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Tax Policy Next to the Elephant: Business Tax Reform in the Wake of the *US Tax Cuts and Jobs Act*

US tax reform provides an opportunity to make a bold move toward a corporate tax system in Canada that is grounded in sound tax policy principles, is less distortionary, promotes economic growth and prosperity, and restores Canada's tax competitiveness.

Kenneth McKenzie and Michael Smart

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ABOUT THE AUTHORS

KENNETH MCKENZIE

is a Professor in the Department of Economics, University of Calgary.

MICHAEL SMART

is a Professor in the Department of Economics, University of Toronto.

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A handwritten signature in black ink that reads 'Daniel Schwanen'.

Daniel Schwanen
Vice President, Research

THE STUDY IN BRIEF

While there is considerable uncertainty regarding the *US Tax Cut and Jobs Act's* (TCJA) economic and fiscal impacts, one thing is certain – the significant corporate tax competitiveness advantage that Canada enjoyed over the US for years has disappeared.

This *Commentary* explores some major TCJA measures as they relate to corporations, examines their implications for Canadian business, evaluates Ottawa's response in the Fall Economic Statement and discusses what is required going forward.

The TCJA impact on real domestic investment in Canada is complicated, with competing effects. The TCJA will likely have a net negative effect on domestic and US foreign investment in Canada, moderated in the long-run by the international nature of capital markets.

Still, concerns remain about income shifting due to the statutory rate reductions in the US. Our review of the academic literature suggests the US tax-rate cut will result in Canadian affiliates of US companies shifting homeward 8 percent to 28 percent of their profits – a back-of-the-envelope calculation for sure, but nonetheless suggesting a potential significant impact on Canadian corporate tax revenues.

The TCJA represents a long overdue sea change in US corporate taxation and, on balance, will have a positive impact on investment and productivity in that country. However, the reform is not anchored in sound tax principles and introduces undesirable distortions.

Ottawa, in its 2018 Fall Economic Statement, duplicated in part some aspects of the US reforms in accelerated depreciation for new capital expenditures. While we think that this short-run response is reasonable in light of the fiscal constraints facing the government and the uncertainty regarding the impact of the TCJA, we do not think that the work is done.

The US reform provides an opportunity to make a bold move toward a corporate tax system in Canada that is grounded in sound tax policy principles, is less distortionary, promotes economic growth and prosperity, and restores Canada's tax competitiveness on a worldwide basis. A structured, principled approach to tax reform in Canada is preferable than an ad hoc response to US developments, which may turn out to be fragile in light of the American political climate and the point in the business cycle.

We advocate for a corporate tax system based on the taxation of economic "rents." A simple example of such a regime is a cash-flow tax, which would involve the immediate write-off of all capital expenditures coupled with the elimination of the debt-interest deduction. The basic idea is to replace the corporate income tax with a rent tax that taxes only the above-normal return on investment and is, therefore, neutral with respect to business investment and financing decisions.

A cash-flow tax would reduce the business cost of capital investment by roughly 20 percent – offering a much greater boost to capital investment than alternative and fractional reforms such as temporary accelerated depreciation or statutory tax rate cuts.

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In 2018, the US embarked on major tax reform. Its *Tax Cut and Jobs Act* (TCJA) implemented a major tax reduction at both the personal and corporate levels, at \$1.4 trillion over the next 10 years.

While there is considerable uncertainty regarding TCJA's impact, one thing is certain – the significant corporate tax competitiveness advantage that Canada enjoyed over the US for years has disappeared. The implications of Canada's eroded corporate tax advantage are complicated and uncertain. There is, nonetheless, widespread agreement that they are likely to be significant.

In its Fall Economic Statement, released on Nov. 21, 2018, the federal government announced its response. A major feature is the introduction of accelerated tax depreciation for capital expenditures, which mimics in part one of TCJA's key aspects. This *Commentary* explores some major TCJA measures as they relate to corporations, examines their implications for Canadian business, evaluates Ottawa's response in the economic statement and discusses what is required going forward.

We argue that the TCJA represents a long overdue sea change in US corporate taxation and, on balance, will have a positive impact on investment and productivity in that country. However, the reform is not anchored in first principles and introduces undesirable distortions along several dimensions. The Canadian response was cautious – which is perhaps appropriate in light of the fiscal constraints facing the government in terms of near-term deficits, the substantial uncertainty regarding the implications of the US reforms and the need for a timely response.

However, Canada's work is not done. We argue that more fundamental corporate tax reform grounded in a coherent and consistent set of first principles is required. Finance Minister Bill Morneau should begin this reform with the federal budget promised on March 19. In particular, we argue that the best long-term goal would be a corporate tax system based on the taxation of economic "rents." A simple example of such a regime is a cash-flow tax, which would involve the immediate write-off of all capital expenditures coupled with the elimination of the debt-interest deduction. The basic idea is to replace the corporate income tax with a rent tax that taxes only the above-normal return on investment and is, therefore, neutral with respect to business investment and financing decisions. In this *Commentary*, we provide a preliminary assessment of a Canadian rent tax and compare it to a 10-percentage-point reduction in the statutory corporate tax rate.

Our focus on a cash-flow type rent tax is based in part on expedience and simplicity. There are other approaches to rent taxation that we think also deserve due consideration. We are relatively agnostic on this here, as a detailed comparison of these approaches is beyond this *Commentary's* scope.¹ Our main point is that this is an opportunity for Canada to fundamentally re-jig its tax system in the direction of rent taxation, and that

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1 To learn more about such alternatives, see Boadway and Tremblay (2014, 2016).

the cash-flow tax is a simple and useful approach with which to make this point.

To begin, we provide a brief “10,000-meter” overview of some TCJA pivotal elements as they relate to corporations, including a preliminary assessment of the US tax reform. We then turn to a discussion of some of TCJA’s impacts on Canada, starting with an assessment of profit-shifting implications, followed by our calculations of resulting marginal and average effective tax rates on investment for the two countries. This is followed by a discussion of issues related to the new US approach to international taxation. We then assess Canada’s response, starting with the fall fiscal update and then turning to the two alternative approaches going forward: a statutory tax cut or a cash-flow type tax.

KEY FEATURES OF THE TCJA

The *Tax Cuts and Jobs Act* (TCJA) is a complicated piece of legislation. Indeed, many of its aspects are still not fully understood and await clarification from the US Treasury Department. Here, we highlight some of the Act’s major provisions as they relate to corporations.

- 1 **Lower headline rates.** With TCJA, the federal statutory corporate income rate has fallen from 35 percent to 21 percent. While the total statutory rate depends on the state in which the income is taxed and other factors, headline rates in the US are for the first time in two decades about as low as they are in Canada.
- 2 **Faster write-offs for new machinery and equipment investment.** There is now immediate (100 percent) expensing of investment in equipment. From 2023 through 2026, this “bonus depreciation” is scheduled to be phased out.² But some degree of bonus depreciation has existed in the US in most years since the 2002 recession, so

it is possible that the provision will be renewed or extended in future.

- 3 **New limitations on interest deductions.** Interest deductions are now limited to 30 percent of adjusted taxable income. This is an “earnings stripping” rule of the type proposed under the OECD’s Base Erosion and Profit Stripping initiative. Although the US has long had earnings-stripping rules for cross-border payments, the new requirements cast a wider net and are much tighter than before. Adjusted taxable income is similar to earnings before interest, taxes, depreciation and amortization (EBITDA) through 2021 and earnings before interest and taxes (EBIT) thereafter. Beginning in 2022, the rules, therefore, become stricter, so that many more US corporations will be subject to the limits.
- 4 **Changes to the US worldwide-taxation system.** The US has long attempted to tax worldwide income of US-resident multinational enterprises (MNE). In contrast, Canada and most other countries apply a form of territorial taxation, exempting most foreign-source income from taxation at home. Under TCJA, US-resident MNEs are no longer subject to taxation at home on earnings repatriated from foreign subsidiaries to their US parent. However, significant elements of worldwide taxation remain in the US system. Most notably, a new tax dubbed “Global Intangible Low-Taxed Income” (GILTI), is applied to a portion of US MNEs’ foreign-source income, albeit at reduced rates and with a partial credit for foreign taxes. Because the new GILTI tax is applied to subsidiary income as it accrues, and not merely on repatriation, US taxation of foreign subsidiaries is arguably even more important than before.³

For the sake of brevity, we will not discuss other TCJA particulars, including its substantial changes to tax rules applying to individuals and to businesses organized as pass-through entities and its changes to the tax-loss carryforward rules that

2 Bonus depreciation drops to 80 percent in 2023, 60 percent in 2024, 40 percent in 2025 and 20 percent in 2026.

3 See the discussion in Shaviro (2018).

restrict the deduction to 80 percent of income. We have chosen also to omit other elements of the new US international tax system that could have implications for Canada, including the new Base Erosion and Anti-abuse Tax on certain payments made to foreign affiliates and the preferential taxation of high-return export income under the Foreign Derived Intangible Income provisions. Instead, we focus on the specific provisions listed above, as they seem likely to have the greatest impact on the Canadian economy.

A Preliminary Assessment

The TCJA is a fundamental reform that is likely on balance to have positive effects on US investment and productivity in the long run due to its effective tax-rate reduction on capital investment.⁴ For example, Barro and Furman (2018), using an aggregate simulation model, project that the TCJA's corporate tax changes will increase corporate sector productivity by 2.5 percent and GDP by 0.9 percent in the long run. (The increases would be even larger if TCJA's temporary provisions were made permanent.)

These projections are based on certain assumptions that do not capture all the ways in which taxes affect business decisions. For one thing, it may be that TCJA's foreign-tax provisions will cause some investment projects and the residence of some US multinationals to move overseas (Dharmapala 2018). Moreover, by restricting the expensing provisions to equipment and not applying them more broadly to other assets such as buildings and structures, while maintaining interest deductions for some firms but not others, the TCJA increases the variation in the way that different

assets and sectors are taxed. These inter-asset and inter-sectoral distortions have negative implications that are not captured in aggregate analysis.

As discussed in more detail below, various economists have advocated for a "rent tax" when taxing income from capital. Under a rent tax, deductions for business capital costs are sufficient to ensure that the "normal competitive" rate of return on investment is untaxed, but that excess profits above the normal return are taxed.⁵ As such, a rent tax is non-distortionary, or neutral, with respect to business investment and financing choices. There are several ways to achieve a rent-tax regime. One simple approach is a cash-flow tax, which involves the immediate expensing of all investment expenditures in the year in which they are incurred and eliminating the deductibility of interest on debt.

One defining rent-tax characteristic is neutrality across several dimensions of business decisions, such as the type of investment, the source of finance, investment timing, etc. As seen below, while substantially lowering the effective tax rates on new investment in some cases, particularly for equipment, the TCJA gives rise to many distortions that are inconsistent with true rent taxation. Moreover, the Act's expensing provisions are temporary, and it is difficult to know at this point whether they represent a structural change going forward.

Regardless, Canadians are well aware that living next to an elephant means the US tax changes will have spillover effects. The paths by which tax rates in the US affect business investment and productivity in Canada are many and complicated. But on balance it is safe to say that, by any reasonable measure, Canada's tax competitiveness has fallen and there will be spillover effects.

