## **E**-brief

#### Appendix: Business Tax Burdens in Canada's Major Cities: The 2015 Report Card

By Adam Found, Peter Tomlinson and Benjamin Dachis

We begin this appendix by elaborating on the "capitalization" discussion in Box 1 of the main text. We then discuss scoring for the Business Property Tax (BPT) Report Card, noting relevant features of each jurisdiction's BPT regime. Finally, we discuss the methodology of METR estimation, followed by the presentation of data tables.

#### Investment Response to Tax Changes: The Role of Capitalization

The term "capitalization" often enters into discussions of adjustment to tax changes. It applies to land prices, but not (for example) to labour prices. Payments for labour are made weekly or monthly, whereas payments for land usually occur up front rather than as periodic rental payments. If a tax increase (whether to Corporate Income Tax (CIT) or to BPT) reduces expected after-tax profit in future years, prospective investors will calculate the present value of the reduced profit flow (i.e., capitalize it) to determine the reduction in land price needed to stay whole (i.e., realize the same net present value their investment would have without the tax increase). In the case of labour there is no comparable up-front payment and thus no role for capitalization. In our discussion here "capitalization" is synonymous with a change in land prices resulting from a tax change.

Mintz (2015) observes that:

Virtually, every credible study I know of in the past 15 years has shown that higher business taxes reduce capital investment. Discouraging capital can lead to less income paid to workers since companies fail to purchase more advanced technologies to compete.

Mintz included this comment in a discussion of increases to the corporate income tax (CIT). He noted that Alberta has already enacted an increase, adding that the federal New Democratic Party had proposed an increase to apply nationally. Before turning to the BPT we focus our discussion initially on the CIT, noting how the investment response to changes in CIT rates can be larger or smaller depending on market conditions.

As Mintz observes, reduced investment in response to a CIT increase can lead to lower wages. We can expect lower wages when investment is reduced since reduced investment is linked to reduced demand for labour. The elasticity of labour supply influences the degree to which wages go down. A relatively inelastic labour supply would result in a relatively large wage reduction — helping to restore investors' required rate of return and thus limiting the extent to which investment falls. Conversely, if the labour supply is relatively elastic, a smaller wage reduction would be expected. In that case, the investment reduction would be larger since less mitigation is available from the wage side.

Turning now to the land market, a reduction in investment – in response to a CIT increase – will cause reduced demand for land and thus lower land prices. Impacts will be similar to the labour-market impacts noted above, with a relatively large reduction in investment associated with a relatively elastic land supply available to businesses. This would be likely in areas with mixed-use commercial / residential zoning (as for example in central Toronto), or where industrial land banks offer vacant serviced land. Conversely, a relatively inelastic land supply available to business would limit the investment reduction initiated by a CIT increase.

So far as METR estimation is concerned, existing methodology assesses tax competitiveness only, with the degree of investment response to tax changes set aside. If two provinces imposed CIT increases that increased

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their METRs equally, they might expect differing investment responses. However, modifying the methodology to reflect this difference – for example by discounting CIT rates in jurisdictions where the expected investment response is relatively weak – is unlikely to be feasible. The existing methodology is appropriate, and should be retained when BPTs are added to METR estimates. If analysts were to discount BPT rates, consistency would require them to discount CIT rates as well – an unnecessary complication in both cases.

We now consider the investment response to a BPT change. Adjustment to a BPT change plays out in the same land and labour markets as adjustment to a CIT change.<sup>1</sup> So why do some public officials – commenting on background – cite capitalization as a factor that could neutralize investment response to a BPT change (thus providing a rationale for leaving BPT out of METR estimates)? There is a theoretical model in which BPT changes affect only land prices and not investment, but it requires implausible assumptions and could restrict investment response to CIT changes almost as much as to BPT changes. We'll call this model the "perfect capitalization" model.

The model's assumptions are (i) the land supply available to businesses is fixed and fully occupied; and (ii) the ratio of business floor area to land area is also fixed (as might occur with a binding density constraint imposed by zoning). Under these assumptions a jurisdiction's stock of buildings will not grow or shrink. Prospective investors who plan to replace existing buildings will not be affected by a BPT increase.<sup>2</sup> The price of land will fall by enough to leave the capital flow into replacement buildings unaffected by the BPT increase. (In this context "land" means sites occupied by tear-down buildings.)

In the case of a CIT increase, land prices will again fall by enough to leave the capital flow into replacement buildings unaffected. However the capital flow into building contents (machinery, equipment and inventories) will be reduced by a CIT increase. In contrast, a BPT increase will not affect the capital flow into contents of buildings where capital not "affixed" to land is exempt from property tax (as is true generally in Canada).

If we assume, as seems reasonable, that investors' required ratios of floor area to building contents are variable only within narrow limits, the flow of capital into building contents will be just slightly affected by a CIT increase while – as we've noted – the flow of capital into replacement buildings themselves will not be affected at all.

Investment responses to CIT and BPT changes are likely to be similar in a perfect-capitalization context, and there is no evident reason why this similarity would not be maintained in the context of real-world market conditions.<sup>3</sup> In either case there is no rationale for METR estimates that include CIT but not BPT. As with the "benefit tax" argument, the "capitalization" argument for excluding BPT does not hold up under scrutiny. METR estimates should include BPT along with CIT and any other taxes affecting business investment.

#### **Business Property Tax Report Card Methodology and Results**

As we stated in the main text, our Business Property Tax Report Card is based on criteria of BPT regimes' structural simplicity and informational transparency. As a basis for our rankings, we provide comments on our

<sup>1</sup> Service levels are assumed constant with all tax changes we consider here, whether to BPT or to CIT.

<sup>2</sup> Under these circumstances, owners of existing buildings who do not sell them may cut maintenance to reduce assessed value, partially offsetting the tax increase. However, maintenance investment by a new owner who retains the building instead of replacing it will be unaffected by an increase to either CIT or BPT. This result is due to capitalization of the tax increase into the sale price of the land and building.

<sup>3</sup> See Found (2013b) for evidence of substantial investment response to BPT reductions in Ontario.

twenty jurisdictions in terms of how they structure their BPT regimes and publicly provide related information. Before heading into the summaries and the results, we first clarify some judgement calls we needed to make as well as our scoring methodology.

