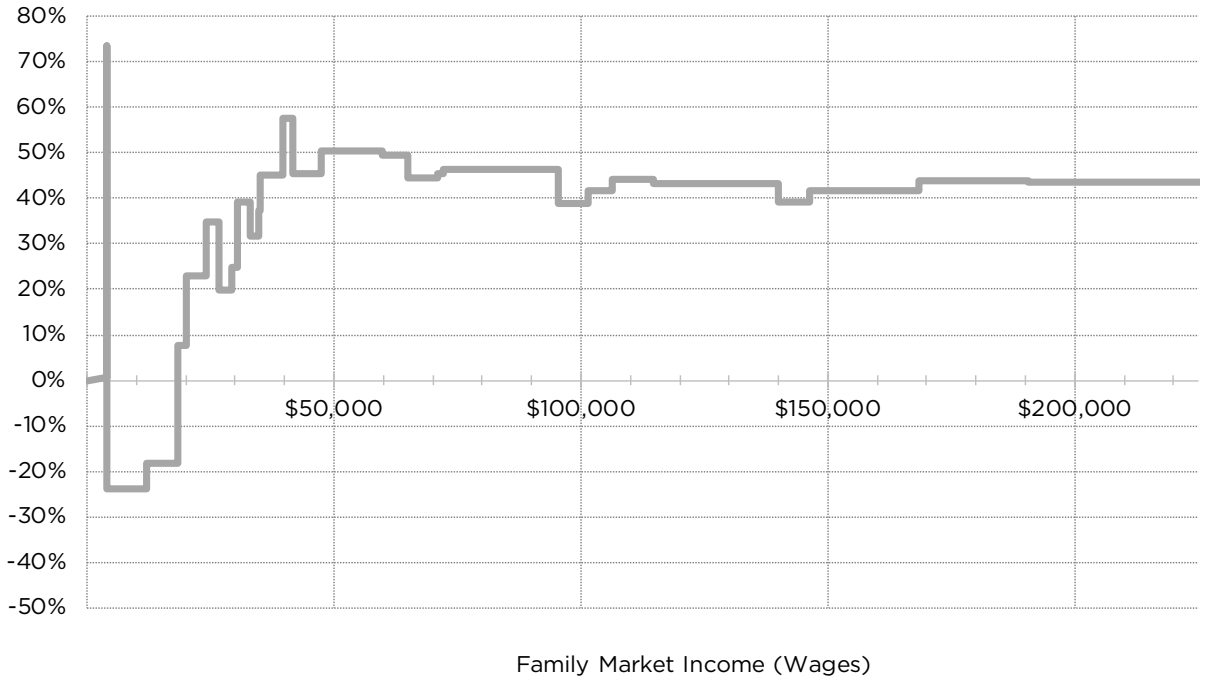
Alberta



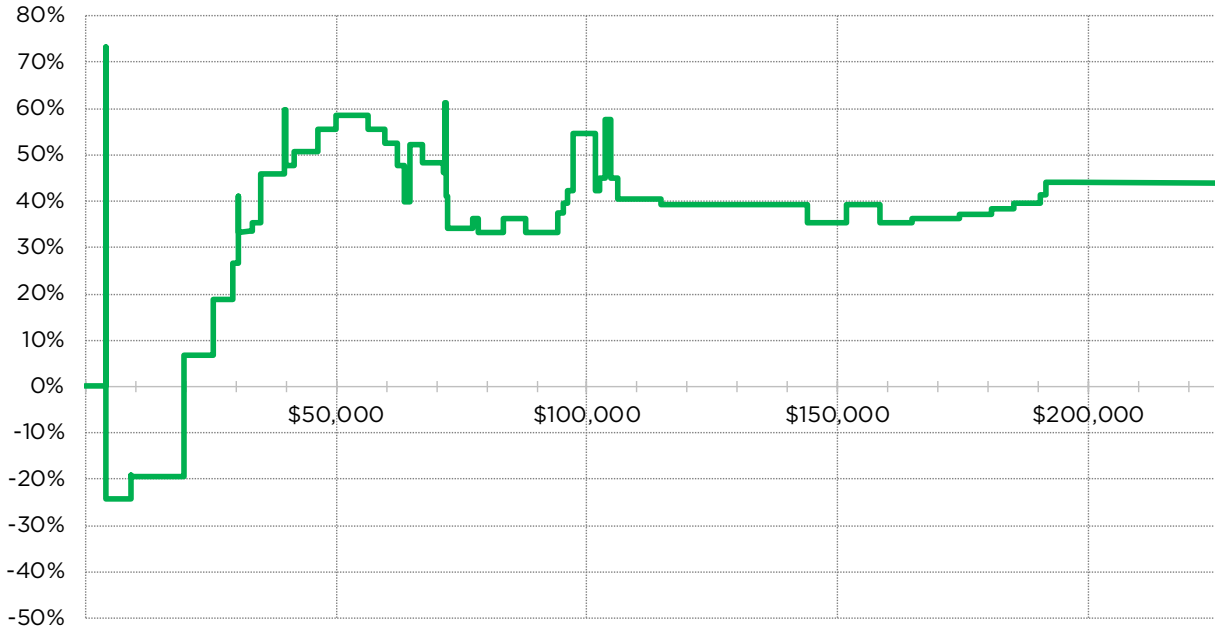
Saskatchewan



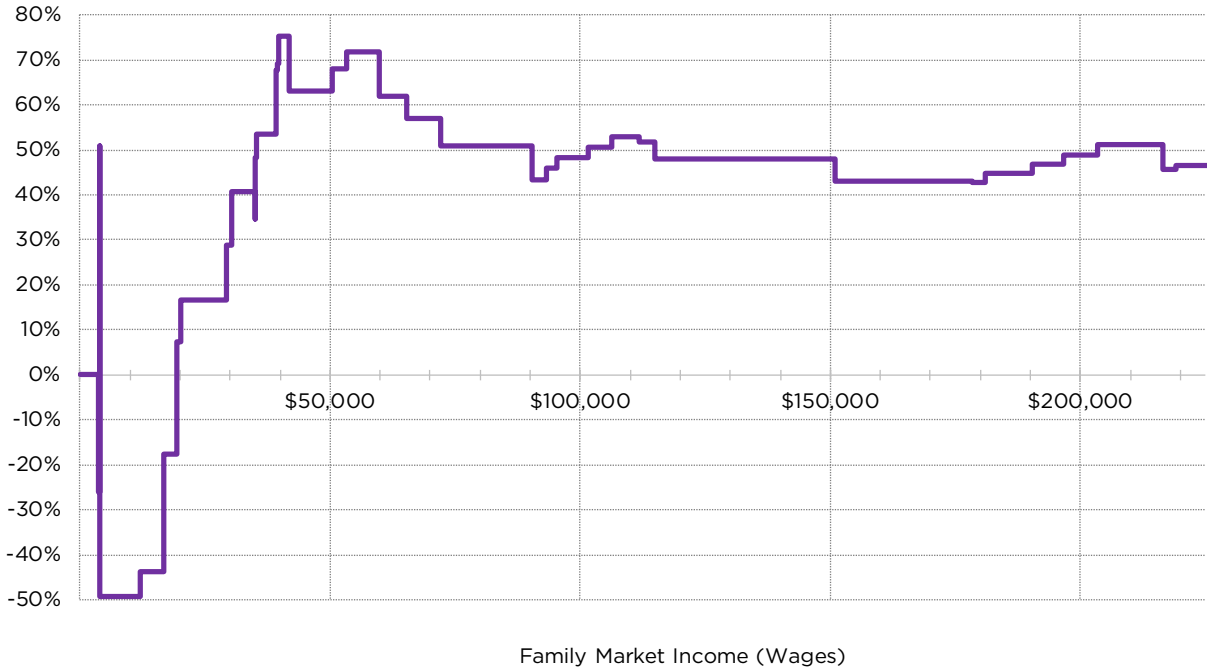
Manitoba



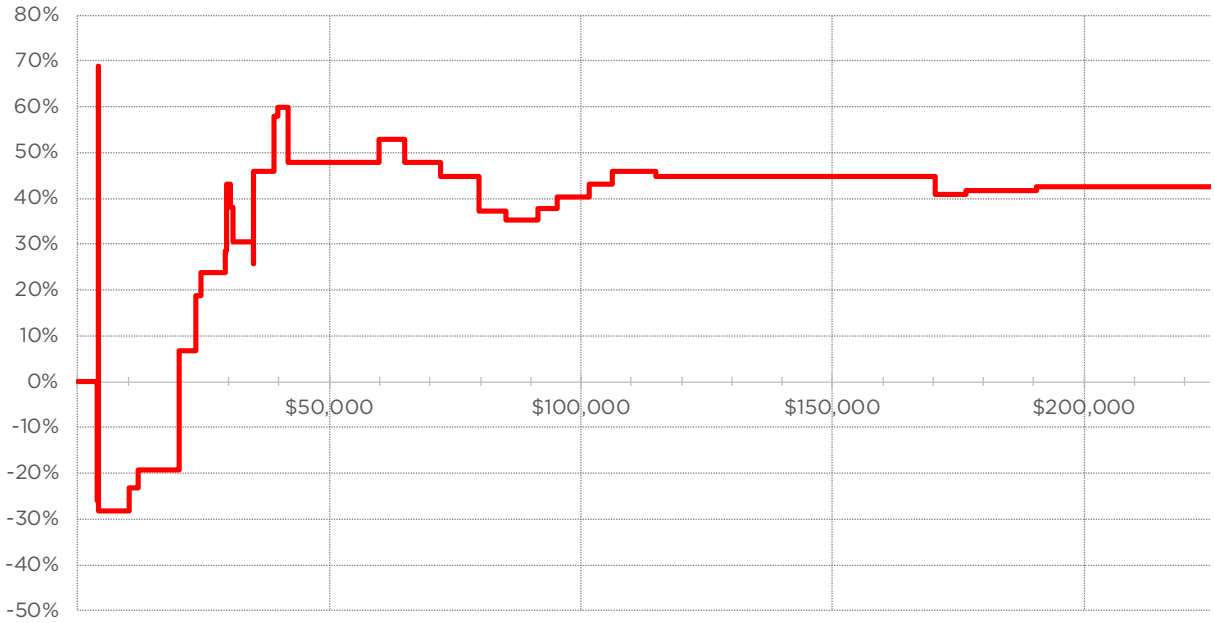
Ontario