4 It is too soon to observe how large these effects may be. In the short run, the investment and productivity impacts will likely be largely swamped by aggregate demand due to the substantial reduction in taxes and other economic shocks to the US economy over the last year.

5 More technically, Boadway and Tremblay (2016) characterize rents as "the difference between a firm's revenues and the opportunity costs of all inputs, including the manager's or entrepreneur's time and risk-taking."

In short, TCJA's effects are complex but on balance it looks like good news for the US economy – and something to which Canada should respond.

IMPACTS ON CANADA

Tax Revenues and Profit Shifting

TCJA's most notable feature is the sharp reduction in the federal statutory corporate tax rate from 35 percent to 21 percent. Taking account of average state-level corporate taxes, and the deductibility of state taxes for federal purposes, the combined average federal/state effective statutory tax rate has fallen from 39 percent to 26.7 percent. This change is likely to have negative effects on corporate tax revenues in Canada because of spillover effects on our tax base. Indeed, MNEs use a variety of tax planning strategies to exploit tax-rate differences between countries, shifting profits from high-tax to low-tax jurisdictions. Corporations may, for example, manipulate transfer prices for cross-border trade between affiliates, they may lend to affiliates in high-tax countries to generate tax-deductible interest payments, and they may locate intellectual property and other intangible assets in low-tax countries to reduce worldwide total tax payments.

While public attention focuses on profit shifting from high-tax countries to tax havens with zero or extremely low corporate tax rates, it is possible that Canada has in fact benefited from some inward profit shifting in recent years by virtue of its historical tax-rate advantage over the US. Figure 1

shows the evolution of Canadian corporate tax rates and the tax base since 2000 – the last year that statutory tax rates were roughly the same in the two countries.⁶ Since then, tax rates have fallen steadily in Canada, from 40.8 percent (the average of federal and provincial rates) to 26.5 percent since 2012. Throughout this period, the combined US rate stayed at around 39 percent⁷ until the 2018 TCJA reform, when the combined US rate fell to just under 27 percent, roughly again on par with Canada. Notwithstanding the fall in Canadian tax rates, revenues have remained roughly constant over this period.

Figure 1 also depicts corporate tax revenues as a percentage of corporate profits. This ratio, which measures the effective tax rate on profit, was roughly constant around 14 percent throughout the period, even as the headline statutory rate fell sharply.

The figure also depicts the evolution of corporate taxable income as a percentage of corporate profits, which rose from 41 percent to 67 percent between 2000 and 2016.⁸ Taxable income may change relative to corporate profits due to changes in tax rules and the effects of the business cycle, and the usual caveat that correlation does not imply causation certainly applies here. Nevertheless, the strong growth in the tax base may reflect in part the effects of tax planning – as corporations became more likely to declare taxable income in Canada as statutory tax rates fell.⁹ Meanwhile, corporate tax revenues remained stable over this 15-year period because the corporate tax base expanded as rates fell.

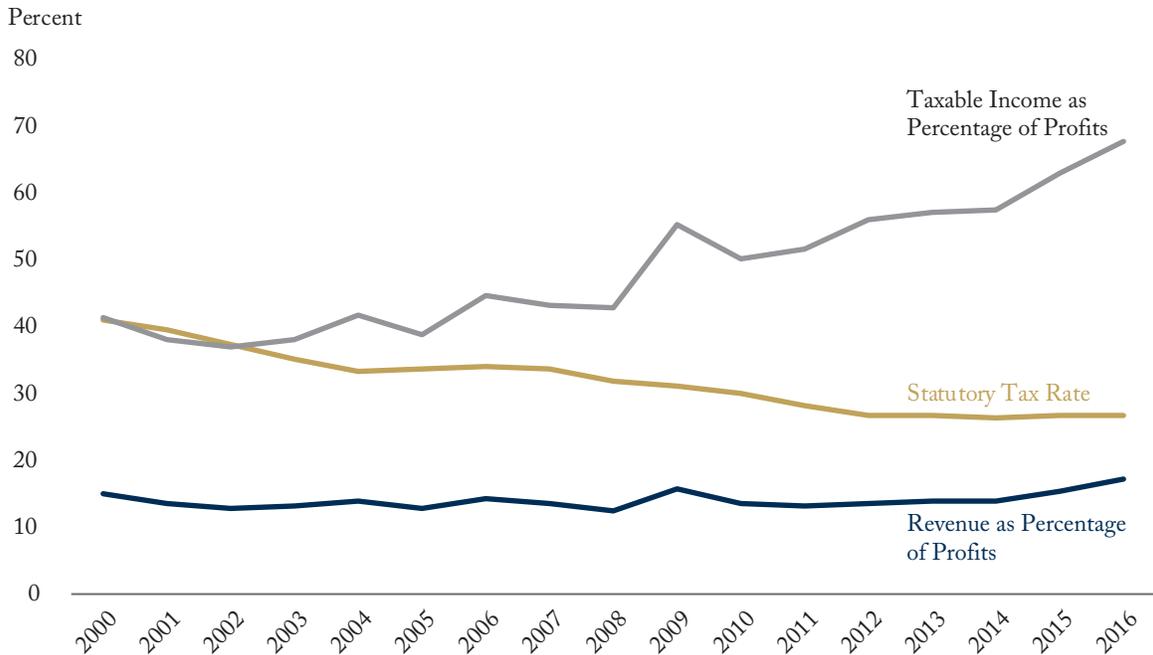
6 We use statutory tax rates from the Finances of the Nation database, <https://financesofthenation.ca>. Total tax revenue comes from the Financial and taxation statistics (FATS) for enterprises, Statistics Canada Table: 33-10-0006-01. Profits are the sum of profits of corporations and unincorporated businesses, from Statistic Canada's System of National Accounts.

7 Indeed, in 2017 the US had the fourth highest statutory corporate income tax rate in the world (Jahnsen and Pomerleau 2017).

8 The revenue and profit data are from the national accounts, Cansim Table 36-10-0582. The taxable income data are from the Financial and Taxation Statistics, Cansim Table 33-10-0601.

9 Of course, there are likely to be other reasons behind this as the corporate tax base is a complex interaction of many variables.

Figure 1: Canadian Corporate Income Tax Rates and Tax Base, 2000-2016



Sources: Statistics Canada Financial and Taxation Statistics for enterprises and Finances of the Nation database.

Following the TCJA, with rates in the US having fallen to Canadian levels, taxable income in Canada will likely grow more slowly. But how slowly? A recent survey of literature and meta-analysis synthesizing results from many such studies concludes that a one-percentage-point lower corporate tax rate compared to other countries will expand before-tax income by 1.5 percent (this is called the semi-elasticity.) This effect is larger than suggested by previous surveys and seems to be increasing over time. This finding incorporates evidence on MNE behaviour from a large number of countries.¹⁰

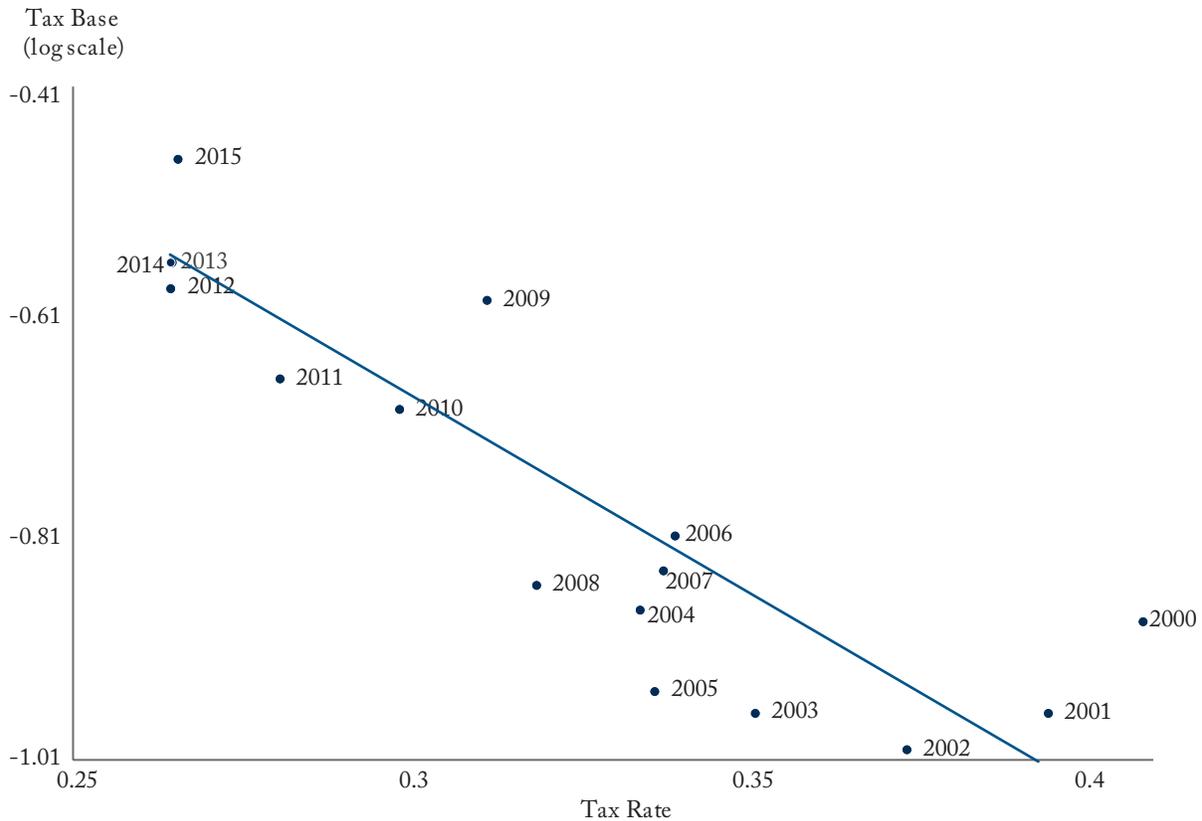
Another recent study of US MNE tax planning may be more relevant to the Canadian experience. It found, on average, about the same overall sensitivity of foreign affiliate income to tax rate differentials—but smaller tax sensitivity for affiliates in relatively high-tax countries like Canada than for those in tax havens. The estimated semi-elasticity for high-tax affiliates was 0.7. (That is, a one-percentage-point increase in the tax differential causes affiliate income to decline by 0.7 percent.)¹¹

Further evidence on tax sensitivity can be gleaned from the aggregate Canadian data. Figure 2 plots taxable income as a share of profit against the statutory tax rate. The strong association is apparent.

10 See Beer, Ruud de Mooij and Li Liu (2018).

11 See Dowd et al. (2017).

Figure 2: Elasticity of the Canadian Corporate Tax Base



Source: Authors' calculations.

Using regression methods to control for business cycle effects on the tax base, we estimate a semi-elasticity of 2.3 from the aggregate data.