For municipalities, we recognize that the structural features of property taxation are imposed by provincial governments, but we also recognize that municipalities have some latitude to either exacerbate or mitigate the problems of complexity and opaqueness imposed by their provinces. However, since provinces have full constitutional authority over property taxation and local/municipal affairs, we evaluate municipalities (and other local taxing authorities) as extensions of their respective provinces for the purpose of our report card. Hence, report card scores are a reflection of provinces rather than municipalities and other local taxing authorities per se, though we do recognize most municipalities could improve circumstances within the confines of provincially imposed constraints.

By way of horizontal extension of this principle, we continue our practice of aggregating local BPT regimes under the heading of the municipality to which they are associated (e.g., the Management Committee of the School Tax on the Island of Montreal, while independent of the City of Montreal, is incorporated into our review under the heading of "Montreal"). To promote transparency and accountability in the data tables we make every reasonable effort to identify statutory BPT rates by local levying authority. Clearly, however, it would be too cumbersome to reflect these decompositions in the METR charts themselves. Here, we must strike a balance between precision and readability of the results.

As for our methodology, we score each jurisdiction out of 10 with respect to simplicity and transparency against the ideal we described in the main text – the further away from this ideal, the lower the score. We assign letter grades to these scores according to the scheme outlined in Table A1. The results of this exercise are summarized in Table A2.

While we recognize that any qualitative analysis such as this requires some degree of subjective judgement to be exercised by the evaluator, we have approached this exercise as objectively as possible and feel confident that the scores assigned are reasonable and reflective of our experience with estimating effective BPT rates over the past three years.

Table A1: Scoring Conversion Scheme								
Lower Threshold	Upper Threshold	Grade						
8<	10	А						
6<	8	В						
4<	6	С						
2<	4	D						
0	2	F						
C A 1 2								

Source: Authors' interpretation.

*British Columbia and Vancouver:* The provincial assessment agency, B.C. Assessment, performs reassessments annually using July 1 as a market valuation date, with implementation for taxation occurring on the following January 1. This results in an assessment lag of only six months, matched only by Alberta among the other provinces. There are four general business classes: utilities, major industry, light industry and business (i.e., commercial). Across these classes, the province, municipalities and various local authorities levy differential BPT rates, though the province has recently blended these for all but the

0		Simp	licity	Transp	arency
of BPT	Jurisdiction	Score	Grade	Score	Grade
	British Columbia	8.00	В	9.00	А
	Alberta	6.50	В	3.50	D
	Saskatchewan	5.00	С	3.50	D
	Manitoba	4.50	С	3.00	D
	Ontario	2.00	F	2.00	F
Provincial	Quebec	3.00	D	2.50	D
	New Brunswick	8.00	В	9.00	А
	Nova Scotia	6.00	С	2.00	F
	Prince Edward Island	9.50	А	10.00	А
	Newfoundland	-	-	-	-
	Group Average	5.83	С	4.94	С
	Vancouver	8.00	В	9.00	А
	Calgary	6.00	С	8.00	В
	Saskatoon	6.00	С	7.00	В
	Winnipeg	2.00	F	5.00	С
	Toronto	4.50	С	7.50	В
Local	Montreal	4.00	С	6.50	В
	Saint John	10.00	А	9.00	А
	Halifax	2.50	D	7.00	В
	Charlottetown	9.50	А	7.50	В
	St. John's	7.00	В	7.00	В
	Group Average	5.95	С	7.35	В

Source: Authors' interpretation of government budgets.

Table A2: Business Property Tax Report Card – 2015

utilities class. On its website for municipal statistics, British Columbia makes relevant assessment and tax rate data available by municipality in a user-friendly spreadsheet format. The province leads other jurisdictions with differential tax rates in terms of providing relevant data.<sup>4</sup> British Columbia still refers to its provincial property tax as the "School Tax" and requires municipalities to collect its revenue and remit it to the Ministry of Finance.

<sup>4</sup> Like Ontario, a complicating factor to this would be the special provincial property tax levied in areas of the province without municipal incorporation to help finance local services therein.

In addition to general BPT rates, the City of Vancouver is the custodian of various BPT rates levied on behalf of Metro Vancouver (formerly the Greater Vancouver Regional District), TransLink, B.C. Assessment and the Municipal Finance Authority.

*Alberta and Calgary:* Municipalities in Alberta, as well as the Ministry of Municipal Affairs, must reassess properties annually using July 1 as a market valuation date, with implementation on the following January 1.<sup>5</sup> The only class levied with the provincial BPT is the non-residential class; the other classes are residential, farmland and machinery and equipment, the latter of which may be subject to a municipal capital tax levy at local option, but is exempt from the provincial BPT. Alberta assigns annual BPT requisitions to each municipality and calculates municipality-specific BPT rates accordingly based on equalized assessment.<sup>6</sup> As the province requires time to audit reported municipal assessment rolls and calculate equalization ratios, equalized assessment lags market value by 18 months. However, the province does not provide assessment data sufficient to calculate property appreciation rates, and thus effective provincial BPT rates, by class and municipality.

Alberta still refers to its provincial property tax as the "Education Property Tax" and requires municipalities to collect its revenue and remit it to the Alberta School Foundation Fund. Calgary has chosen not to levy a capital tax on the machinery and equipment class, but it has elected to levy a Business Occupancy Tax (BOT) on lessees of business premises, which it is gradually integrating into its BPT over 2014-2019. In the meantime, information on Calgary's website is sufficient to estimate the notional BPT rate equivalent to the BOT rate, however the data could be made clearer to make for more accurate estimation in this regard.

*Saskatchewan and Saskatoon:* With the exception of Saskatoon and a few other municipalities responsible for local assessment, the Saskatchewan Assessment Management Agency (SAMA) is responsible for assessment in the province. Market value reassessment takes place every four years with the current cycle having taken effect on January 1, 2013. Depending on the year of the assessment cycle, assessed values lag market values by 2-6 years. The province requires assessments of certain non-business classes to be discounted prior to the application of tax rates. The provincial BPT is levied at differential rates across the resource class and the residual commercial/ industrial class (once the embedded resource class is removed), whereas Saskatoon's BPT is levied at a uniform rate.<sup>7</sup> On its website, SAMA makes class-level municipal assessment data available, however it does not do so for the resource class embedded within the commercial/industrial class nor does it decompose reassessment changes into growth and appreciation components. Fortunately, the size of Saskatoon's resource class assessment is negligible to the point we can apply the provincial BPT to only the commercial/industrial class in our analysis – this could not be done for Saskatchewan municipalities in general.