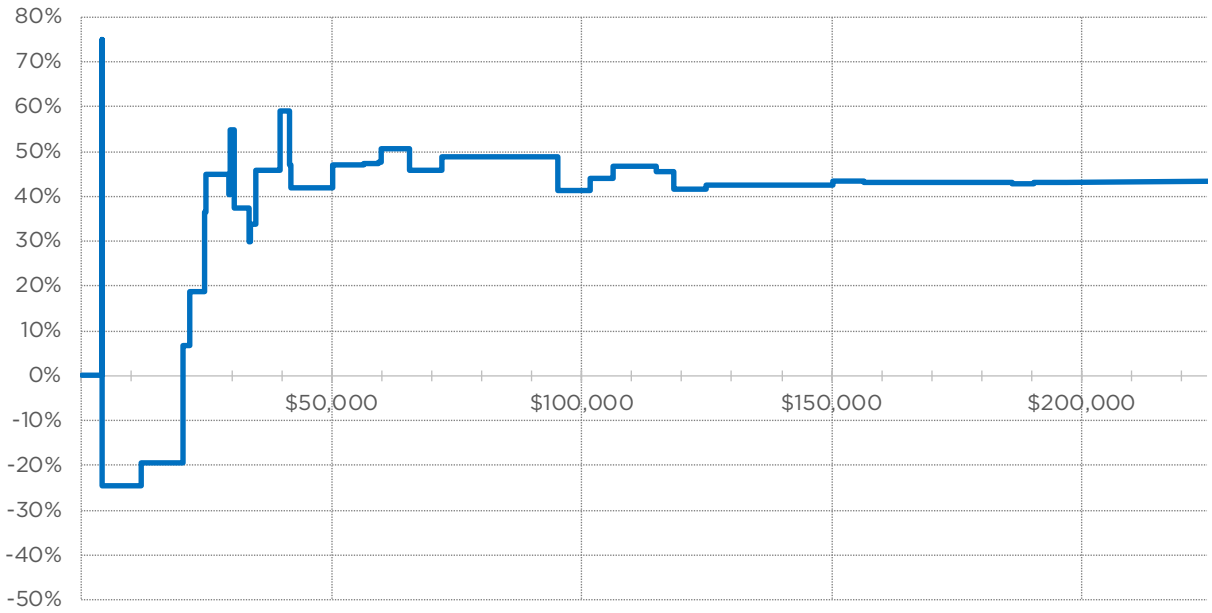
Quebec



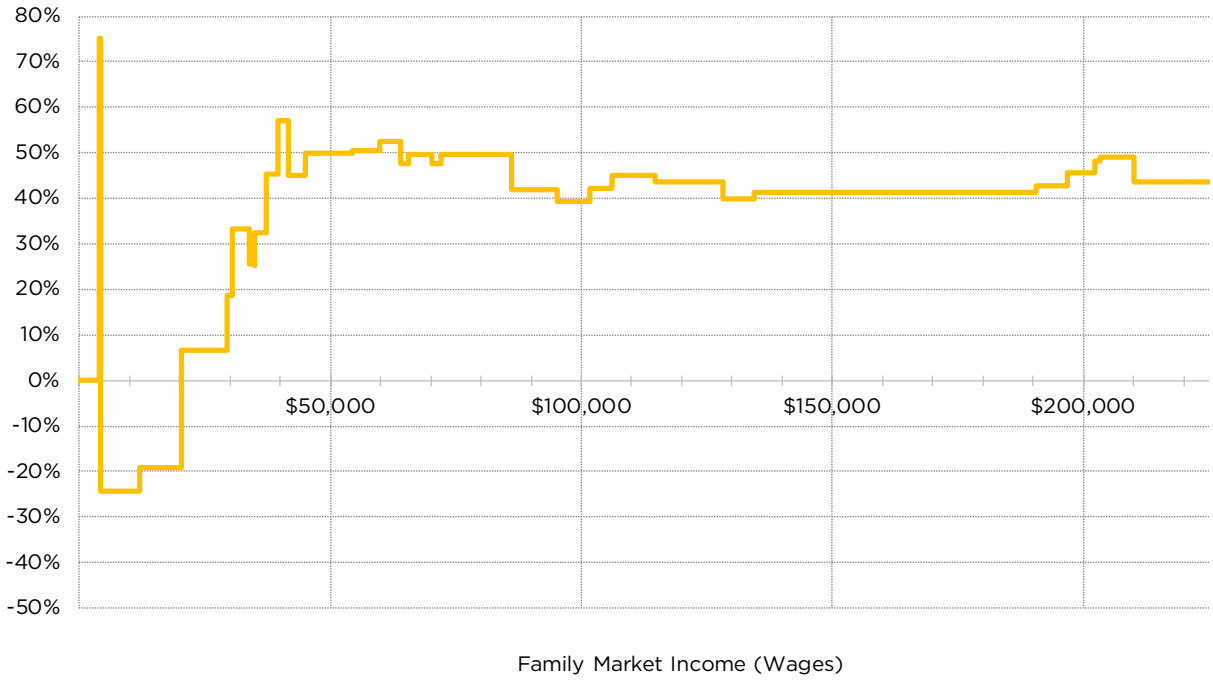
New Brunswick



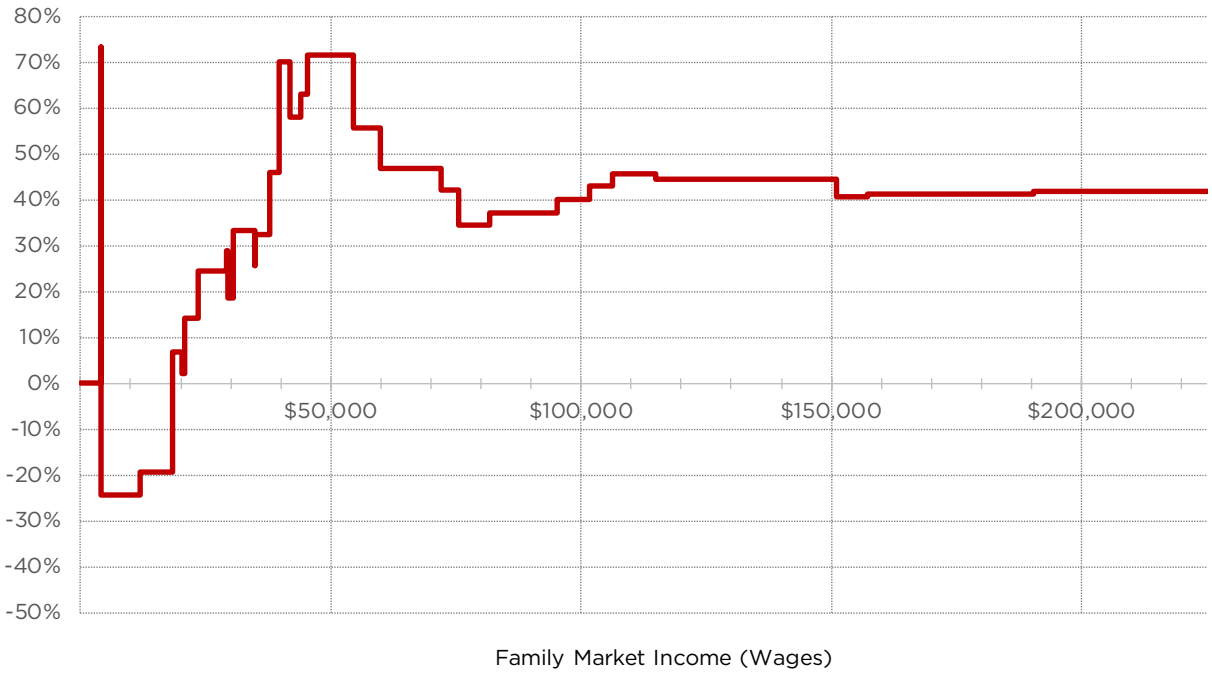
Nova Scotia



Prince Edward Island

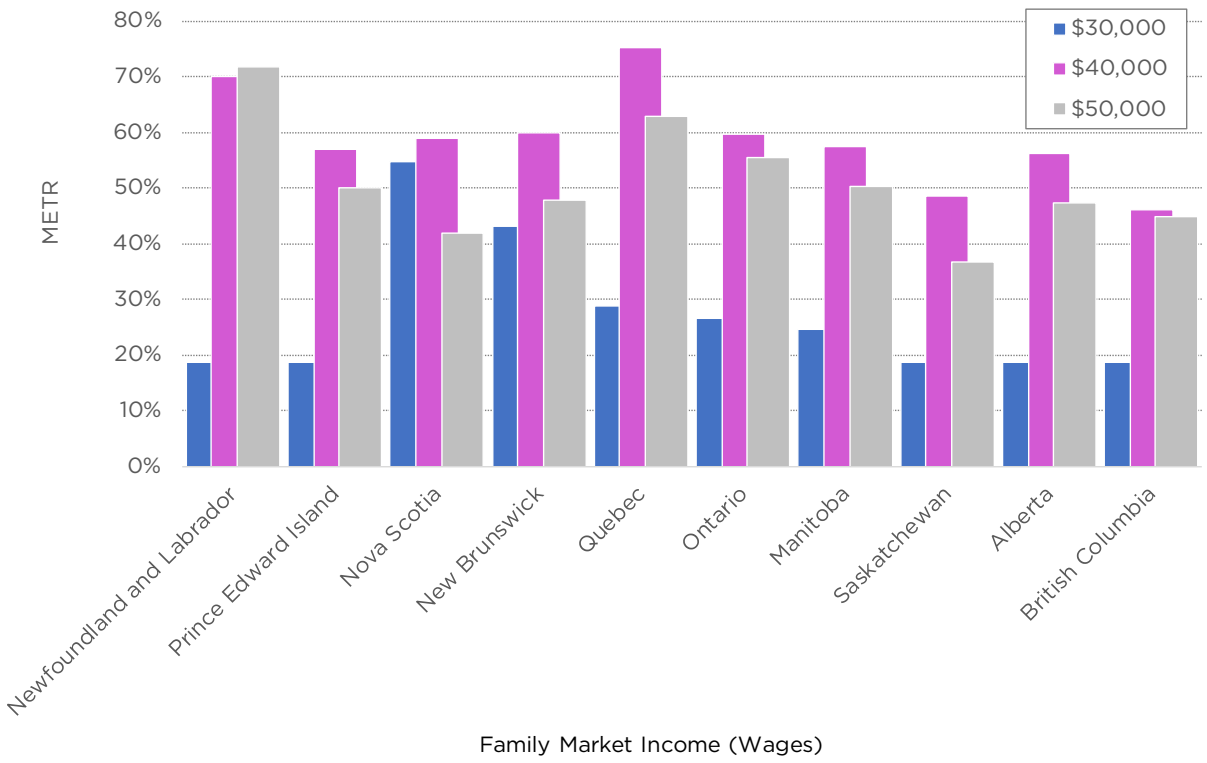


Newfoundland & Labrador



Note: The Temporary Deficit Reduction Levy in Newfoundland & Labrador has been excluded here. The program will conclude in 2019. For more information on the levy see Newfoundland & Labrador, Department of Finance (2019).

Appendix 2: Large Variations in Marginal Effective Tax Rates across Provinces and Income Levels



Note:
Values in this graph represent the same base case family and results that are used to graph the METR curves presented in appendix 1. The figure is simply intended to offer a quick visual highlighting the METRs faced by lower income families and compare these values across provinces.

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