What, then, will be the revenue impacts of TCJA on Canada?¹² Majority-owned US affiliates in Canada paid annually \$8.9 billion in federal

and provincial income taxes on average over years 2014 to 2016.¹³ Our review of the academic literature suggests the US tax-rate cut will result in Canadian affiliates of US companies shifting homeward 8 percent to 28 percent of their profits, a rather large range to be sure. As shown in Table

- 12 Our calculations in this section focus on profit-shifting responses by US affiliates in Canada and ignore possible profit shifting by Canadian-resident MNEs with US affiliates. While there might be some increase in profit shifting to the US through transfer pricing and other tax planning strategies, there are reasons to expect the Canadian multinationals' response to be more muted.
- 13 The data are from the US Bureau of Economic Analysis, *Comprehensive Data on Activities of Foreign Affiliates*, <https://www.bea.gov/international/di1usdop>. We exclude corporations in the mining and oil and gas sectors where different tax rules and far lower effective tax rates apply, and where taxable income is highly variable from year to year. The data are converted to 2016 real Canadian dollars at annual average exchange rates, deflated by CPI.

1, this implies annual revenue losses to Canadian governments of \$744 million to \$2.4 billion. Using the semi-elasticity estimate of 1.5, the estimated loss is \$1.6 billion annually. These are clearly back-of-the-envelope calculations, but they do suggest that the TCJA will have a significant impact on Canadian corporate tax revenues.

The above analysis considers the effects of US rate reductions alone. But other TCJA facets also will exert an influence. The new and tighter earnings-stripping rules will bind on some US MNEs, reducing leverage of US parents and, absent any policy response in Canada, possibly lead to additional shifting of debt to Canadian affiliates. Some perspective on these issues can be gleaned from examining Germany’s experience, which introduced a similar earnings-stripping rule in 2008. Recent studies have found this led to an average reduction in German debt-to-asset ratios of about five percentage points.¹⁴ But other research has shown that binding restrictions on debt deductions mainly cause MNEs to substitute unregulated forms of debt, leaving group-total leverage largely unchanged.¹⁵ In particular, borrowing by foreign affiliates unaffected by the rules may rise. If Canadian affiliates of US MNEs responded similarly, it would result in tax-revenue losses of several hundred million dollars annually, absent any change in Canadian tax rules.

Effective Tax Rates and Real Business Investment

The US tax changes affect more than MNE tax planning. They will impact other economic decisions by *all* US corporations. Not only have US statutory tax rates fallen dramatically, but the TCJA features substantial changes in calculating the tax base, which will also affect the return to business

Table 1: Estimated Revenue Losses Due to US Statutory Rate Cuts

	Annual Revenues (2016 \$ millions)
Tax revenue from US-owned corporations	8,858.3
Estimated revenue loss due to TCJA, with profit shifting:	
low (e=0.7)	744.1
medium (e=1.5)	1,594.5
high (e=2.3)	2,444.9

Source: Authors’ calculations.

investment. The critical features we focus on here are the limitation on interest deductions and the bonus depreciation (expensing) of equipment.

To capture how these changes affect business choices, we focus on two types of effective tax rates:¹⁶

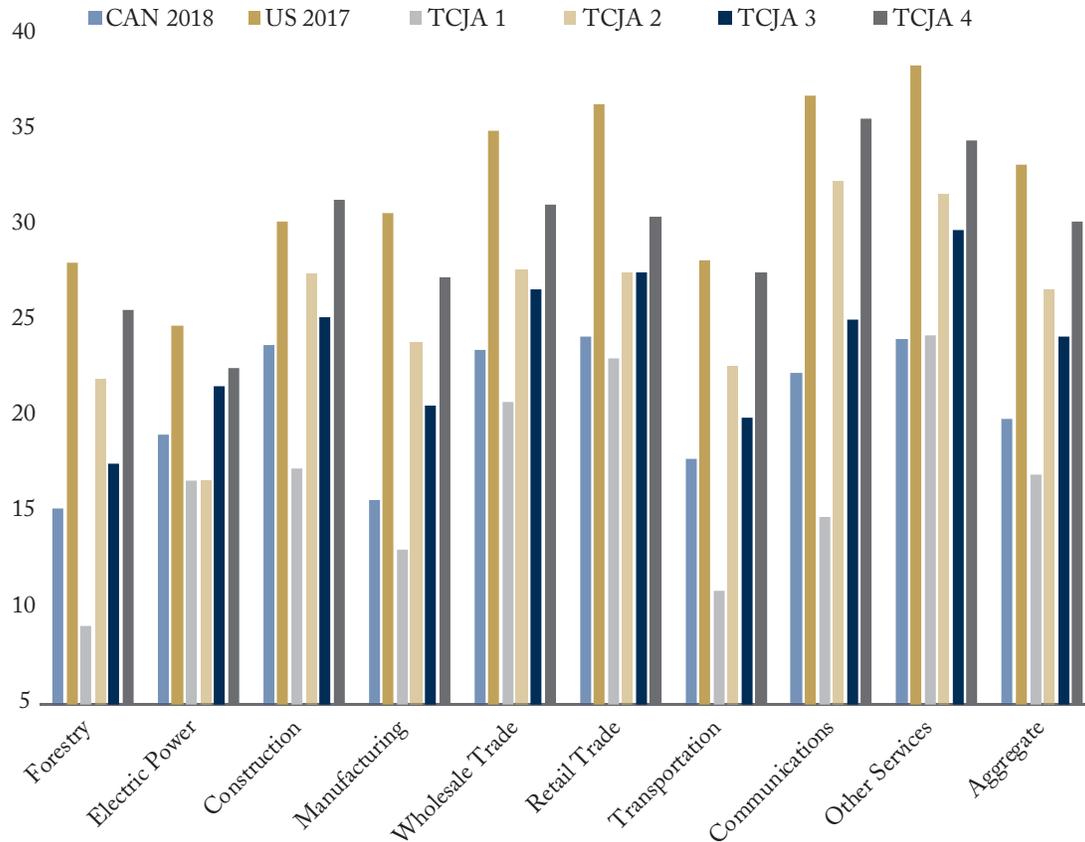
- The marginal effective tax rate (METR) is a summary measure of how tax rates, tax deductions and credits, and other taxes on capital affect the level of corporate investment. Technically, it measures how taxes increase the required minimum rate of return on a marginal investment for that investment to take place – or the so-called hurdle rate of return.
- The average effective tax rate (AETR) is a summary measure of the extent to which the tax system affects the economic income, or economic rent, generated by a discrete investment project. It measures the present value of the taxes associated with an investment project relative to the present value of the project’s pre-tax revenue stream. Since investment location decisions across jurisdictions are discrete by nature, the AETR is often viewed as being a key determinant of such decisions.

14 See Buslei and Simmler (2012) and Alberternst and Sureth-Sloane (2016).

15 See Büttner et al (2012).

16 We discuss issues in assessing “tax competitiveness” in more detail in the Appendix.

Figure 3: METRs in Canada and US, Pre- and Post-TCJA (percent)



Notes:

TCJA 1: Non-binding interest limitation, bonus depreciation for equipment in place.

TCJA 2: Non-binding interest limitation, bonus depreciation for equipment not in place.

TCJA 3: Binding interest limitation (EBIT-based), bonus depreciation for equipment in place.

TCJA 4: Binding interest limitation (EBIT-based), bonus depreciation for equipment not in place.

Source: Authors' calculations based on data provided by the School of Public Policy, University of Calgary.

The TCJA aspects that impact the tax base will be reflected in both METRs and AETRs.

Figure 3 presents a clustered bar chart of our

METR calculations for broad sectors and in aggregate for Canada and the US.¹⁷ For the US, METRs are presented prior to and after the TCJA

17 Our calculations are based on data provided by the University of Calgary's School of Public Policy. We thank them for the provision of these data. Any mistakes or errors in the use of the data are ours alone. It should be noted that our calculations are similar to, but not precisely the same as, METR calculations released by the Department of Finance and by Mintz and Bazel (2018). The variances are due largely to minor differences in the underlying data and assumptions. Specifically, METR calculations are sensitive to assumptions regarding aggregation weights, interest rates, etc., and it is not unusual for separate studies to report different numbers because of varied underlying data. It should be noted that, as is standard, the calculations are for fully taxpaying firms and do not reflect the presence of tax losses. The assets included in the calculations are: equipment, buildings, land and inventories.

for selected scenarios. For Canada, METRs are presented for the 2018 system prior to the fall economic statement. The impact of the changes announced in the November 21 economic update are discussed later.

Another significant TCJA feature is recognizing that US METRs depend critically upon the extent to which the interest limitation is binding, the definition of that limitation and whether bonus-expensing for equipment is in place. As discussed above, the definition of adjusted taxable income for determining the interest-limitation changes from an EBITDA-based approach through 2021 to an EBIT approach thereafter. Moreover, equipment bonus depreciation is to be phased out starting in 2023. For the sake of parsimony, we do not include all possible scenarios in Figure 3, focusing instead on the EBIT-based approach for the interest limitation and whether bonus depreciation is in place. (The Appendix presents METR calculations for some other scenarios.)

As is evident from Figure 3's first two bars for every sector, Canada enjoyed a substantial METR advantage over the US prior to the TCJA, both in aggregate and across all sectors. On an aggregate (weighted average) basis, the Canadian 19.9 percent METR on capital was substantially lower than the US 33.2 percent rate prior to the TCJA. A sizable Canadian METR advantage existed in every sector as well. No longer.¹⁸

In all scenarios, the US METRs under the TCJA drop relative to the pre-reform case, and in some (but notably not all) cases they are less than the corresponding Canadian rate. For example, in Scenario TCJA 1, where the interest

limitation is not binding and bonus depreciation is in place for equipment, the US METR falls to 17 percent in aggregate, ranging from a low of 9.1 percent in forestry to 13.1 percent in manufacturing to 24.3 percent in other services. The comparable Canadian rates are 19.9 percent (aggregate), 15.2 percent (forestry), 15.7 percent (manufacturing), and 24.1 percent (other services).