Saskatchewan still refers to its provincial property tax as the "Education Property Tax" and requires municipalities to collect its revenue and remit it to local school boards. Saskatoon makes municipal and provincial statutory BPT rates readily available, however it unnecessarily obscures municipal taxation by applying "tax rate multipliers" to the statutory municipal tax rates. Assessment data required to impute property

<sup>5</sup> Only properties of the farmland, linear, machinery and railway type are assessed by the Ministry of Municipal Affairs; otherwise, property is assessed locally by municipalities.

<sup>6</sup> In the interest of equity, the province uses municipality-specific market-to-assessed value equalization ratios to correct for local assessment biases (i.e. systemic deviations from market value) when assigning provincial BPT requisitions to municipalities.

<sup>7</sup> An exception is that Saskatoon applies special tax treatment to private recreational aircraft hangers.

appreciation rates by class (except the resource class as noted above) are made available by both Saskatoon and SAMA. There are other factors regarding the provincial and municipal BPT regimes, which in large part blur accountability and or further complicate the tax system unnecessarily.<sup>8</sup>

*Manitoba and Winnipeg:* The City of Winnipeg provides its own assessment services whereas the remainder of the province is assessed by the Ministry of Local Government. The assessment system is based on a two-year assessment cycle with a market valuation date of April 1 of even years and an implementation date of January 1 of the following even year for taxation. Thus, the assessment lag is 1.75 years in even years and 2.75 years in odd years. Manitoba has three business property classes: railway, pipeline and other business (i.e., commercial/industrial), where provincial and local BPT rates are levied at uniform statutory rates. However, the province requires assessment discounts to be differentially applied across property classes prior to application of statutory tax rates, which causes effective tax rates to differ by class. While Winnipeg's financial statements provide adequate data to impute property appreciation rates by class, Manitoba makes no such data publicly available by municipality. Similarly, Winnipeg readily provides local and provincial BPT rates on its website, whereas Manitoba provides anything but clarity on its BPT rates. In fact, experience shows one needs to visit municipal websites to infer this provincial information on a current basis.

Manitoba still refers to its provincial property tax as the "Education Support Levy", which is levied on business property only, and requires municipalities to collect its revenue and remit it to the Public Schools Finance Board. Like Calgary, Winnipeg levies a BOT rate on the annual rental value of business premises, however one can convert this into a BPT-equivalent statutory rate only by digging deep into Winnipeg's financial statements to extract BOT revenue net of the Small Business Tax Credit and dividing this amount by non-discounted business assessment. In addition to the municipal BPT and BOT, a Special Levy on property is imposed by eight local school boards within Winnipeg's boundaries. Our experience is that one must appeal to, and go deep within, the Ministry of Education's annual Financial Reporting and Accounting in Manitoba Education (FRAME) reports to extract assessment data at the school board level in order to calculate assessment-weighted local education BPT rates for Winnipeg.

**Ontario and Toronto:** In years divisible by four, the Municipal Property Assessment Corporation (MPAC) reassesses property throughout Ontario with a market valuation date of January 1 of that year. Property level assessment increases related to revaluation are phased in with equal annual installments over the four-year assessment cycle.<sup>9</sup> As shown in Found (2013a), this assessment system structure results in a constant assessment lag of approximately four years. With respect to both Ontario's and Toronto's BPT, there are three general property classes: commercial, industrial and pipeline. Within each of these, there are special subclasses for vacant land, excess land, etc. that are legislated to receive considerable discounts on statutory tax rates. For municipal BPTs in general, there are potentially several more classes subject to differential tax rates depending

<sup>8</sup> Saskatchewan has provincialized its local education property tax, but not entirely so. Separate school boards in Saskatchewan maintain a constitutional authority to levy a property tax. According to the Ministry of Government Relations, in exchange for government grants, most, but not all, separate school boards have however elected to align their property tax regimes with that instituted by the province for public school boards. As for Saskatoon, it phases in reassessment-related tax bill changes by property class on the basis that phased increases and decreases offset one another in terms of the overall impact on the class.

<sup>9</sup> Assessment decreases are implemented immediately and frozen for the duration of the assessment cycle.

on the extent to which municipalities adopt local property class options.<sup>10</sup> Ontario has arguably the most complex, opaque, unaccountable and inequitable provincial BPT regime in Canada.<sup>11</sup> It levies BPT rates that differ by municipality, by property class within a municipality, by property within a property class and even by component of a single property's assessment – to our knowledge, the province is completely unique in this regard. Ontario publicly provides assessment and tax rate data by municipality and property class through municipal Financial Information Returns, however they are insufficient to calculate appreciation rates by property class and are usually posted long after the relevant year is through. Ontario still refers to its provincial property tax as the "Education Tax" and requires municipalities to collect its revenue and remit it to local school boards. Toronto levies differential BPT rates across the three general property classes, though as of 2015 it has blended the general commercial and industrial rates. For commercial properties that are not shopping centres, large office buildings, parking lots, large sports facilities or vacant land, Toronto continues to discount the commercial BPT rate for the first \$1M of assessment. Unlike Ontario, Toronto does make publicly available data that can be combined to back out appreciation rates by property class.

**Quebec and Montreal:** The structure of Quebec's assessment system is the same as Ontario's except that assessment cycles, and therefore lags, are three years long and are staggered across municipalities such that approximately 1/3 of the province is reassessed each year. The institutional structure in which school boards must operate obscures accountability to the point that it is difficult to determine whether the school tax in Quebec is local or provincial in nature. On the one hand, it appears to be local in the sense that local school boards levy a uniform property tax rate throughout their jurisdiction to provide local education services. On the other hand, the school tax appears to be provincial as Quebec limits each school board's tax revenue to meeting only those types of expenses provincially approved for local financing, and then provides equalization grants to school boards unable to raise sufficient revenue due to the provincial maximum 0.35 percent tax rate. To our knowledge, there is no publicly accessible provincial repository for education property tax rates or corresponding local assessments. With Quebec's 2015 elimination of equalization grants for school boards with tax rates under the provincial maximum, we now consider the school tax in Quebec to be of a local nature where the maximum tax rate is not binding, which is the case for Montreal. On behalf of the five school boards in the Montreal area, the local school tax is levied at a uniform rate by the Management Committee of the School Tax on the Island of Montreal, which publishes statutory school tax rates on its website.

