1.0 Introduction

The Mirrlees Review will take its place in the grand tradition of comprehensive tax reform proposals, alongside Canada’s Royal Commission on Taxation from 1967, the Blueprints for Basic Tax Reform from the United States in 1977, and the 1978 Meade Report in the UK, among others.¹ The great virtue of comprehensiveness is capturing the pervasive and unavoidable interactions among different parts of the tax system. The Mirrlees Review provides a most useful resource on contemporary analysis and thinking on the design of taxes.

The timeliness of the review comes not just from the thickness of dust that has gathered on previous tax reform analyses. It also comes from the evolution of knowledge in public finance. The growth of empirical estimates of useful tax parameters over the last twenty years now provides a large stock of knowledge on which to draw when pursuing ‘tax by design.’ Moreover, many recent advances in the theory of optimal taxation have attempted to produce optimal tax formulae in terms of parameters that one might plausibly estimate.² This increase in empirical knowledge combined with the tighter link between empirics and theory makes the time ripe for a fresh look at the design of our tax systems.

Richard Blundell has written a thoughtful and informative article describing how empirical evidence informed the Mirrlees Review, and how evidence can and should inform tax policy in general. He focuses on the taxation of earnings. Income from employment makes up about 67

¹ Ontario had a Fair Tax Commission in the early 1990s that took a broad, comprehensive view, albeit from a provincial perspective. The Technical Committee on Business Taxation that reported in 1998 provided a great depth of research and policy analysis, but only on business taxation rather than the whole tax system.
² Saez (2001) is a good example of this style of work.
percent of the personal income tax base in Canada. Yet, in both the academic literature and in practical tax administration, the taxation of capital income (which amounts to only 11 percent of the income tax base) consumes a far greater share of attention and effort. Such a proportional comparison is misleading, of course, since economics happens at the margins—tax design is most important for efficiency where behaviour is most affected by taxation. Richard Blundell argues convincingly, however, that several windows of lifecycle labour supply are quite sensitive to taxation and therefore important objects of attention for tax design.

In response to Richard Blundell’s article, I present here some thoughts from a Canadian tax perspective. In doing so, I note a previous effort by Bird and Smart (2001) to make sense of the interplay of economic tax research and the practice of tax policy in Canada. Their paper discusses some evidence as I do here, but theirs also contains deeper wisdom on the political economy of tax reform than I muster in this response.

My thoughts here are organized by first noting three similarities in Richard Blundell’s analysis to the situation in Canada, then three major differences. Within these groupings, I offer a buffet of broader-based general comments mixed with specific empirical calculations. Following the discussion of these similarities and differences, I close with a few brief words in conclusion.

2.0 Similarities with Canada

The discussion of tax reform in the United Kingdom brings forward several very clear similarities to the Canadian tax system. The three I take up here are the margins of sensitivity,
the importance of refundable tax credits, and the seemingly unfixable ‘zombie’ of tax complexity.

### 2.1 Margins of sensitivity

Richard Blundell points out that within the overall lifetime of labour market activity, there are large trends at particular points that expose the sensitivity of labour market behaviour to the economic environment. In particular, the work of older men and women with children are pointed out. Both of these groups have parallels in Canada.

Older workers face the decisions of how and when to withdraw from their labour market activity into retirement. These decisions might be influenced by financial incentives in pension plans, family situation, health, mandatory retirement provisions, or the general state of the labour market. The trends observed for older workers in the UK can also be seen in Canada. Employment by men age 60-64 fell from 63.6 percent in 1976 to 39.9 percent in 1995, but has rebounded back to 53.0 percent in 2011.³ At the same time, employment by older women has grown tremendously—but we know much less about the retirement of women given the much higher lifetime labour market attachment of now-retiring women. Schirle (2008) studies the interaction of husbands and wives in determining these employment trends of older workers.

With the demographic bulge starting to reach the ages of near-retirement, understanding how the tax system affects their work becomes more important. But, for the purposes of the argument here, it is clear that labour supply at these ages is malleable.