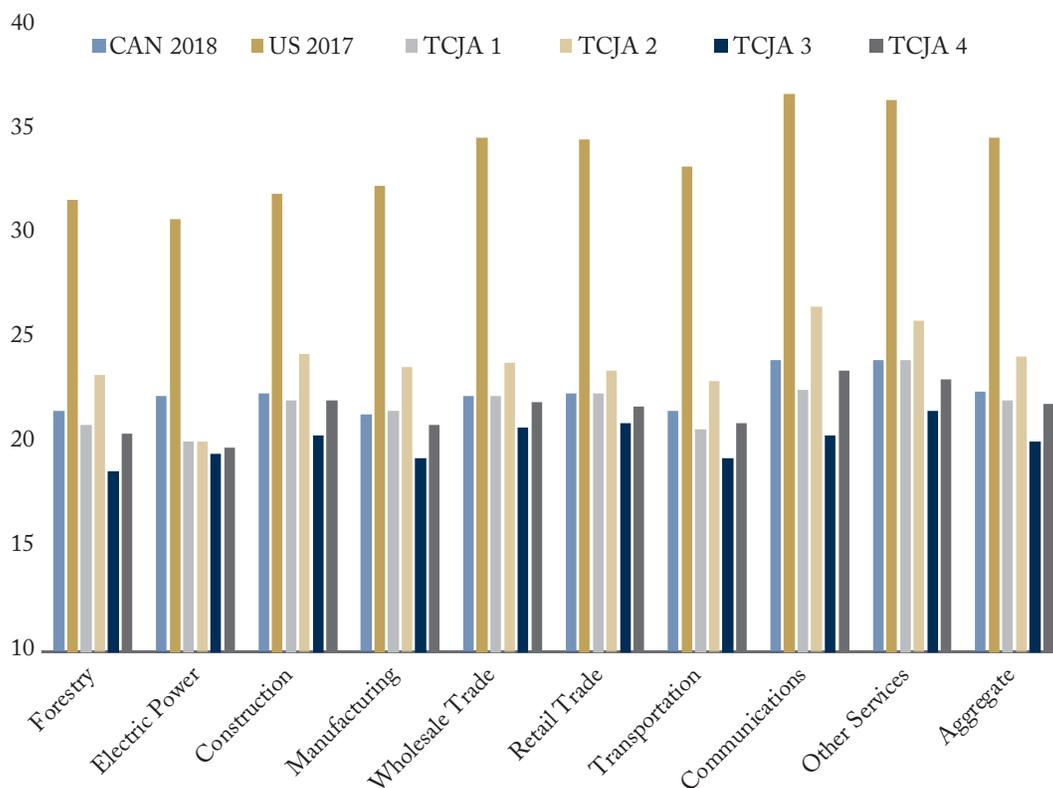
In other scenarios, the post-reform US METRs drop but remain above Canadian rates. For example, for firms where the interest limitation is binding and bonus depreciation is in place (TCJA 3), the aggregate US METR is 24.2 percent, lower than the pre-reform US METR but higher than the Canadian rate. The reason for this is that the interest limitation lowers the effective rate at which capital expenses are deducted, moderating the benefits of bonus depreciation (see Appendix).

A good deal of the TCJA's impact on METRs is due to the bonus expensing of equipment, which expires in 2027. Consider, for example in Scenarios 1 and 2, the relative contributions of the statutory rate cut versus bonus depreciation in terms of the TCJA's impact on US METRs. In both scenarios the interest limitation is not binding. In Scenario 1, with bonus expensing, the aggregate METR is 17 percent, compared to 19.9 percent for Canada, tilting the advantage slightly to the US. In Scenario 2, with no bonus expensing for equipment, despite the substantial TCJA statutory rate cut, the aggregate METR on capital is 26.7 percent, almost seven percentage points higher than in Canada, though still substantially below the pre-reform US 33.2 percent rate.¹⁹

18 We assume that US states will adopt all of the TCJA's relevant provisions (i.e., interest limitation and bonus depreciation) and do not adjust their statutory tax rates. To the extent that this is not the case, the calculations will differ, though only slightly.

19 In this regard, the Canadian capital cost allowance tax-depreciation system is generally more generous than the US modified accelerated cost-recovery system. Moreover, provincial sales tax rates imposed on capital in Canada are lower than similar US state taxes. This is in part because of lower overall rates plus the use of the HST in many Canadian provinces, which effectively removes sales taxes on business inputs.

Figure 4: AETRs in Canada and US, Pre- and Post-TCJA (percent)



Notes:

TCJA 1: Non-binding interest limitation, bonus depreciation for equipment in place.

TCJA 2: Non-binding interest limitation, bonus depreciation for equipment not in place.

TCJA 3: Binding interest limitation (EBIT-based), bonus depreciation for equipment in place.

TCJA 4: Binding interest limitation (EBIT-based), bonus depreciation for equipment not in place.

Source: Authors' calculations based on data provided by the School of Public Policy, University of Calgary.

What is striking from Figure 3 are the stark differences in US METRs under the various scenarios. (This is even more evident when other scenarios are considered, as shown in the Appendix.) As noted, bonus expensing of expenditures on equipment is temporary. Moreover, bonus depreciation applies only to equipment, which lowers its METR relative to buildings and other assets like inventories and land. Therefore, inter-asset distortions increase significantly under the TCJA when bonus depreciation is in place. This is then reflected in differences in sectoral METRs because of differences in asset shares.

The other reason for METR variation across scenarios concerns the interest-deductibility limitation. The interest limit will be binding for some firms and not others, depending on their reliance on debt financing as it relates to adjusted taxable income. This introduces further METR distortions and variations across firms and sectors depending on their underlying circumstances.

Figure 4 shows a parallel set of scenarios for the AETR. It is evident that the US AETR declines significantly post-reform, from 34.7 percent to 22.1 percent in aggregate, roughly equivalent to the Canadian rate. However, unlike the METRs,

there is little variation across sectors and scenarios. This reflects the fact that the AETR is, in fact, a weighted average of statutory tax rate and METR – with the weight on the former rising in the assumed rate of return to the investment project.²⁰ For this reason, the AETR is relatively unaffected by the base specific features of the TCJA reform, such as whether bonus depreciation is paid or whether the interest limitation is binding. As such, in terms of AETRs, the statutory rate cut does most of the “heavy lifting.”

The wide variation in METRs generated by the TCJA is problematic from a tax-policy perspective. The reason for this is the lack of a coherent and consistent framework anchoring the reform based on first principles. As discussed above, many economists advocate a rent-based approach to corporate taxation, whereby only the above-normal return on investment is taxed. One approach to this is cash-flow taxation, which does not allow interest deductibility but expenses capital expenditures when incurred. The key feature of a rent-based approach is that it eliminates distortions along all dimensions (source of finance, asset mix, timing, etc.). In other words, it is neutral.

While the TCJA introduces expensing, which is consistent with a cash-flow tax, it does so only for equipment and not for buildings. And, as discussed, this feature is temporary. Moreover, the TCJA maintains interest deductibility, which is inconsistent with cash-flow taxation, but then places a limit on it, using two different approaches that change over time. It is difficult to conceive of a coherent tax-policy rationale for this approach. Indeed, and to be blunt, it is more of a strange tax reform hybrid monster than one based on strong underlying principles.

Notwithstanding these drawbacks, the TCJA is an improvement over the previous, deeply flawed,

system. This is primarily because of the overall reduction in METRs and the underlying cost of capital, relative to the old system. Recent research by Zwick and Mahon (2017) considers the impact of bonus depreciation on US investment, which has existed in some form since the early 2000s. In 2001, US firms were allowed to immediately deduct 30 percent of expenditures on capital equipment. This increased to 50 percent in 2003 but expired in 2004. Bonus depreciation was reintroduced at 50 percent in 2008, increased to 100 percent in 2010 but expired in 2011. Zwick and Mahon find that the first round of bonus depreciation (2001-2004) increased expenditures on eligible capital relative to ineligible capital by 10.4 percent. In the second round (2008-2010), the increase relative to ineligible capital was 16.9 percent.

This suggests that bonus depreciation can have a significant impact on eligible investment, at least in the short run. However, an important caveat applies in connection to the TCJA. In the previous applications of bonus depreciation, the policy was explicitly put in place as a stimulus measure to encourage investment in response to weak economic performance. While the TJCA bonus-depreciation measures are temporary, the state of the US economy leading up to the TCJA could hardly have been characterized as weak. Indeed, quite the contrary. The impact of bonus depreciation in this environment is uncertain. Moreover, an important issue is whether bonus depreciation might be expected to be renewed and, therefore, emerge as a permanent tax-system feature, or whether it will be allowed to expire as in the past. This is currently far from clear, most particularly in light of the fragility of the US political climate.

From a Canadian perspective, a crucial question is: What does the improved US investment climate, as reflected in the reduction in both METRs and

20 We assume an AETR 20-percent rate of return, which is standard. Results are fairly robust with this assumption. With an assumed 10-percent return, the average AETR falls by approximately two percentage points, and it remains quite uniform across sectors. See the Appendix for further discussion.

AETRs, imply for real investment in Canada? We distinguish between domestic investment and foreign direct investment. Here we focus on domestic investment. In the following section we turn to US investment in Canada.

A couple of points are relevant in this regard. The first is that the TCJA's impact on Canadian firms' real investment depends on the nature of the capital market. Consider two opposing scenarios. The first is that Canada is a closed economy, where domestic firms cannot access international financial markets and, therefore, compete for funds in the Canadian capital market. In this case, a reduction in US effective tax rates on investment due to tax reform would be largely irrelevant with respect to domestic investment in Canada because Canadian firms would not directly compete with US firms over capital.

The second view starts from the understanding that Canada is a small open economy and that financial capital is very mobile internationally. Canada is a tiny part of the international financial capital market and, as such, the hurdle rate of return on corporate investments is fixed from a Canadian perspective. In this environment, Canadian firms do not directly compete with counterparts in the US, or in any other country for that matter, over capital per se, as they have access to a very large international capital market. Therefore, if an investment in Canada generates a rate of return that is sufficient to cover the after-tax hurdle rate of return required by investors, that investment will take place regardless of the effective US tax rate. This view suggests that the impact of tax changes on investment should not be viewed as a zero-sum game in the case of a small open economy – more investment in the US does not necessarily mean less investment in Canada.

Both of these scenarios are, to a certain extent, caricatures. In reality, some combination of the two is probably the case, depending on the circumstances. For example, one might think that the first view might be more appropriate for small- and medium-sized Canadian firms who

cannot access international capital markets. The second view may be more appropriate for larger Canadian firms, which can access international capital markets. However, in both cases it is important to note that real domestic investment in Canada will not in general be directly affected by changes in US investment taxation – in the first case because Canadian companies access domestic financial capital only, and in the second case because Canadian firms can access financial capital from the entire world market.

There is a caveat, related to macroeconomic effects. The US is not a small economy relative to the rest of the world. Therefore, US tax changes can be expected to affect international financial markets. For example, increased investment in the US will raise global interest rates and, therefore, investors' required rate of return. Moreover, a larger US capital stock reduces the global pre-tax return on capital. In this way, the TCJA's macroeconomic impact on international financial markets could work to lower domestic investment in Canada. Perhaps working against this is the fact that the improved growth associated with the TCJA may be good for Canada because our economic performance is tied closely to the US.

And so, it is complicated – it is extremely difficult to determine the net impact. In our view, the small open-economy view of capital markets has considerable merit, and while the TCJA will likely have a negative impact on real domestic investment in Canada, it will be moderated in the long run by the international nature of capital markets.

Still, we do have concerns about income shifting due to the statutory rate reductions in the US. Moreover, there may be an impact on US foreign direct investment in Canada.

GILTI Thoughts

As discussed above, a key TCJA reform is change to the US international-taxation system. Unlike most other countries, the US has long attempted to tax the income of US-resident MNEs on a worldwide

basis, rather than the territorial basis used by most other countries. Now, US-resident MNEs are no longer subject to taxation at home on earnings repatriated from foreign subsidiaries. While this suggests a movement toward a territorial system, significant elements of worldwide taxation remain. Most notably, a new tax, dubbed “Global Intangible Low-Taxed Income” (GILTI), is applied to a portion of foreign-source income of US MNEs, albeit at reduced rates and with a partial credit for foreign taxes. Because the new GILTI tax is applied to subsidiary income as it accrues, and not merely on repatriation, US taxation of foreign subsidiaries is arguably even more important than before.