Montreal, which is divided into a number of autonomous boroughs (e.g. Borough of Ville Marie), makes tax rate and assessment data available on its website, although incompletely so as assessment by borough is not provided. In fact, a public source for borough-level assessment data appears to be non-existent, leaving the analyst unable to calculate an assessment-weighted average borough tax rate for Montreal. In addition to general BPT rates, the City of Montreal levies water and road-related BPT rates, and the Borough of Ville Marie levies

<sup>10</sup> See Bird, Slack & Tassonyi (2012) for a complete and informative treatment of Ontario's complex assessment system. Moreover, Ontario levies the Provincial Land Tax to help finance local services provided by the province in areas without municipal incorporation.

<sup>11</sup> Ontario provincialized the local education property tax in 1998, resulting in it inheriting tax rates varying widely across municipalities and property classes within municipalities. In 2007, it began a BPT reduction program whereby ceiling BPT rates would gradually decrease so as to result in no BPT rate being higher than a certain target rate by 2014. Additionally, for municipalities with business property classes at BPT rates higher than the target rate, new construction in those classes initiated after the 2007 Budget speech would be taxed at the target rate. Ontario suspended the 2007-2014 BPT reduction program in 2012 and states it will resume the program by 2018.

a "capital expenditures" tax rate uniformly – for each year all of these figures are made readily available on a single webpage.

*New Brunswick and Saint John:* Province-wide reassessment is performed annually by Service New Brunswick using January 1 as the market valuation date, where assessment rolls apply the following year for taxation. There are only two property classes, residential and non-residential, and municipalities are required to levy property taxes using a business-residential tax rate ratio of 1.5 (a ratio also adopted by the province for the Provincial Property Tax). In addition to levying the Provincial Property Tax, New Brunswick complicates the property tax system and blurs accountability by fixing the property tax rates on which local service districts and rural communities must rely to provide local services. Like British Columbia, the province also levies special property tax rates in municipally unincorporated areas to finance local services therein as well as a special property tax rate concerning assessment services. Provincially set property tax rates are established in the *Real Property Tax Act*, and the Department of Finance is responsible for the billing and collection functions respecting all property taxes, remitting municipal requisitions accordingly. Saint John includes its property tax rates in annual budgets, adhering to the mandatory tax ratio of 1.5, though it could improve navigation by creating a webpage dedicated to tax rates. Saint John showcases a BPT regime meeting our definition of ideal simplicity.

*Nova Scotia and Halifax:* The Property Valuation Services Corporation (PVSC) maintains the assessment rolls of Nova Scotia municipalities. Although reassessment takes place annually, the market valuation date of January 1 is always two years behind the year assessment rolls take effect for taxation. Nova Scotia classifies property by residential, resource (farming, fishing etc.) and commercial types (the commercial class includes traditional industrial property). The province levies property taxes uniformly across the province ostensibly for education, corrections, social housing and the PVSC; in reality, these are simply general revenue taxes.

While on its website Nova Scotia publishes total municipal property tax rates by municipality, it surprisingly does not appear to make its own tax rates readily publicly available. Like with Manitoba, one needs to infer Nova Scotia's provincial property tax rates from municipal sources. Nova Scotia still refers to a portion of its provincial property tax as the "Education Tax" and requires municipalities to collect its revenue and remit it to local school boards. With a multitude of tax rates and special charges, Halifax Regional Municipality has perhaps the most fragmented property tax regime among our twenty jurisdictions. Halifax has been gradually simplifying its tax system recently by collapsing area and service-specific tax rates and special charges into general tax rates, however simplicity is still far from having been achieved. In addition to urban and rural general BPT rates, Halifax levies special BPT rates related to fire hydrants and supplementary education support for the Halifax Regional School Board, along with 13 other business special area rates and charges that cannot be brought into the effective tax rate calculation due to inadequate assessment and related property data.

While Halifax's tax rate structure may remain complex, the municipality is reasonably transparent about it in terms of publishing current and historical tax and special charge rates on its website. Where Halifax particularly falls short is on making assessment and related property data available by areas subject to differential special tax rates and charges, preventing the calculation of assessment-weighted average tax rates and resulting in an understatement of the municipal tax burden. Also, Halifax does not provide clear average property assessment data so as to enable property appreciation to be calculated by class.

*Prince Edward Island and Charlottetown:* Prince Edward Island has the most transparent BPT regime among the 10 provinces, scoring perfectly in this category. The *Real Property Assessment Act* requires the provincial government to reassess properties each year using a January 1 market valuation date and implement

assessment rolls for taxation on the following January 1. There are only two general property classes in the assessment system, commercial and non-commercial, though municipalities may elect to levy differential tax rates within the latter class. For both general property classes, the *Real Property Tax Act* fixes the provincial property rate at 1.5 percent. As in New Brunswick, Prince Edward Island uses proper terminology, officially calling its provincial property tax the Provincial Real Property Tax, and it collects property tax revenue on behalf of municipalities and remits it accordingly. While Charlottetown boasts simplicity by levying a single BPT rate, it could improve upon transparency by creating a "tax rate" section on its website – currently, the province's website is the best source of both provincial and municipal tax rates.