³ These calculations come from the public-use files for the Labour Force Survey.
For women with children, the sensitivity of work decisions is also quite evident in Canada. Figure 1 graphs the employment rates from the Labour Force Survey from 1976 to 2011 for single women with and without children, as well as for single men without children. For both men and women without children, employment rates exhibit the expected business cycle fluctuations. For women with children, however, there is a great shift upward in employment starting in the late 1990s. Over the same time period, the proportion of single mothers with social assistance income dropped from 54.2 percent in 1996 to 22.5 percent in 2008. Milligan and Stabile (2007) relate these trends to the introduction of the National Child Benefit program in 1998, although other factors may also play a role. In addition, Baker and Milligan (2008) show the strong influence of parental leave policies on the work decisions of women in two-parent families during the first year of a child’s life. The proportion of women with a child under age one at work is now lower than at any time since 1976, in spite of the very large overall upward trend in female labour force participation. Clearly, work decisions for women with children vary according to the policy environment. This sensitivity accords with the heightened elasticities of labour supply for women with children found for the UK in Blundell, Duncan, and Meghir (1999).

2.2 Refundable tax credits

Richard Blundell points out the importance of using effective tax rates in analyzing the efficiency and redistribution of the tax system. Effective tax rates account not just for the statutory income tax owed on an extra dollar earned, but also the reduction of various credits and refunds.

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4 I also select on being between ages 20 and 49. For children, I require the age of the youngest child to be between 0 and 17 to be in the sample.
5 These calculations come from the public-use cross-sectional files of the Survey of Labour and Income Dynamics, selecting on single women with children.
tax amounts that depend on income. In particular, refundable tax credits can push effective tax rates very high for some income ranges.

The last twenty years has seen a proliferation of refundable tax credits in Canada. In many ways, this has made Line 236 of the tax form the most important of line of all, as Line 236 (Net Income) is the income measure used for determining eligibility for most of the refundable tax credit programs. As in the U.K., effective tax rates have risen substantially for some family types and income ranges in Canada. This has been demonstrated in work such as Macnaughton, Matthews, and Pittman (1998), among others.

These credits provide the opportunity to target benefits at particular income ranges. However, the impact of these credits on work incentives and distribution deserves attention. Figure 2 displays the effective tax rate on an extra dollar of income for a family with two children in 2010 across the four Western provinces. Effective tax rates are highest for those in low-middle income ranges, for the most part because of the withdrawal of refundable tax credits for children over these income ranges. The slight progressivity of the income tax rate schedule is swamped by these large marginal tax rate bumps.

Richard Blundell reminds us the ‘participation tax rate’ (or average tax rate) matters for the extensive margin decision, which may be the most important decision for those with lower potential wages. This should decrease concern somewhat over the heightened marginal tax rates

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These calculations were performed using the CTaCS simulation package, version 2010-1. See Milligan (2010). Milligan (2009) provides similar but more extensive simulations for the 2008 tax year, including average tax rate simulations.
at some levels of income. However, even with that caveat, looking at graphs such as these raises the question of what efficiency or equity goals such a tax system might be trying to achieve with such an odd tax rate schedule. It is not obvious.

2.3 Tax complexity

The evolution of the UK tax system has led to complex rules, especially for credits. Richard Blundell points out the impact of this complexity on the take-up of benefits.\(^7\) With the centralization of the administration of most tax credits by the Canada Revenue Agency (with the exception of Quebec), and with fairly easy application procedures, take-up does not seem to be a great concern in Canada.\(^8\) However, the complexity of the system does inhibit clear understanding of the incentives various tax measures impose. Canada’s much more decentralized fiscal system plays a strong role here, with each province designing its own benefits that cohabit with the federal benefits, leading to an alphabet soup of credits, programs, and incentives.