The GILTI tax is ostensibly intended to address the incentives for US multinationals to shift income to lower-taxed jurisdictions. This type of income shifting is thought to be easier, and quite widespread, for income generated from so-called intangible assets such as research and development and the associated patents, copyrights, goodwill, trademarks, trade names, etc.

Still, the GILTI tax is complicated and, indeed, some details await clarification by the US Treasury Department. It is useful, nonetheless, to provide a simplified description to facilitate discussion. GILTI is defined as the net-tested income (NTI) of foreign affiliates in excess of income generated from a 10 percent deemed rate of return on qualified business assets (QBA), which for discussion purposes can be thought of roughly as being the book value of depreciable assets.²¹ GILTI is grossed up by the average foreign tax rate (t) on tested income, and subject to a 10.5 percent tax rate (one-half the standard US federal tax rate).²² A credit is given for 80 percent of foreign taxes paid by affiliates, leaving a net US tax liability on affiliate income equal to:

$$\text{GILTI Tax} = (.105 - .8t) (\text{NTI} - .10 \text{QBA}) / (1-t)$$

If the tax liability arising from this equation is negative, then no additional tax is paid and no refund is given.

Therefore, GILTI in effect applies a minimum average 10.5 percent tax rate to the parent company’s grossed-up GILTI, with GILTI tax liability applying whenever the effective foreign tax rate is less than 13.125 percent (equal to 10.5 percent divided by 80 percent). However, this provision does not really tax income from intangible assets held overseas, and it does not apply merely when the income accrues in low-tax jurisdictions. GILTI is income deemed to arise from intangible assets, but the calculation has nothing directly to do with income actually generated from intangible assets. It simply measures income earned in excess of that generated by a notional 10 percent normal rate of return on depreciable assets.

The prescribed normal, 10 percent, rate of return holds across all types of depreciable capital and is not adjusted for factors like risk or inflation. Therefore, all else equal, GILTI taxes will be higher for risky firms with low depreciable capital intensity in times of high inflation. Moreover, the GILTI does not include the return on other types of capital, like inventories or land. As such, GILTI provisions generate distortions across different types of investments.

Importantly, for the purposes of the GILTI calculation, tested income, foreign taxes paid, QBA, etc., are pooled together on a worldwide basis. This means that the foreign tax rate (t) in the above formula is the average across all countries in which the US parent has subsidiaries.²³ So, while Canada may not appear at first glance to be a low-tax

21 In the TCJA, QBA is based on the alternative depreciation system that generally involves lower tax-depreciation rates than in the modified accelerated cost-recovery system.

22 The GILTI tax rate increases to 13.125 percent (37.5 percent of the statutory rate) in 2026.

23 There are some limitations on the inclusion of loss-incurring foreign subsidiaries.

jurisdiction in the sense of GILTI, it is possible because of worldwide pooling that some US MNEs operating in Canada will pay GILTI tax, even in respect of their Canadian-source income.

Even absent pooling, the average tax rate facing business in Canada can be quite low in some circumstances. The average tax rate of US – controlled affiliates in Canada is about 15 percent, far below the 26.5 percent average statutory tax rate on taxable income. This lower rate reflects the various deductions and credits available under Canadian tax rules, such as accelerated capital-cost allowances (the Canadian analogue to bonus depreciation), tax credits for research and development and other tax-favoured expenditures, as well as the presence of tax loss carryforwards. So even a MNE without tax-haven operations might be subject to the GILTI tax on its Canadian operations if the average tax rate on its Canadian earnings is less than 13.125 percent.

When the GILTI tax is not binding, US multinationals are effectively taxed on a territorial basis and subject to tax in the foreign country only. In this case, METRs and AETRs for Canada in Figures 3 and 4 apply to US investment in Canada. However, when GILTI is binding, this is no longer the case. Unfortunately, it is difficult to determine the impact of the GILTI tax on effective tax rates (marginal or average) on a country basis. Particularly because of worldwide pooling provisions, the GILTI tax is determined on a global basis and cannot be calculated for a single country.

Moreover, and importantly, the worldwide pooling approach means that even if Canadian-source income is taxed at an average rate higher than 13.125 percent, any change in the Canadian tax system that results in lowering the average tax rate on Canadian-source income could result in a reduction in the worldwide average tax rate facing US multinationals (the t in the above equation). Therefore, some of the Canadian tax reduction could be offset by increased GILTI taxes, a variation of the so-called treasury-transfer effect that existed

under the previous US worldwide approach to international taxation. We return to this below.

CANADA'S RESPONSE

We now consider Canada's response to the TCJA along with two alternatives going forward – a significant statutory corporate rate cut or a fundamental tax reform to a rent-based tax.

THE FALL ECONOMIC STATEMENT

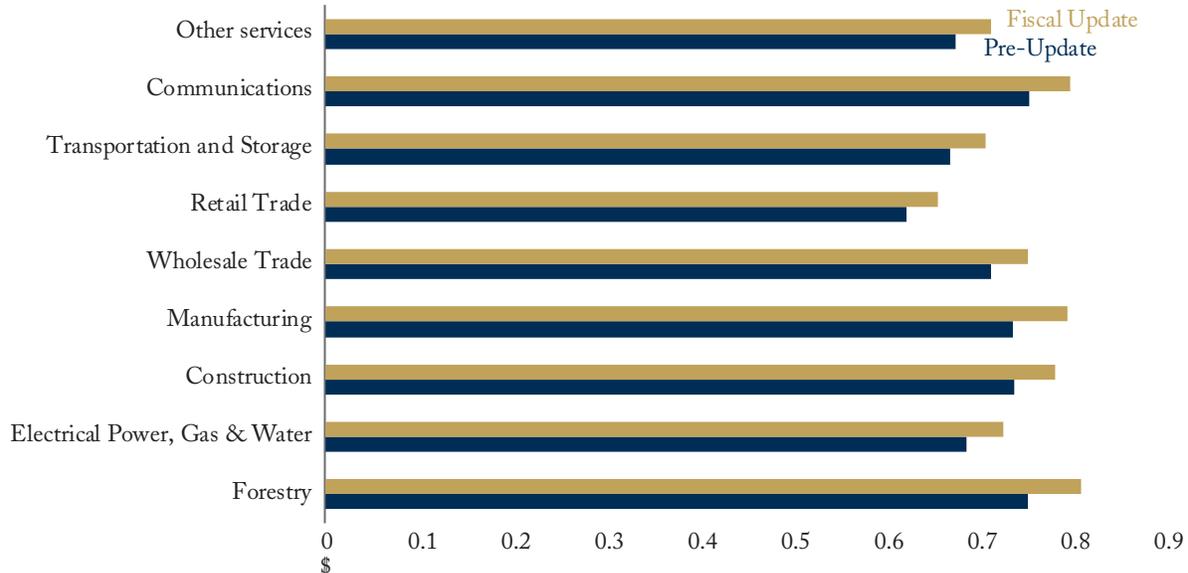
As part of its 2018 Fall Economic Statement, the federal government introduced accelerated tax depreciation for capital expenditures in response to the TCJA. In this respect, the government emulated in part a particular aspect of the US reform.

The Canadian Accelerated Investment Incentive (AII), effective on Nov. 20, 2018, provides an enhanced first-year allowance for eligible property subject to capital cost allowance (CCA) rules. This is accomplished in two ways. First, it eliminates the half-year rule, which reduced the CCA deduction in the year in which an asset is purchased by half. By eliminating the half-year rule, the AII doubles the depreciation deduction in the first year that an asset is purchased. Secondly, the AII increases the tax-depreciation deduction in the first year by a factor of 1.5.

Together, these measures increase the first-year tax depreciation allowance by a factor of three. Notably, and unlike the TCJA, they apply to all depreciable assets, not just to equipment. The Fall Economic Statement also indicated that assets that qualify for the existing fast write-off for manufacturing and processing equipment, as well as clean-energy equipment, would qualify for immediate expensing in the year of purchase. As with the TCJA, the AII and the expensing provisions are temporary. After 2023, the incentive is phased-out over a five-year period.

By frontloading tax depreciation deductions, Ottawa has increased CCA deductions' present

Figure 5: Dollar Value of Weighted-Average CCA Deductions on a \$1 Expenditure, Pre- and Post-2018 Fall Economic Statement



Source: Authors' calculations based on data provided by the School of Public Policy, University of Calgary.

value, lowering the after-tax cost of investing in depreciable capital. Figure 5 shows the CCA deduction present value by sector on a one-dollar expenditure for a weighted average of depreciable assets, before and after the fiscal update. The provisions increase the CCA's deduction present value by about four percentage points for all sectors except in manufacturing and forestry, where the increase is six percentage points.

The alternative reforms' impact on marginal and average effective tax rates is shown in the clustered bar charts of Figures 6 and 7. For comparison purposes, we also include the pre-fiscal update Canadian effective tax rates and the effective tax rates for the US under TCJA Scenario 1, where the interest limitation is not binding and bonus depreciation for equipment is in place.

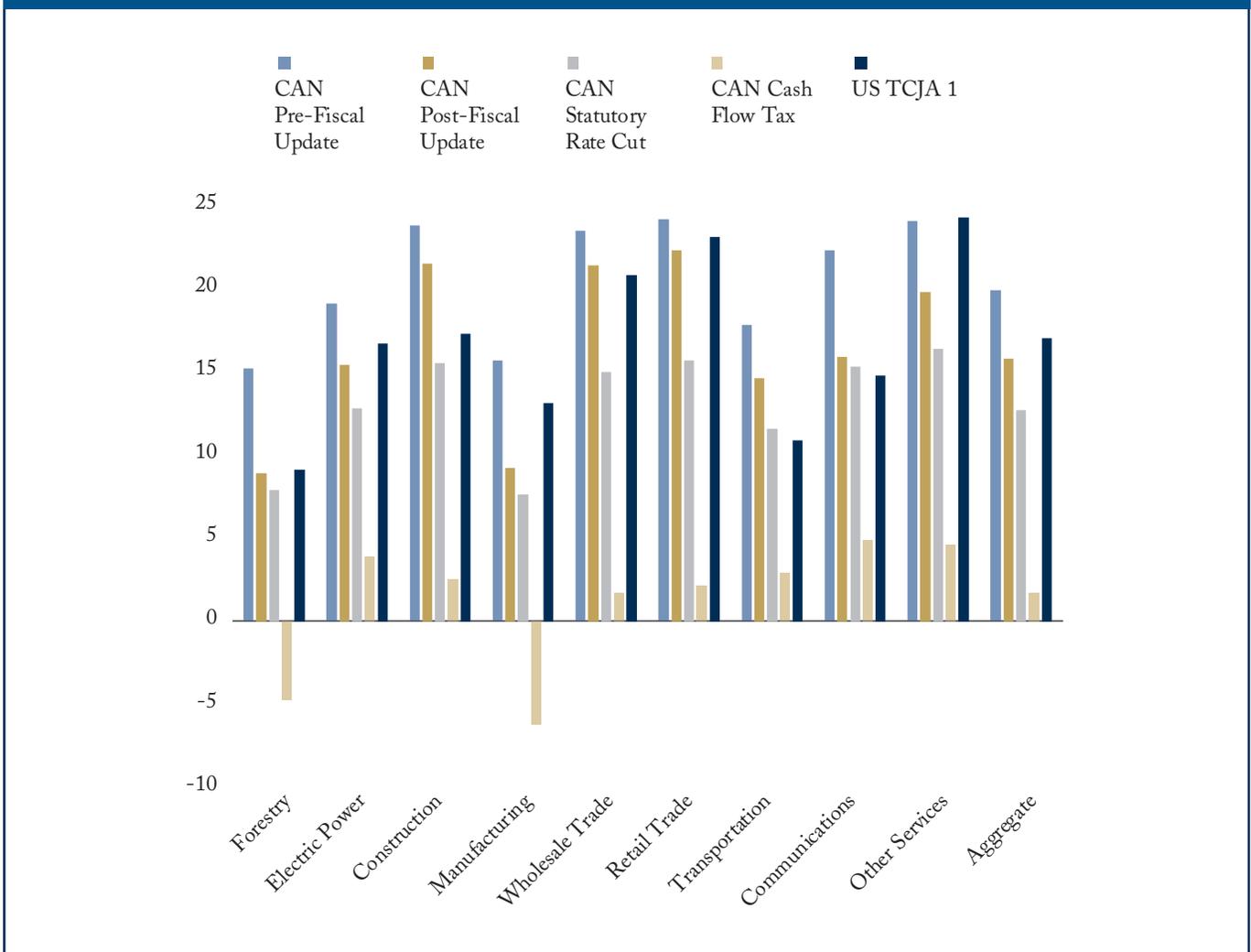
As seen in Figure 6, the Fall Economic Statement lowers the aggregate Canadian METR by about four percentage points, from 19.9 percent