*Newfoundland and Labrador and St. Jobn's:* The province does not levy a provincial property tax, so we do not assess or score the provincial component of the BPT for Newfoundland and Labrador. The City of St. John's manages its own assessment system in accordance with the *Assessment Act*. There are two general property classes, residential and commercial, to which municipalities typically apply differential tax rates. Starting with 2005, property must be reassessed by the Municipal Assessment Agency and City of St. John's with a market valuation date of January 1 every three years, with reassessments taking effect two years hence for taxation. Over the three-year assessment cycle, therefore, the assessment lag progresses from two to four years long. St. John's levies general and water/sewer tax rates uniformly across the commercial class (except for vacant land, which gets a lower tax rate), but also utility, accommodation and downtown development taxes against businesses. Unfortunately, St. John's does not publicly provide sufficient assessment and other property data needed to incorporate these latter taxes into an aggregate effective tax rate. St. John's annual budgets provide adequate data to impute property appreciation rates by class to permit the analyst to account for the three-year assessment lag.

#### **METR Estimation: Calculation of Effective BPT Rates and Data Tables**

Our METR methodology is similar that in Found, Dachis and Tomlinson (2014), except that we now calculate effective provincial BPT rates on a municipality-specific basis rather than on an average province-wide basis; and we now include a time series of results. For detailed information on how we calculate METRs and on the related underlying methodology, see the appendix to Found, Dachis and Tomlinson (2013), as well as Found (2013a), both available at <u>www.cdhowe.org</u>.

We have updated our data to bring the analysis into 2015 (see Table A3 to Table A23). In this section, we summarize the statutory and effective business tax rates we used and estimated, and provide additional detail on how we calculate effective BPT rates – further details are available from the authors upon request. In many cases, effective BPT rates differ from their statutory counterparts because of assessment discounts and/or lags between assessed and market property values engendered by the assessment system. As per our standard practice, we account for assessment lags (measured in years) greater than one year by discounting statutory BPT rates by our estimated property appreciation rates accordingly. Here is how the calculation works using the City of St. John's as an example:

Statutory BPT Rate: 2.620 percent Average Appreciation Rate: 5.53 percent Assessment Lag: 4 years Effective BPT Rate:  $0.02620/(1+0.0553)^4 = 2.113$  percent

In our BPT tables we indicate the time period for which our estimated appreciation occurred, which in most cases is lagged by at least one year due to assessment lags. In the absence of more current assessment data, we assume these appreciation rates have continued into the present period. For BPT regimes with multiple classes of property, we estimate assessment-weighted average tax rates across the property classes.

#### Table A3: British Columbia BPT Rates

Year	Property Class	Share of Assessment Base	Statutory BPT Rate	Effective BPT Rate
	1 7		Percent	
	Utilities	0.54	1.400	1.400
	Major Industry	0.56	0.620	0.620
2013	Light Industry	2.11	1.080	1.080
	Commercial	96.79	0.620	0.620
	All Business	100.00	0.634	0.634
	Utilities	0.52	1.360	1.360
	Major Industry	0.52	0.600	0.600
2014	Light Industry	2.60	0.600	0.600
	Commercial	96.37	0.600	0.600
	All Business	100.00	0.604	0.604
	Utilities	0.49	1.360	1.360
	Major Industry	0.48	0.580	0.580
2015	Light Industry	2.40	0.580	0.580
	Commercial	96.64	0.580	0.580
	All Business	100.00	0.584	0.584
C 1	(1	. 1		

Source: Authors' calculations from government websites.

Tabl	e A4: Vancouv	er BPT Rate	es				
Year	Property Class	Share of Assessment Base	City of Vancouver	Metro Vancouver	Other Authorities	Statutory BPT Rate	Effective BPT Rate
				Per	cent		
	Utilities	0.54	3.636	0.022	0.324	3.982	3.982
	Major Industry	0.56	3.298	0.021	0.278	3.597	3.597
2013	Light Industry	2.11	0.820	0.021	0.200	1.041	1.041
	Commercial	96.79	0.820	0.015	0.167	1.003	1.003
	All Business	100.00	0.849	0.015	0.169	1.034	1.034
	Utilities	0.52	3.521	0.020	0.325	3.867	3.867
	Major Industry	0.52	3.377	0.019	0.263	3.659	3.659
2014	Light Industry	2.60	0.788	0.019	0.188	0.996	0.996
	Commercial	96.37	0.788	0.014	0.163	0.965	0.965
	All Business	100.00	0.816	0.014	0.165	0.995	0.995
	Utilities	0.49	3.361	0.019	0.325	3.704	3.704
	Major Industry	0.48	3.368	0.019	0.262	3.649	3.649
2015	Light Industry	2.40	0.735	0.019	0.187	0.940	0.940
	Commercial	96.64	0.735	0.013	0.162	0.910	0.910
	All Business	100.00	0.760	0.014	0.164	0.937	0.937

Source: Authors' calculations from government websites.

Table .	Table A5: Alberta BPT Rates									
Year	Property Class	Statutory BPT Rate	Deemed Average Appreciation Rate	Assessment Lag	Effective BPT Rate					
		Percent (except Assessment Lag)								
2013	Non-Residential	0.330	5.07	1.5	0.307					
2014	Non-Residential	0.342	5.07	1.5	0.317					
2015	Non-Residential	0.346	5.07	1.5	0.321					
Source: A	Source: Authors' calculations from government websites.									

## Table A6: Calgary BPT and BOT Rates

		BPT Rate		BPT-Eq BOT	Effective BPT-BOT			
Year	Property Class	Statutory	Effective	Statutory	Effective	Rate		
				Percent				
2013	Non-Residential	1.099	1.099	0.308	0.308	1.407		
2014	Non-Residential	1.069	1.069	0.262	0.262	1.331		
2015	Non-Residential	1.074	1.074	0.228	0.228	1.301		
Source: Authors' calculations from government websites								

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Table 2	Table A7: Saskatchewan BPT Rates										
Year	Property Class	Statutory BPT Rate	Average Appreciation Rate	Appreciation Period	Assessment Lag	Effective BPT Rate					
		Pe	ercent (except App	reciation Period a	nd Assessment Lag	g)					
2013	Commercial/ Industrial	0.828	12.16	2006-2011	2	0.658					
2014	Commercial/ Industrial	0.828	12.16	2006-2011	3	0.587					
2015	Commercial/ Industrial	0.828	12.16	2006-2011	4	0.523					

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Source: Authors' calculations from government websites.