The child tax benefit system is perhaps the most egregious example. A family with children in British Columbia may be eligible for the Canada Child Tax Benefit, the National Child Benefit Supplement, the Working Income Tax Benefit, the Harmonized Sales Tax Credit (with federal and provincial portions) a BC Low Income Climate Action credit, the BC Family Bonus, the BC Earned Income Benefit, a non-refundable amount for children, an equivalent-to-spouse amount for single parents, and the Universal Child Care Benefit. That is ten separate benefits, each with its own structure.

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7 Kleven and Kopczuk (2011) provide a theoretical analysis of complexity and take-up of benefits. In their model, complexity increases when benefits are not universal because of the need to screen for eligibility.

8 To take one example, the Universal Child Care Benefit pays $1200 a year to parents of children age 0-5. Spending on this program was about $2.6 Billion in 20102.2, which lines up quite closely with full take-up for the 2.2 million children in that age range according to the CANSIM database for 2010.
When the Working Income Tax Benefit was added to this mix in 2007, many policy analysts cheered the idea of a benefit that provided a work incentive like the US Earned Income Tax Credit. To deliver on this promise, however, time-stressed working parents would have to actually understand how this new benefit fit into the context of the other nine benefits they may receive, in addition to the income tax system, not to mention any payroll deductions for employer-provided benefits that would also affect their take-home pay. It is possible to be skeptical about the ability of even the most capable and attentive policy expert to parse this web of benefits to see even the most carefully-designed incentives trapped within.

3.0 Differences with Canada

While many of the examples and motivations given by Richard Blundell resonated strongly with the Canadian experience, there were also several aspects of the analysis that did not apply as readily to Canada. In this section, I explore three cases of dissonance. First, empirical estimates to guide the design of tax policy in Canada are scarce. Second, the balance between structural and experimental approaches is different in Canada. Third, the ‘room’ available to change income tax rates seems to be different in Canada.

3.1 Availability of estimates

For many of the important tax parameters important for the design of tax policy, we don’t have a lot of evidence in Canada. To take one example, Richard Blundell rightly emphasizes the centrality of the elasticity of taxable income—how taxable income changes with respect to
changes in tax rates. There is a very interesting paper on this topic, Sillamaa and Veall (2001), which studies the impact of the tax reform of 1988 on taxable income. Their preferred estimate of the elasticity is 0.25, which is lower than was typical in the literature and lower than the range for the UK cited by Richard Blundell. In addition, there is a paper by Gagné, Nadeau, and Vaillancourt (2004) that performs a similar analysis, finding elasticities closer to 0.6 for higher income people. In contrast to this shortfall of estimates in Canada, there are at least a dozen estimates of this parameter from a variety of angles and methods for the United States.

Sillamaa and Veall point out that we shouldn’t expect the elasticity to be the same across countries with different institutions, echoing the concerns of Slemrod (1998) which were confirmed empirically in Kopczuk (2005). These concerns amount to the dependence of the reported elasticity on a particular tax structure. This renders ‘tax by design’ quite difficult. The 0.25 estimate comes from a particular reform—1988—that saw substantial changes to both the tax base and the tax rate. While I have a good measure of confidence about this estimate for the 1988 tax system, I have much less confidence in applying it to today’s tax system. Yet it is almost all we have.

The lack of estimates of such a key parameter may relate to supply- or demand-side factors. On the supply side, using the usual approximation, there is one tenth the number of academics to study the Canadian tax system as there are in the US. We have just as many issues to be studied, but much less aggregate brainpower focused on it. On the demand side, academic journal editors may tend to prefer novelty to refinement of existing results, and policy-makers may not always have a strong willingness to seek evidence to form their tax policy decisions. I have no solutions
to offer here, but this is an enduring problem for achieving a more rationally designed tax system in Canada.\footnote{Bird and Smart (2001) offer a similar assessment from 10 years ago.}