to 15.8 percent, which is slightly lower than the 17 percent US METR under Scenario TCJA 1. However, the METR reduction is quite uneven across sectors, with manufacturing and forestry enjoying a substantially greater reduction than the other sectors. Figure 7 shows that the AETRs fall only slightly from the current system because the statutory tax rate does not change under the fiscal update.

ALTERNATIVE POLICY REFORMS

Next, we consider two alternative and more far-reaching reforms to replace the Fall Economic Statement's temporary measures. First, we examine the impact of a 10-percentage-point statutory corporate tax cut, lowering the combined federal-provincial average rate from 27 percent to 17 percent. This substantial cut, to say the least, was proposed recently in a study by Mintz and Bazel (2018). As they point out, a cut of this magnitude

Figure 6: Projected METRs in Canadian Reform Scenarios (percent)



Source: Authors' calculations based on data provided by the School of Public Policy, University of Calgary.

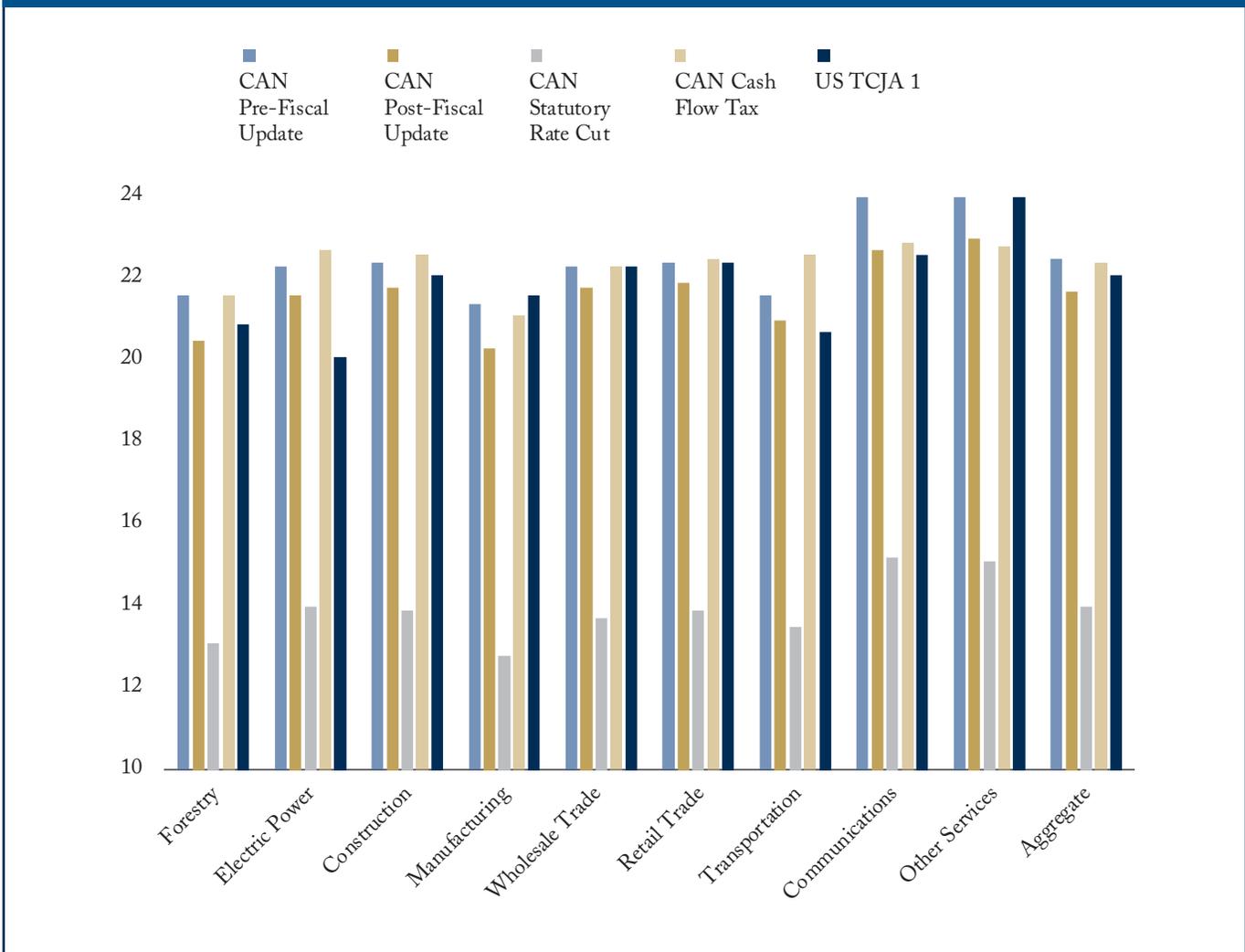
is consistent with the gradual reduction in the UK corporate rate from 30 percent to 19 percent over the last 10 years, with further cuts to 17 percent by 2020.

As seen in Figure 6, the aggregate METR under this scenario falls to 12.7 percent, which is about three percentage points lower than the Fall Economic Statement's 15.8 percent. Moreover, the reduction is more uniform across sectors. This is because the statutory tax-rate reduction benefits all types of capital relatively equally. Figure 7 demonstrates, notably, that the AETR

falls significantly under the statutory rate cut to 14 percent in aggregate. This is substantially lower than the aggregate 21.7 percent AETR under the fiscal update. This is because the corporate rate matters enormously to determining the AETR.

The second reform option we consider is a rent tax. As discussed above, a simple such approach is a cash-flow tax, which involves eliminating interest deductions altogether and expensing all capital expenditures immediately. A rent tax is designed explicitly to tax pure economic rents. In its pure form, it will be METR neutral, eliminating

Figure 7: Projected AETRs in Canadian Reform Scenarios (percent)



Source: Authors' calculations based on data provided by the School of Public Policy, University of Calgary.

distortions across all dimensions.²⁴ In this regard, some economists see the TCJA's equipment bonus expensing and the limits on interest deductibility as moving the US closer to a cash-flow taxation system.²⁵ However, the way in which the US reforms are being implemented is not at all in accordance with rent-taxation principles.

While our focus here is on a simple cash-flow tax for expository purposes, more generally we have in mind similar approaches that are equivalent in present-value terms. For example, one alternative is the capital account allowance (CAA) approach, which is equivalent to a cash-flow tax in present-value terms. This entails maintaining depreciation

24 This assumes that all other taxes on capital are eliminated. Our calculations presume that provincial sales taxes levied on equipment remain.

25 See, for example, the discussion in Milligan (2017).

deductions, but replacing interest deductions with a deduction based on a capital account.

Another approach is the allowance for corporate equity (ACE). Under this method, interest deductibility is retained, but a similar deduction for the normal return to equity is also allowed. The ACE is, in principle, equivalent to cash-flow taxation in the sense that it can be designed to yield the same present-value tax payments over the life of any asset. To preserve equivalence over a transition period, an ACE can be designed to apply to new equity issuance only, thereby avoiding the problem of windfall tax breaks for old capital, just as under the cash-flow tax system that we examine here. A cash-flow tax, the CAA and the ACE are all different approaches to rent taxation that have very similar effects on effective tax rates. For simplicity, we focus on the cash-flow tax.²⁶

Indeed, Figure 6 shows that a cash-flow rent tax drops the METR substantially, from 19.9 percent to 1.7 percent in aggregate, and it is very close to zero (neutrality) in all sectors. Deviations from zero (in particular the slightly negative METRs for forestry and manufacturing) reflect the Atlantic Investment Tax Credit and the imposition of provincial sales taxes on equipment in non-HST provinces. From Figure 7, we see that the AETR would be virtually unchanged from the current level because there is no change in the statutory tax rate.

DISCUSSION

In choosing among responses, several factors need to be considered. The first is the implication for government revenues. Given Ottawa's current fiscal position – a projected \$18 billion deficit in the current fiscal year forecast to decline to \$12 billion by 2022/23 – this is clearly an important consideration. The Fall Economic Statement provisions apply to new investments only and, as such, do not generate a windfall gain for past investments. Nonetheless, Ottawa estimates that its accelerated CCA deductions will cost approximately \$14 billion in lost revenues over six years.

A 10-percentage-point statutory rate cut would be substantially more expensive, especially in the short term. Importantly, a rate cut applies not only to income generated by future investments but gives rise to a windfall gain for the income generated from past investments. Using 2016 data on federal corporate income tax revenue, the immediate mechanical impact of a 10-percentage-point reduction, with no associated change in the tax base, suggests a revenue reduction of about \$22 billion annually, assuming offsetting changes to the dividend tax credit.²⁷ (We note that, using a different methodology, the Parliamentary Budget Office has estimated this static revenue loss to be somewhat smaller, at \$16 billion per year.²⁸) Of course, a less substantial rate cut would result in

26 As above, all calculations are based on fully taxpaying firms. In this regard, full loss-offsetting should, in principle, be part of any tax system, be it income- or rent-based.

27 Based on Statistics Canada's Financial and Taxation Statistics for Enterprises data, Canadian corporate taxable income was \$303.4 billion in 2016, of which we estimate about \$45 billion was declared by small Canadian controlled private corporations eligible for the small business deduction, which would presumably be excluded from further rate reductions. The residual \$258 billion is assumed to receive the full 10-percentage-point reduction. Note this may be somewhat excessive because of the effect of tax losses carried forward and other ways in which the statutory tax rate does not apply to all taxable income. Under adopted principles of tax integration, the corporate tax cut would result in changes to the Dividend Tax Credit, which we estimate would reduce its revenue cost by approximately \$3 billion annually. This reduction is incorporated in the above calculation. See also the calculations in Smart (2017).