Table	Table A8: Saskatoon BPT Rates										
Year	Property	Tax Rate	Statutory BPT Rate	Average Appreciation Rate	Appreciation Period	Assessment Lag	Effective BPT Rate				
	Class	winnpher	Percent (except Appreciation Period and Assessment Lag)								
2013	Commercial/ Industrial	1.1765	0.751	12.16	2006-2011	2	0.703				
2014	Commercial/ Industrial	1.1684	0.799	12.16	2006-2011	3	0.662				
2015	Commercial/ Industrial	1.1676	0.840	12.16	2006-2011	4	0.619				
Source: Authors' calculations from government websites											

Year	Property Class	Share of Assessment Base	Assessment Discount Rate	Statutory BPT Rate	Average Appreciation Rate	Apprecia- tion Period	Assessment Lag	Effective BPT Rate				
			Percent (except Appreciation Period and Assessment Lag)									
	Pipeline	0.23	50.00	1.175	3.33	2010-2012	2.75	0.537				
2012	Railway	1.76	75.00	1.175	9.55	2010-2012	2.75	0.229				
2013	Other Business	98.02	35.00	1.175	3.86	2010-2012	2.75	0.688				
	All Business	100.00	35.74	1.175	3.96	2010-2012	2.75	0.680				
	Pipeline	0.21	50.00	1.149	3.33	2010-2012	1.75	0.543				
2014	Railway	1.88	75.00	1.149	9.55	2010-2012	1.75	0.245				
2014	Other Business	97.90	35.00	1.149	3.86	2010-2012	1.75	0.699				
	All Business	100.00	35.79	1.149	3.97	2010-2012	1.75	0.690				
	Pipeline	0.21	50.00	1.175	3.33	2010-2012	2.75	0.537				
2015	Railway	1.86	75.00	1.175	9.55	2010-2012	2.75	0.228				
2015	Other Business	97.93	35.00	1.175	3.86	2010-2012	2.75	0.688				
	All Business	100.00	35.78	1.175	3.97	2010-2012	2.75	0.679				

Source: Authors' calculations from government websites.

Year

2013

2014

2015

Interlake

Louis Riel

**River East Trascona** 

All School Divisions

Source: Authors' calculations from government websites.

Winnipeg Statutory Local	Education BPT Rates	
School Division	Share of Portioned Assessment Base	Statutory BPT Rate
	Percer	ıt
Winnipeg	44.28	1.335
St. James-Assiniboia	14.91	1.335
Pembina Trails	12.21	1.311
Seven Oaks	3.52	1.672
Seine River	1.75	1.537
Interlake	2.51	1.516
Louis Riel	11.75	1.330
River East Trascona	9.08	1.459
All School Divisions	100.00	1.363
Winnipeg	43.43	1.511
St. James-Assiniboia	15.05	1.226
Pembina Trails	12.93	1.213
Seven Oaks	3.38	1.494
Seine River	1.73	1.456
Interlake	2.46	1.400
Louis Riel	11.76	1.241
River East Trascona	9.25	1.332
All School Divisions	100.00	1.377
Winnipeg	43.43	1.560
St. James-Assiniboia	15.05	1.268
Pembina Trails	12.93	1.239
Seven Oaks	3.38	1.564
Seine River	1.73	1.520

2.46

11.76

9.25

100.00

1.438

1.307

1.360

1.423

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## Table A10: Wi

#### Table A11: Winnipeg BPT and BOT Rates

		Share of	Share of Assessment	Statutory BPT Rate		Statutory BPT- DDT DOT		Average			Effective
Year	Property Class	Assessment Base	Discount Rate	City of Winnipeg	Local Education	Equivalent BOT BOT Rate BOT Rate		Appreciation Rate	Appreciation Assessment Period Lag		BPT-BOT Blended Rate
					Percent (exce	pt Appreciation	n Period and A	Assessment Lag)			
	Pipeline	0.23	50.00	1.460	1.363	0.000	2.823	3.33	2010-2012	2.75	1.290
2012	Railway	1.76	75.00	1.460	1.363	0.000	2.823	9.55	2010-2012	2.75	0.549
2013	Other Business	98.02	35.00	1.460	1.363	0.761	3.584	3.86	2010-2012	2.75	2.099
	All Business	100.00	35.74	1.460	1.363	0.746	3.569	3.96	2010-2012	2.75	2.070
	Pipeline	0.21	50.00	1.337	1.377	0.000	2.714	3.33	2010-2012	1.75	1.281
2014	Railway	1.88	75.00	1.337	1.377	0.000	2.714	9.55	2010-2012	1.75	0.578
2014	Other Business	97.90	35.00	1.337	1.377	0.697	3.411	3.86	2010-2012	1.75	2.075
	All Business	100.00	35.79	1.337	1.377	0.682	3.396	3.97	2010-2012	1.75	2.045
	Pipeline	0.21	50.00	1.368	1.423	0.000	2.791	3.33	2010-2012	2.75	1.275
2015	Railway	1.86	75.00	1.368	1.423	0.000	2.791	9.55	2010-2012	2.75	0.543
2015	Other Business	97.93	35.00	1.368	1.423	0.662	3.453	3.86	2010-2012	2.75	2.022
	All Business	100.00	35.78	1.368	1.423	0.649	3.439	3.97	2010-2012	2.75	1.993

Source: Authors' calculations from governent websites.

Table A12: Ontario BPT Rates Levied on New Construction										
Year	Property Class –	Statutory BPT Rate	Average Appreciation Rate	Assessment Lag	Effective BPT Rate					
	Percent (except Appreciation Period and Assessment Lag)									
2013	Non-Residential	1.260	5.07	2008-2012	4	1.038				
<b>2014</b> Non-Residential 1.220 5.07 2008-2012 4 1.00										
2015	Non-Residential	1.190	5.07	2008-2012	4	0.980				
Source:	Source: Authors' calculations from governent websites.									