3.2 Methodology of estimation

Empirical policy analysis in recent years has seen a fire-filled war between two methodological camps: those advocating an experimental or quasi-experimental approach and those favouring a more model-based structural approach.\footnote{By ‘quasi-experiment’ here, I mean any of the ‘natural experiment’ approaches that use the general analogy to and language of experiments: treatment and control, ignorable assignment to treatment, etc.} The experimentalists advocate transparent and clean estimation of parameters that may not have great relevance outside the context of the estimation. In contrast, the more structural approach takes the economic model more seriously, which increases the potential external validity but often comes at a cost to the transparency and credibility of assumptions.\footnote{See Angrist and Pischke (2010) and Keane (2010) for one back-and-forth battle in this long war.}

Richard Blundell provides a respite to the battles by creating a middle ground. Evidence using different methodologies is complementary. Quasi-experimental evidence provides credible information on magnitudes that serve as a useful check on the validity of estimates coming from structural approaches. Quasi-experimental evidence may also be useful in testing the validity of the assumptions that underlie structural work. The structural estimates provide a better guide to behaviour under substantial tax reforms that may substantially change the economic context. In this way, both are useful.
In Canada, as elsewhere, the balance between these approaches is affected by the quirks of empirical taste and the graduate programs in which today’s active empirical economists were trained. However, because of the nature of our federal system, we have more potential experiments to exploit as provinces vary policies here and there. US Supreme Court Justice Brandeis notably compared federalism to an experimental laboratory, and in both the US and Canada this analogy rings quite true for economic policy analysis. The much more centralized nature of government in the United Kingdom lowers the availability of policy experiments to exploit to learn about the impact of policy reforms. In this way, the relative cost of the quasi-experimental approach should be lower in Canada, and therefore we should not be surprised to see relatively more reliance upon it.

3.3 Room for higher taxes?

Over the past decade, continued research has shown a large increase in the share of income received by those in the top 1 percent—and moreso the top 0.1 percent—of income earners. According to the comprehensive review in Atkinson, Piketty, and Saez (2010), this pattern is evident in Canada, the US, and the UK, as well as other English-speaking countries; driven by wage-earnings. Natural questions that arise are the desirability and the feasibility of putting in place a tax structure that attempts to redistribute some of that growth.

On the question of the desirability of ‘undoing’ some portion of the growth at the top, opinions may vary, as the taste for redistribution is not constant across society. Rather than addressing the ‘should’ question, therefore, Richard Blundell instead tackles the ‘can’ question. That is, given
what we know about the responsiveness of income to taxation, would higher income tax rates actually raise revenue?

The following formula is provided to aid in the calculation:

\[ t = \frac{1}{1 + \alpha \cdot e}, \]

Where \( t \) is the revenue maximizing tax rate, \( \alpha \) is the Pareto parameter from the income distribution, and \( e \) is the elasticity of taxable income. If the tax rate exceeds this revenue-maximizing rate, we would find ourselves on the wrong side of the so-called ‘Laffer Curve.’ If the tax rate is lower than the revenue-maximizing rate, then tax rate increases—while not necessarily desirable for all tastes—will at least be feasible as a revenue-raising action.

Combining reasonable values for these parameters for the UK (\( \alpha = 1.67 \) and \( e = 0.45 \)), the revenue maximizing \( t \) for those at the top of the income distribution is around 57 percent, which is quite close to the current income tax rate in the UK when including National Insurance Contributions. This suggests that raising more revenue from the highest earners in the UK may not be feasible, whatever the desirability.

For Canada, the numbers work as follows. According to Atkinson, Piketty, and Saez (2010), Canada has \( \alpha = 1.70 \) in 2005, slightly smaller than the UK’s 1.78.\(^{12}\) The central estimate of \( e \) used by Richard Blundell is 0.45. As discussed above, the first estimate we have for Canada is the

\[^{12}\text{Table 6 on page 45 reports a } \beta \text{ of 2.24, which yields an } \alpha \text{ of 1.70 using the provided formula } \beta = \frac{\alpha}{1 - \alpha}.\]
0.25 from Sillamaa and Veall (2001). However, they estimate much higher elasticities for higher income individuals. Gagné, Nadeau, and Vaillancourt (2004) find values closer to 0.6 for high income earners. If we use $\alpha=1.70$ and $e=0.25$, the revenue maximizing $t$ becomes 70.1 percent. On the other hand, if you use $e=0.45$, you get the revenue maximizing $t$ to be similar to the UK at 56.7 percent. With $e=0.60$, the revenue-maximizing $t$ becomes 49.5 percent.