28 See https://www.pbo-dpb.gc.ca/web/default/files/Documents/Reports/2018/Corporate%20Income%20Tax%20Rate/Costing%20CIT%20decrease_FINAL.pdf.

a smaller revenue loss. Also, as discussed above, there is reason to expect firms to respond through profit-shifting strategies. A rate cut in Canada may, therefore, be expected to moderate the reduction in tax revenues due to profit shifting under the US cut.

Like the Fall Economic Statement, a cash-flow tax would target only new investment, with no windfall gain provided to the income generated from past investments. In the short run, revenue losses might, therefore, be relatively modest. However, the rent-tax base is smaller than the current tax base because it taxes only the above-normal return to capital, which means that revenues could decline over time relative to the status quo. For example, Boadway and Tremblay (2014, 2016) suggest corporate tax revenue could decline by about 20 percent in the long run under a pure rent tax. Again, the ultimate effect might be larger or smaller, depending on behavioural responses, including income shifting.

It is important to reiterate that any change in the Canadian tax system that results in a lower average tax rate for US MNEs on Canadian-source income will reduce the worldwide average tax rate facing the US firm under the GILTI provisions. Therefore, any reduction in Canadian taxes due to accelerated depreciation under either the fiscal update, a statutory rate cut, or a cash-flow tax could be offset to some extent by increased GILTI taxes.

We have seen that both METRs and AETRs decline under all three of the reform scenarios. Therefore, US MNEs would likely respond by increasing real investment in Canada, which would expand the corporate tax base, moderating the revenue losses to some extent in the future.

The impact on domestic capital investment depends critically on the capital stock's sensitivity (elasticity) with respect to the cost of capital. While there is widespread agreement that corporate taxes do, indeed, negatively affect investment, there is less agreement regarding the magnitude. In a now somewhat dated survey, Hassett and Hubbard (2002) claim that a consensus has emerged that the user-cost elasticity range has narrowed to between

-0.5 and -1.0. That is, a 10 percent decrease in the cost of capital due to the tax change was associated with an increase in the stock of capital of from 5 percent to 10 percent. A (relatively) more recent survey by Bond and Van Reenen (2007) questions this, concluding that, "It is perhaps a little too early to agree with Hassett and Hubbard (2002) that there is a new 'consensus' on the size and robustness of this effect."

Only a few Canadian studies exist. A Department of Finance analysis (Parsons 2008) examines the impact of the seven-percentage-point reduction in the federal statutory tax rate on non-manufacturing firms from 2001 to 2004. Using the manufacturing sector as a control group, his preferred capital stock elasticity estimate with respect to the after-tax cost of capital is -0.7, which is roughly the mid-point of the range suggested by Hassett and Hubbard.

And so there is some uncertainty regarding the sensitivity of investment with respect to tax-induced changes in the cost of capital. We forge ahead nonetheless. In the calculations that follow, we use a -0.7 capital-stock elasticity estimate.

Calculations based on our METR numbers indicate that the Fall Economic Statement provisions, on average, lower the cost of capital for manufacturing firms by about 7.3 percent and for firms in other sectors by about 4.6 percent relative to the pre-update system. An -0.7 elasticity suggests a long-run increase in the manufacturing sector's capital stock of 5.1 percent and 3.2 percent in other sectors. A 10-percentage-point statutory rate cut is associated with an 8.7 percent reduction in the capital cost for manufacturing firms and 8.2 percent for other firms. This suggests an increase in the domestic capital stock of about 6.1 percent in manufacturing and 5.7 percent in other sectors. A cash-flow rent tax is associated with a reduction in the cost of capital for manufacturing firms of 20.6 percent and 18.2 percent for firms in other sectors. This suggests an increase in the capital stock of 14.4 percent in the manufacturing sector and 12.7 percent in other sectors.

It is, therefore, evident that a rent-based tax reform, such as a cash-flow tax, would have a substantially higher impact on real domestic investment in Canada than the alternatives. It is also worth noting that the METR variation across assets and sectors is higher than with the cash-flow approach under both the Fall Economic Statement and the statutory rate cut. This gives rise to other distortions that have real economic costs. Moreover, the debt bias, inherently present in any income-tax system that allows debt-interest deductibility while not providing a similar treatment for equity, continues under both the fiscal update and rate-cut approaches. While a statutory rate cut lowers the debt bias associated with the deductibility of interest by lowering the tax rate, it does not eliminate it. A rent-based, cash-flow tax results in a much smoother METR configuration across assets and sectors and completely eliminates the debt bias of the corporate income tax – i.e., it is “more neutral” across all dimensions.

Our calculations show that the AETR is substantially lower under the statutory rate-cut option than with the fiscal update or a cash-flow tax. This is because, as discussed above, AETRs depend largely on the statutory tax rate and less so on the METR, regardless of the tax base. Even when the METR is zero, the AETR on a discrete investment project earning economic rent is positive and equal to the statutory tax rate. Therefore, for US firms that are capital constrained and earn economic rent, the substantial reduction in Canadian AETRs under the statutory tax-cut alternative might be expected to increase their investment in Canada. However, it bears repeating that for US firms bound by GILTI provisions, any reduction in Canadian taxes (from either a rate cut or moving to a cash-flow tax) could

lower the average tax rate for GILTI purposes, potentially resulting in a “treasury transfer effect” partially offsetting the reduction in Canadian taxes.

While US foreign investment is certainly an important consideration, the bulk of investment in Canada is in fact undertaken by domestic firms, where the METRs is perhaps the more relevant measure. In 2016, the share of foreign assets in Canada was 16.2 percent, of which 52.5 percent was owned by US corporations. Therefore, US-controlled corporations accounted for about 8.5 percent of total corporate assets in Canada, with domestic corporations accounting for about 84 percent. The foreign share of operating profits in Canada in 2016 was slightly higher, at 17.3 percent, of which 58.4 percent went to US-controlled corporations.²⁹

The government may opt to alleviate the revenue losses associated with a tax-rate cut or a move to a rent (cash-flow) tax by increasing or imposing other taxes. Mintz and Bazel (2018), for example, argue for a capital levy imposed on existing capital phased out over time to offset the windfall gain. Alternatively, base-broadening accompanying a rate cut could alleviate the revenue cost.

Another approach would be to re-balance the revenue mix. For example, a one-percentage-point GST increase would generate approximately \$7.7 billion per year.³⁰ Indeed, a greater reliance on consumption taxation is in fact logically consistent with a move to a rent tax from a first-principles’ perspective.

All things considered, our preference is for a fundamental corporate tax-system reform along the lines of a rent tax, rather than tinkering with depreciation allowances and/or the statutory tax rate. Clearly, the movement to a rent-based

29 See <https://www150.statcan.gc.ca/n1/pub/11-402-x/2012000/chap/business-entreprise/business-entreprise02-eng.htm>, <https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3310000601>, <https://www150.statcan.gc.ca/n1/pub/61-220-x/61-220-x2016000-eng.htm>.

30 Based on \$38.5 billion in GST revenues in 2018/19, as reported in the 2018 Fall Economic Statement.

corporate tax would be a fundamental departure from the current approach to taxation. An important benchmark in the current tax system's intellectual origins is the concept of comprehensive income ("a buck is a buck") as embodied in the 1962 Royal Commission on Taxation (the Carter Commission). This idea emphasizes the withholding role of the corporate income tax and its integration with the personal income tax.

In the intervening period, various changes to the Canadian tax system have in fact moved the Canadian tax system substantially away from the Carter "ideal" comprehensive income tax base. For example, the introduction of Tax Free Savings Accounts and Registered Retirement Savings Accounts on the personal tax side have moved the tax system closer to a comprehensive consumption tax. Moreover, new insights into the implications of capital mobility in a small open economy such as Canada's have questioned the comprehensive income approach and its underlying principles.³¹ In particular, the emphasis has been on the corporate tax's role as a non-distortionary collector of economic rents, which, as indicated above, is compatible with Canada's move toward consumption taxation.³²

Of course, a change of this magnitude should not be made lightly. There are many design and transition issues that would need to be addressed. The precise form of a rent tax will bear on this. We do not address these issues here. Rather, we recommend a comprehensive review of the tax system, one based on first principles. We are not alone in this assessment. For example, in its most recent country report on Canada, the International Monetary Fund (IMF) says that:

"It is time for a careful rethink of corporate taxation to improve efficiency and preserve Canada's

position in a rapidly changing international tax environment. Given its centrality to the architecture of the tax system as a whole, this requires a holistic view, which Canada has not had for some time. The US tax reform increases the urgency of moving ahead with this review. Its impact remains highly uncertain, but the potential effects, through both real activity and profit shifting, could be substantial. The review should weigh the pros and cons of incremental approaches to change, such as more generous capital cost allowances, against more radical options, such as moving to some form of rent tax at the corporate level."³³

CONCLUSION

In this *Commentary*, we have examined some key aspects of US corporate tax reform under the TCJA and considered its implications for Canada. We have also analyzed possible Canadian policy responses.

Canada *should* react to the TCJA. Not to do so in light of the significant deterioration of our tax competitiveness position would be detrimental to economic growth and job creation.

The federal government released its policy response in its Nov. 21, 2018 Fall Economic Statement, duplicating in part some aspects of the US reforms in accelerated depreciation for new capital expenditures. While we think that this short-run response is perhaps reasonable in light of the fiscal constraints facing the government and the uncertainty regarding the impact of the TCJA, we do not think that the work is done.

We consider two alternative policies going forward: a 10-percentage-point reduction in the statutory corporate income tax rate or the implementation of a rent-based tax such as a cash-

31 See Boadway and Bruce (1992).

32 See Boadway and Tremblay (2014, 2016) and the discussion in Kerr and McKenzie (2012).

33 See <https://www.imf.org/en/News/Articles/2018/06/04/ms060419-canada-staff-concluding-statement-of-the-article-iv-mission>.

flow tax. On balance, we prefer a more principled and fundamental tax reform that focuses on taxing economic rents. It is less expensive in the short term and will provide a more significant boost to real domestic investment through a substantial reduction in the METR. This approach is grounded in a coherent and consistent set of first principles based on rent taxation that moves the tax system closer to neutrality from an inter-asset and inter-sectoral perspective, eliminates the debt bias under the corporate tax and removes incentives for foreign corporations to shift debt to Canada.

While the TCJA may well serve as the impetus for corporate tax reform in Canada, our advocacy for a rent-based approach to taxation is, in fact,

largely independent of this. As noted, other economists have long advocated this approach. As stressed throughout this *Commentary*, we favour a structured, principled approach to tax reform rather than an ad hoc response to US developments, which may turn out to be fragile in light of the American political climate and the point in the business cycle.

The US tax reform presents significant challenges for Canada. However, it also provides an opportunity to make a bold move toward a corporate tax system that is grounded in sound tax policy principles, is less distortionary, promotes economic growth and prosperity, and restores Canada's tax competitiveness on a worldwide basis.