#### Table A13: Toronto BPT Rates

Year	Property Class	Share of Assessment Base	Statutory BPT Rate	Average Appreciation Rate	Appreciation Period	Assessment Lag	Effective BPT Rate				
			Percent (except Appreciation Period and Assessment Lag)								
	General Commercial	47.45	1.672	5.17	2008-2012	4	1.372				
	Residual Commercial – Band 1	19.17	1.478	5.17	2008-2012	4	1.213				
2013	Residual Commercial – Band 2	24.30	1.672	5.17	2008-2012	4	1.372				
	Industrial	8.75	1.666	4.19	2008-2012	4	1.418				
	Pipeline	0.32	1.027	1.81	2008-2012	4	0.956				
	All Business	100.00	1.632	5.07	2008-2012	4	1.344				
	General Commercial	47.45	1.606	5.17	2008-2012	4	1.319				
	Residual Commercial – Band 1	19.17	1.374	5.17	2008-2012	4	1.129				
2014	Residual Commercial – Band 2	24.30	1.606	5.17	2008-2012	4	1.319				
	Industrial	8.75	1.601	4.19 2008-2012		4	1.363				
	Pipeline	0.32	1.000	1.81	2008-2012	4	0.932				
	All Business	100.00	1.559	5.07	2008-2012	4	1.285				
	General Commercial	47.45	1.539	5.17	2008-2012	4	1.262				
	Residual Commercial – Band 1	19.17	1.283	5.17	2008-2012	4	1.053				
2015	Residual Commercial – Band 2	24.30	1.539	5.17	2008-2012	4	1.262				
	Industrial	8.75	1.539	4.19	2008-2012	4	1.309				
	Pipeline	0.32	0.982	1.81	2008-2012	4	0.915				
	All Business	100.00	1.488	5.07	2008-2012	4	1.225				
Sourc	e: Authors' calculati	ons from governm	nent websites.								

Tab	Table A14: Montreal BPT Rates											
				Statutory BPT Rate	Average							
Year	Property Class	City of Montreal	Borough of Ville Marie	Management Committee of the School Tax on the Island of Montreal	Total	Appreciation Rate	Appreciation Period	Assessment Lag	Effective BPT Rate			
				Percent (except Appreciation F	eriod and 2	Assessment Lag)						
2013	Non- Residential	3.826	0.063	0.205	4.094	4.40	2011-2014	3	3.597			
2014	Non- Residential	3.712	0.059	0.195	3.965	4.40	2011-2014	3	3.491			
2015	Non- Residential	3.638	0.055	0.188	3.881	4.40	2011-2014	3	3.417			
Sourc	Source: Authors' calculations from governent websites.											

#### Table A15: New Brunswick BPT Rates

			Effective RDT					
Year	Property Class	General	Service New Brunswick	Total	Rate			
2013	Non-Residential	2.104	0.019	2.123	1.900			
2014	Non-Residential	2.021	0.019	2.040	1.888			
2015 Non-Residential		2.186	0.019	2.205	2.205			
Source: Authors' calculations from governent websites.								

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Table A16: Saint John BPT Rates									
Voor	Property Class	Statutory BPT Rate							
Tear Property Class		P	Percent						
2013	Non-Residential	2.678	2.678						
2014	Non-Residential	2.678	2.678						
2015	Non-Residential	2.678	2.678						
Source: Authors' calculations from governent websites.									

#### Table A17: Nova Scotia BPT Rates

			S	tatutory BPT Ra	ıte	Average	A	A		
Year	Property Class	Education	PVSC	Correctional Services	Housing Authorities	Total	Appreciation Rate	Appreciation Period	Assessment Lag	Rate
				Perce	ent (except Appre	ciation Perio	d and Assessment	Lag)		
2013	Commercial	0.304	0.010	0.009	0.007	0.330	3.15	2010-2011	2	0.310
2014	Commercial	0.291	0.010	0.008	0.006	0.315	6.44	2011-2012	2	0.278
2015	Commercial	0.301	0.010	0.008	0.006	0.325	5.44	2012-2013	2	0.292
Sourc	ce: Authors' calcula	ations from govern	ent websites.							

#### Table A18: Halifax Regional Municipality BPT Rates

Rate	
Rate	
3.038	
2.723	
2.726	

Source: Authors' calculations from governent websites.

2015

Commercial

Commercial

Table A19: Prince Edward Island BPT Rates									
Year	Property Class	Statutory BPT Rate	Effective BPT Rate						
		Per	cent						
2013	Commercial	1.500	1.500						

1.500

1.500

Source: Authors' calculations from governent websites.

Table A20: Charlottetown BPT Rates

Year	Property Class	Statutory BPT Rate	Effective BPT Rate				
		Per	cent				
2013	Commercial	2.360	2.360				
2014	Commercial	2.360	2.360				
2015	Commercial	2.360	2.360				
Source: Authors' calculations from government websites							

#### Table A21: St. John's BPT Rates

Year	Property Class	Statutory BPT Rate	Average Appreciation Rate	Assessment Effective Lag BPT Rate						
		Percent (except Appreciation Period and Assessment Lag)								
2013	Commercial	2.620	5.53	2008-2011	2	2.353				
2014	Commercial	2.620	5.53	2008-2011	3	2.230				
2015	Commercial	2.620	5.53	2008-2011	4	2.113				
Source:	Source: Authors' calculations from governent websites.									