How do potential values for the revenue-maximizing tax rate compare to prevailing observed tax rates? Table 1 compares the top tax rate across provinces in Canada for 2011. The first column has the taxable income threshold where the top rate begins. The middle column shows the corresponding top-bracket rate, and the final column shows the combined federal-provincial rate. Since the highest federal bracket is 29.0 percent, this third column amounts to the sum of the second column and 29 percent for each province except for Quebec, which receives a federal abatement.\(^\text{13}\)

The first thing to note in Table 1 is the low level of the high-income threshold. The federal top bracket threshold starts at $128,800. The 99\(^{\text{th}}\) percentile of total individual income in Canada in 2008 was $186,625, while the observed $128,800 value cuts at percentile 97.6.\(^\text{14}\) The only province that has the top tax bracket exceeding the federal threshold of $128,800 is Nova Scotia, with their new tax bracket starting at $150,000. In the UK, a new 50 percent tax bracket was added in 2010, starting at £150,000, or C$239,250 at today’s exchange rate. In the US, the

\(^{13}\)The Quebec abatement is 16.5%, so the effective federal rate of taxation in the highest bracket is $29\% \times (100\% - 16.5\%) = 24.215\%$.

\(^{14}\)These calculations are from the 2008 Survey of Labour and Income Dynamics, using total income. Total income is greater than taxable income, so this comparison is imperfect, but the best that can be done given available information in the SLID.
highest federal bracket of 35 percent begins at an income of US$379,150, with state rates adding between 0 and 11 percent on top of that at various income levels. Canada is clearly an outlier by having the top tax rate start at such low thresholds.

As for the rates, the highest rate ranges from 39 percent in Alberta to 50 percent in Nova Scotia. These rates are lower than the UK. Furthermore, if the 2001 US tax cuts expire as currently scheduled at the end of 2012, the top rate will rise back to 39.6 percent. When added to typical state rates, Canada’s top rates would not be out of place among the US states.

Combined, this suggests there is more room to raise top rates in Canada than is the case in the UK. That is, raising top rates may be more feasible in Canada in that higher rates are more likely to raise revenue than in the UK. Given the continued increase in pre-tax income inequality documented in Frenette, Green, and Milligan (2007, 2009), any preference for a fixed standard of after-tax income redistribution would require increasing tax rates at the top. It remains to be seen whether such an increase would find support in Canada’s current politics.

4.0 Conclusion

In this response to the article by Richard Blundell, I have tried to draw out points of similarity and difference for Canada compared to his analysis for the UK. There are similar labour market sensitivities, effective tax rate problems, and complexity in the two countries’ tax systems. However, the policy environment differs in the amount and style of empirical research available, and in the existing rates of income taxation.
Canada’s fiscal shortfalls stemming from the recent recession are quite mild relative to the budget gaps facing the UK and the US. Those budget gaps are forcing substantial tax reforms into the public debate in those countries. There is no similar push in Canada. While the lack of ‘crisis’ in Canada may make tax reform a more difficult political proposition, our tax system is no less in need of improvement. Should substantial tax reform one day come to the forefront of Canada’s agenda, we will be fortunate to have Richard Blundell’s article to provide a framework for using research to guide tax policy.
References


Figure 1: Employment of single males and females, age 20-49

Figure 2: Marginal Effective Tax Rates in various provinces for family with two children, 2010

Note: Source is Canadian Tax and Credit Simulator, Milligan (2010).
Table 1: Top marginal tax rates across Canada in 2011

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Collected from federal and provincial budget documents and the CTaCS calculator.