APPENDIX: TAX COMPETITIVENESS: A BRIEF GUIDE TO THE ISSUES

While the term “tax competitiveness” is commonly used in policy discussions, it tends to be employed rather loosely and, indeed, is not a well-defined concept, meaning different things to different people in different contexts. In broad public policy discussions, the focus tends to be on the headline statutory corporate income tax rate. For reasons discussed here, while important, the statutory rate alone does not provide the full picture. A full understanding of a business tax regime’s competitiveness requires a more nuanced, multidimensional view, one which in fact considers three types of tax rates. While the three rates are interconnected, each is often viewed as having a primary (though not exclusive) impact on different aspects of business decisions:

- The *statutory corporate income tax rate* is highly visible. However, focus on it alone can be misleading. The statutory rate is multiplied by the tax base to determine tax liability. The tax base reflects the treatment of various costs associated with investments, such as depreciation, intangible assets, financing costs, inventories, etc. Moreover, the final tax liability can also be reduced by various credits, and other taxes may be applied to investments, such as sales taxes on capital. As such, a comparison of statutory tax rates alone is of limited use when assessing the impact of the tax system on investment decisions. However, the statutory rate can be important in determining the extent to which revenues and costs are shifted across tax jurisdictions for tax-planning purposes.
- The *marginal effective tax rate* (METR) reflects the statutory rate and key features of the corporate tax base, along with tax credits and other taxes on investment. The METR measures how much the corporate tax (and other taxes on capital) increase the rate of return that an investment must earn in order to generate the minimum after-tax rate of return required by

investors – the so-called hurdle rate of return. As such, the METR can be viewed as a summary measure of the extent to which the corporate tax system impinges on the size of investment projects and affects how much corporations invest in a given jurisdiction.

- The *average effective tax rate* (AETR) is a summary measure of the extent to which the tax system affects the economic income, or economic rent, generated by a discrete investment project. It measures the present value of the taxes associated with an investment project relative to the present value of the pre-tax revenue stream from the project. Since investment location decisions are discrete by nature, the AETR is often viewed as being a key determinant of investment locations.

So, which tax rate matters? They all do! A complete understanding of the impact of business taxes and a regime’s tax competitiveness requires an analysis of all three types of tax rates.

While, as mentioned, each tax-rate concept is viewed as having a primary impact on different aspects of business decisions – the statutory tax rate on income shifting and tax planning, the METR on the size of the investments and the AETR on discrete location decisions – the three tax-rate concepts are in fact closely related. It can be shown that the AETR is (approximately) a weighted average of the METR and the statutory tax rate.³⁴ The METR weight is the ratio of the rate of return on the investment project to the minimum required hurdle rate of return. The statutory tax rate weight is one minus this ratio. Therefore, if a discrete investment project earns no economic rent and generates the minimum hurdle rate of return required by investors, the METR weight is one and the AETR is equal to the METR. As the rate of return on an investment project increases above the minimum required hurdle rate and, therefore,

³⁴ See Devereux and Griffith (2003).

earns economic rent, the AETR moves closer to the statutory tax rate.

A comment on the notion of tax neutrality is useful. There are many ways of thinking about tax neutrality. The approach taken here, and by most economists, focuses on METRs. A zero METR, which means that no tax is levied on a marginal investment that just earns the required hurdle rate of return, is said to be neutral in the sense that the tax system imposes no distortion on the investment's size. This would be the case, for example, under a simple cash-flow tax, which eliminates interest deductibility altogether and expenses all capital expenditures immediately (as well as eliminating other taxes and credits on capital).

Note, however, that since the AETR is a weighted average of the METR and the statutory tax rate, a tax system that is fully neutral with a zero METR, will still generate a positive AETR approximately equal to the statutory tax rate.³⁵ Therefore, even a tax system that is neutral in a METR sense, could bear upon a firm's location decisions.

Another way of thinking about neutrality focuses on the METR variation across sectors and assets. Variations in the METR along either of these dimensions will result in inter-sectoral and inter-asset distortions in the size of investments.

As a general rule, departures from neutrality, in terms of distortions in the location, size and allocation of investment across different sectors and assets, will give rise to economic inefficiencies, which produces lower output and a decline in overall economic welfare.

THE INTEREST LIMITATION: EBITDA VS EBIT

In the text, we focus on the EBIT-based approach to the TCJA's limitation on interest deductions.

However, the way in which the TCJA calculates interest limitation has an important impact on the METRs. To see why, note that when interest deductions are limited under the EBITDA-based earnings-stripping rule, a stylized representation of a firm's tax liability can be written as:

$$\begin{aligned} \text{Taxes} &= .27[\text{Revenue} - \text{Current Costs} - \\ &\quad \text{Depreciation} - .30(\text{Revenue} - \text{Current} \\ &\quad \text{Costs})] \\ &= .27(1-.30)(\text{Revenue} - \text{Current Costs}) - .27 \\ &\quad \text{Depreciation} \\ &= .189(\text{Revenue} - \text{Current Costs}) - .27 \\ &\quad \text{Depreciation} \end{aligned}$$

The term $.30(\text{Revenue} - \text{Current Costs})$ in the first line is the deduction in lieu of interest when the EBITDA-based limitation is binding. As a result, we see that in the EBITDA case, the 30-percent interest limitation results in operating income (revenue less current costs) being taxed at 18.9 percent (27 percent(1-.3)) while depreciation allowances for equipment are deducted at the full 27 percent. This asymmetry – taxing operating income at a higher rate than expenses are deducted – generates a subsidy for investment. This is particularly evident in Scenario 3 where equipment is expensed under bonus depreciation. In this case, the equipment expensing coupled with the EBITDA-based limitation results in a strange sort of asymmetric cash-flow type tax treatment for capital equipment, where positive current cash flows are taxed at a lower rate than negative capital cash flows are deducted. Scenario 4 reflects a similar asymmetry, but the subsidy provided by this asymmetric treatment is blunted somewhat by the lack of bonus depreciation for equipment.

When the interest limitation switches to the EBIT approach in 2022 (Scenarios 5 and 6), this

³⁵ Again, this assumes no other taxes on capital.

Table A1: METRs by Sector and Asset Type (percent)

	CAN 2018	US 2017	TCJA 1	TCJA 2	TCJA 3	TCJA 4	TCJA 5	TCJA 6
Forestry	15.2	28.1	9.1	22.0	17.6	25.6	-22.9	-0.3
Electric Power	19.1	24.8	16.7	16.7	21.6	22.6	9.4	12.4
Construction	23.8	30.2	17.3	27.5	25.2	31.4	-2.6	12.7
Manufacturing	15.7	30.7	13.1	23.9	20.6	27.3	-15.2	3.1
Wholesale Trade	23.5	35.0	20.8	27.7	26.7	31.1	8.2	17.4
Retail Trade	24.2	36.4	23.1	27.6	27.6	30.5	14.0	19.6
Transportation	17.8	28.2	10.9	22.7	20.0	27.6	-9.4	8.1
Communications	22.3	36.8	14.8	32.3	25.1	35.6	-49.3	-2.5
Other Services	24.1	38.4	24.3	31.7	29.8	34.5	-0.5	12.1
Buildings	21.5	41.3	30.3	30.3	31.0	31.0	21.8	21.8
Machinery	19.7	32.5	7.3	29.9	20.8	33.9	-92.3	-14.9
Land	10.9	17.9	11.4	11.4	19.5	19.5	19.2	19.2
Inventory	24.8	28.4	19.3	19.3	23.9	23.9	25.1	25.1
Aggregate	19.9	33.2	17.0	26.7	24.2	30.2	-7.2	8.7

Notes:

TCJA 1: Not-binding interest limitation based, bonus depreciation for equipment in place.

TCJA 2: Not-binding interest limitation, bonus depreciation for equipment not in place.

TCJA 3: Binding interest limitation (EBIT-based), bonus depreciation for equipment in place.

TCJA 4: Binding interest limitation (EBIT-based), bonus depreciation for equipment not in place.

TCJA 5: Binding interest limitation (EBITDA-based), bonus depreciation for equipment in place.

TCJA 6: Binding interest limitation (EBITDA-based), bonus depreciation for equipment not in place.

Source: Authors' calculations based on data provided by the School of Public Policy, University of Calgary.

asymmetry will disappear. In this case, a stylized representation of the tax liability when the limitation is binding is:

$$\begin{aligned}
 \text{Taxes} &= .27[\text{Revenue} - \text{Current Costs} - \text{Depreciation} - .30(\text{Revenue} - \text{Current Costs} - \text{Depreciation})] \\
 &= .27(1-.30) [\text{Revenue} - \text{Current Costs} - \text{Depreciation}] \\
 &= .189 [\text{Revenue} - \text{Current Costs} - \text{Depreciation}]
 \end{aligned}$$

where the term $.30(\text{Revenue} - \text{Current Costs} - \text{Depreciation})$ in the first line is the deduction in lieu of interest when the EBIT-based limitation is binding. Here, we see that operating income and tax depreciation deductions are both taxed at the 18.9-percent rate when the limitation is binding. In this case, the treatment of equipment under bonus depreciation conforms to a more standard (symmetric) cash-flow tax approach, albeit at a tax rate that is substantially lower than when the interest limitation is not binding.

In Table A1, we show the impact of the interest limitation based on the EBITDA on METR in

Table A2: AETR by Sector (percent)

	CAN 2018	US 2017	TCJA 1	TCJA 2	TCJA 3	TCJA 4	TCJA 5	TCJA 6
Forestry	21.6	31.7	20.9	23.3	18.7	19.6	21.9	20.5
Electric Power	22.3	30.8	20.1	20.1	19.5	23.3	23.8	19.8
Construction	22.4	32.0	22.1	24.3	20.4	21.7	23.8	22.1
Manufacturing	21.4	32.4	21.6	23.7	19.3	20.3	22.4	20.9
Wholesale Trade	22.3	34.7	22.3	23.9	20.8	23.1	24.7	22.0
Retail Trade	22.4	34.6	22.4	23.5	21.0	24.1	25.1	21.8
Transportation	21.6	33.3	20.7	23.0	19.3	20.9	23.1	21.0
Communications	24.0	36.8	22.6	26.6	20.4	17.8	21.7	23.5
Other Services	24.0	36.5	24.0	25.9	21.6	21.9	23.7	23.1
Aggregate	22.5	34.7	22.1	24.2	20.1	21.1	23.2	21.9

Notes:

TCJA 1: Not-binding interest limitation, bonus depreciation for equipment in place.

TCJA 2: Not-binding interest limitation, bonus depreciation for equipment not in place.

TCJA 3: Binding interest limitation (EBIT-based), bonus depreciation for equipment in place.

TCJA 4: Binding interest limitation (EBIT-based), bonus depreciation for equipment not in place.

TCJA 5: Binding interest limitation (EBITDA-based), bonus depreciation for equipment in place.

TCJA 6: Binding interest limitation (EBITDA-based), bonus depreciation for equipment not in place.

Source: Authors' calculations based on data provided by the School of Public Policy, University of Calgary.

Scenarios TCJA 5 (with bonus depreciation for equipment in place) and TCJA 6 (with bonus depreciation for equipment not in place). As is evident, the METRs under the EBITDA scenarios are substantially lower and, indeed, they turn substantially negative when coupled with bonus depreciation (TCJA 5)! Table A2 provides AETR calculations under these new scenarios.

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