1.500

1.500

Tabl	Table A22: Statutory Business Tax and ITC Rates											
Veer	T D	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	Source
Tear	Tax Farameter						Perce	nt				
	Federal CIT	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	
	Provincial CIT	11.00	10.00	12.00	12.00	11.50	11.90	12.00	16.00	16.00	14.00	Canada Revenue
	Federal ITC - Manufacturing	0.00	0.00	0.00	0.00	0.00	0.00	10.00	10.00	10.00	10.00	Agency; Provincial
	Provincial ITČ - Manufacturing	0.00	0.00	5.00	10.00	0.00	5.00	0.00	0.00	10.00	0.00	VVeDsites
2013	Provincial RST	7.00	0.00	5.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Provincial BPT	0.634	0.330	0.828	1.175	1.260	0.000	2.123	0.330	1.500	0.000	Provincial and Municipal
	Local BPT	1.034	1.407	0.751	3.569	1.632	4.094	2.678	3.233	2.360	2.620	Websites; Authors' Calculations
	Provincial LTT	2.000	0.020	0.300	2.000	2.000	1.500	0.500	0.000	1.000	0.400	Provincial and Municipal
	Local LTT	0.000	0.000	0.000	0.000	2.000	0.500	0.000	1.500	0.000	0.000	Websites
	Federal CIT	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	
	Provincial CIT	11.00	10.00	12.00	12.00	11.50	11.90	12.00	16.00	16.00	14.00	Canada Revenue Agency; Provincial Websites
	Federal ITC - Manufacturing	0.00	0.00	0.00	0.00	0.00	0.00	10.00	10.00	10.00	10.00	
	Provincial ITC - Manufacturing	0.00	0.00	5.00	10.00	0.00	5.00	0.00	0.00	10.00	0.00	
2014	Provincial RST	7.00	0.00	5.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Provincial BPT	0.584	0.342	0.828	1.149	1.220	0.000	2.040	0.315	1.500	0.000	Provincial and Municipal
	Local BPT	0.937	1.331	0.799	3.396	1.559	3.965	2.678	3.085	2.360	2.620	Websites; Authors' Calculations
	Provincial LTT	2.000	0.020	0.300	2.000	2.000	1.500	0.500	0.000	1.000	0.400	Provincial and Municipal
	Local LTT	0.000	0.000	0.000	0.000	2.000	0.500	0.000	1.500	0.000	0.000	Websites
	Federal CIT	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	
	Provincial CIT	11.00	12.00	12.00	12.00	11.50	11.90	12.00	16.00	16.00	14.00	Canada Revenue
	Federal ITC - Manufacturing	0.00	0.00	0.00	0.00	0.00	0.00	10.00	10.00	10.00	10.00	Agency; Provincial
	Provincial ITC - Manufacturing	0.00	0.00	5.00	10.00	0.00	5.00	0.00	0.00	10.00	0.00	websites
2015	Provincial RST	7.00	0.00	5.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Provincial BPT	0.584	0.346	0.828	1.175	1.190	0.000	2.205	0.325	1.500	0.000	Provincial and Municipal
	Local BPT	0.937	1.301	0.840	3.439	1.488	3.881	2.678	3.031	2.360	2.620	Websites; Authors' Calculations
	Provincial LTT	2.000	0.020	0.300	2.000	2.000	1.500	0.500	0.000	1.000	0.400	Provincial and Municipal
	Local LTT	0.000	0.000	0.000	0.000	2.000	0.500	0.000	1.500	0.000	0.000	Websites

Source: as described in table.

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Year	Tax Parameter –	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL
		Percent									
2013	Federal General CIT	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
	Provincial General CIT	11.00	10.00	12.00	12.00	11.50	11.90	12.00	16.00	16.00	14.00
	Federal ITC - Buildings	0.000	0.000	0.000	0.000	0.000	0.000	1.633	1.334	2.281	0.925
	Federal ITC - Machinery	0.000	0.000	0.000	0.000	0.000	0.000	3.244	2.768	3.360	2.137
	Provincial ITC - Buildings	0.000	0.000	0.326	0.645	0.000	0.500	0.000	0.000	0.789	0.000
	Provincial ITC - Machinery	0.000	0.000	0.438	1.669	0.000	1.307	0.000	0.000	2.046	0.000
	Provincial RST	4.865	0.000	2.875	5.480	0.000	0.000	0.000	0.000	0.000	0.000
	Provincial BPT	0.634	0.307	0.658	0.680	1.038	0.000	1.900	0.310	1.500	0.000
	Local BPT	1.034	1.407	0.703	2.070	1.344	3.597	2.678	3.038	2.360	2.353
	Provincial LTT	2.000	0.020	0.300	2.000	2.000	1.500	0.500	0.000	1.000	0.400
	Local LTT	0.000	0.000	0.000	0.000	2.000	0.500	0.000	1.500	0.000	0.000
2014	Federal General CIT	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
	Provincial General CIT	11.00	10.00	12.00	12.00	11.50	11.90	12.00	16.00	16.00	14.00
	Federal ITC - Buildings	0.000	0.000	0.000	0.000	0.000	0.000	1.633	1.334	2.281	0.925
	Federal ITC - Machinery	0.000	0.000	0.000	0.000	0.000	0.000	3.244	2.768	3.360	2.137
	Provincial ITC - Buildings	0.000	0.000	0.326	0.645	0.000	0.500	0.000	0.000	0.789	0.000
	Provincial ITC - Machinery	0.000	0.000	0.438	1.669	0.000	1.307	0.000	0.000	2.046	0.000
	Provincial RST	4.865	0.000	2.875	5.480	0.000	0.000	0.000	0.000	0.000	0.000
	Provincial BPT	0.604	0.317	0.587	0.690	1.006	0.000	1.888	0.278	1.500	0.000
	Local BPT	0.995	1.331	0.662	2.045	1.285	3.491	2.678	2.723	2.360	2.230
	Provincial LTT	2.000	0.020	0.300	2.000	2.000	1.500	0.500	0.000	1.000	0.400
	Local LTT	0.000	0.000	0.000	0.000	2.000	0.500	0.000	1.500	0.000	0.000
Sourc	e: Authors' calculations.										

Table A23: continued											
2015	Federal General CIT	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
	Provincial General CIT	11.00	12.00	12.00	12.00	11.50	11.90	12.00	16.00	16.00	14.00
	Federal ITC - Buildings	0.000	0.000	0.000	0.000	0.000	0.000	1.633	1.334	2.281	0.925
	Federal ITC - Machinery	0.000	0.000	0.000	0.000	0.000	0.000	3.244	2.768	3.360	2.137
	Provincial ITC - Buildings	0.000	0.000	0.326	0.645	0.000	0.500	0.000	0.000	0.789	0.000
	Provincial ITC - Machinery	0.000	0.000	0.438	1.669	0.000	1.307	0.000	0.000	2.046	0.000
	Provincial RST	4.865	0.000	2.875	5.480	0.000	0.000	0.000	0.000	0.000	0.000
	Provincial BPT	0.584	0.321	0.523	0.679	0.980	0.000	2.205	0.292	1.500	0.000
	Local BPT	0.937	1.301	0.619	1.993	1.225	3.417	2.678	2.726	2.360	2.113
	Provincial LTT	2.000	0.020	0.300	2.000	2.000	1.500	0.500	0.000	1.000	0.400
	Local LTT	0.000	0.000	0.000	0.000	2.000	0.500	0.000	1.500	0.000	0.000
Source: Authors' calculations											