

LOCAL LEVIATHANS

The Rise of Municipal Government Spending in Canada, 1990–2018

Livio Di Matteo



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Spending in Canada, 1990–2018

by Livio Di Matteo

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Executive Summary

Canada's municipalities have increased their spending and employment over the last two decades while maintaining that they are fiscally challenged. Notwithstanding the recent pandemic-induced fiscal shocks, they typically run surpluses on their operating budgets while continuing to increase tax levies. Understanding municipal finance is important given the centrality of services such as roads, water, police and fire protection, and transit to Canadian families. At the same time, understanding municipal finances is a challenging exercise given they are not very transparent and vary widely across municipalities.

As municipalities typically run surpluses or balanced operating budgets, total revenues are an excellent indicator of their fiscal activity over time. Between 1991 and 2018, total real local government revenues in Canada grew from \$107 billion to \$186 billion—an increase of 74% while real per-capita total revenues have grown from \$3,831 in 1991 to \$5,024 in 2018—an increase of 31%. Total real property-tax revenue in 2018 dollars grew from \$42.2 billion in 1991 to reach \$71.7 billion by 2018—an increase of 70%. Meanwhile, revenue from government grants grew from \$48.7 billion to \$80 billion for an increase of 64%, while all other revenues grew 107%—from \$16.6 billion to \$34.4 billion. Thus, own-source revenues of one type or another saw the most robust growth.

Property taxes alone accounted for 48% of revenues, followed by another 8% in other miscellaneous local taxes. Government grants yielded another 19% of revenues, which was followed by 25% coming from all other revenues consisting of assorted fees from services like transit or housing, recreational activities, and other goods that vary across municipalities. The composition of major expenditures is revealing: 37% of operating expenses are in employee compensation, another 28% are from the purchase of goods and services to run municipal operations, and 20% are expenses associated with fixed capital-consumption costs.

The increase in operating spending is driven by several factors. Growing revenues from property taxes, intergovernmental grants, and the sales of goods and services are positively related to rising per-capita municipal expenditures. Essentially, one can argue that municipal spending rises to fill the revenues available. Moreover, on the cost side, increases in the number of municipal employees coupled with their pay rates is also a positive driver of rising municipal spending. This suggests that municipalities in Canada for the most part have been able to increase their spending because of a more than adequate ability to generate revenues to fuel that spending. The municipal wage rate and the number of municipal employees both are positive and significant determinants of

per-capita municipal spending. As well, the size of the real per-capita municipal operating surplus is positively and significantly related to real per-capita property-tax revenues and real per-capita grant revenues.

Over the long term, municipalities have played an interesting game. They are required by provincial legislation not to run operating deficits and they have not only managed to balance their budgets but generate operating surpluses most years and potentially add to their reserves. Indeed, over the period from 2008 to 2018, the operating surplus for municipalities in Canada ranged from a low of 6.1% of revenues in 2014 to a high of 11.9% in 2017.

Given the significance of both municipal wage rates and employment numbers as positive drivers of spending and negative drivers of the operating surplus, it stands to reason that municipalities need to make more of an effort to address their spending. Only after such an effort, can it be reasonable for municipalities to request additional support from upper tiers of government or increased taxes from their own ratepayers. Municipal ratepayers and provincial and federal governments alike need to be cautious that the current COVID-19 crisis is not used by municipalities as simply an opportunity to finance a long-term enrichment of their spending.

Introduction

Municipalities and local governments always attract attention given the importance of their services to people and the grass-roots nature of local government. The recent COVID-19 pandemic has drawn attention to the finances of municipalities across Canada as commentators have noted how quickly municipalities have begun to struggle as revenues from transit and other fees have declined (Kelcey, 2020). Yet, municipal spending in the recent past has also drawn increasing attention, with the observation that increases in operating spending and by extension tax levies across the entire Canadian municipal sector have often outpaced income, inflation, and population growth (Gormann and Nguyens, 2015; Di Matteo, 2018). There is also considerable variation in per-capita municipal spending and revenues even across municipalities in relatively compact geographic areas such as the Greater Toronto Area (GTA) where one might expect more similarities.¹

At the same time, municipalities have been arguing for years that they are underfunded and require more resources and even new tax instruments.² Yet, municipalities typically run surpluses on their operating budgets, a fact not generally realized by most municipal ratepayers. Even municipal councilors often do not seem fully to understand that their municipalities typically generate large operating surpluses, which means their municipalities typically both undershoot their spending plans and still raise taxes (Orman and Robson, 2020: 13). Gormann and Nguyen (2015) in a study of 14 major Canadian cities found that from 2003 to 2013 municipal operating spending in Canada, after adjustment for inflation, grew by 43% while population only grew by 11%.³ Moreover, they conclude that each Canadian household on average would have saved \$5,200 over this time period if municipal operating spending had not increased beyond this benchmark and posited that a major driver of this spending was the cost of municipal employees' wages and benefits.

1. For example, Toronto, the GTA-Hamilton region's largest city, was the highest spender in 2016 (\$4,010 per person), while Milton spent the least (\$2,385 per person). Mississauga, Brampton, and Hamilton, the region's next largest cities, spent \$2,705, \$2,804, and \$3,086, respectively (Filipowicz and Emes, 2019).

2. A most recent example of this is Toronto, where deliberations during the 2020 budget argued that budgetary restraint that limited increases in property tax have "hamstrung" the city's ability to meet demands for its services as Canada's largest city and that adjusted for inflation and population growth, City of Toronto spending has declined over the last decade (see James, 2020). Johal and Alwani (2019) argue that relying on property taxes alone is not good enough for cities and that they need new sources of revenue.

3. All 14 cities—including Toronto—saw an increase in real operating spending that also exceeded population growth over the period from 2003 to 2013 but, in the case of Toronto there was a decline in real operating spending after 2010 while population continued to grow. Given the recent robust population growth in the GTA, Toronto definitely has some unique features.

This study argues that Canada's municipalities have increased their spending and employment at a rapid clip over the last two decades while at the same time they claim to be fiscally challenged. Yet, they typically also run surpluses on their operating budgets while continuing to raise tax levies. What is driving the recent growth in spending? Is it demand for municipal services or the availability of revenue from rising property prices? Has Canada's housing boom been a driver in municipal spending? This study finds that the increase in spending has been driven by several factors with some variation across provinces but generally municipal spending has both grown to fill the revenue available and still generated operating surpluses. There have been increases in spending and revenues as a result of more buoyant property tax revenues from rising property values as well as the use of new revenue sources such as user fees, surcharges, and other charges linked to development.

The Local Public Sector in Canada

Overview

The local public sector in Canada is an important one and yet basic information about the sector is neither readily obtained nor easily understood. A case in point is trying to quantify exactly how many local governments there currently are in Canada. In 1990, it was estimated that there were in total 6,235 local-municipal governments consisting of 17 metropolitan/regional governments, 227 counties/regional governments, 205 cities, 879 towns, 1,002 villages, 2,964 rural municipalities and improvement districts, and 941 school boards (Bird and Slack, 1993: 5). There was a period of consolidation in the 1990s as amalgamations and more regional governments were implemented and a 2001 estimate of the total number of municipal governments in Canada is 5,184 including 1,052 Indigenous Reserves and five Nisga'a villages (Shah, 2006: 30). McMillan (2006) states that there are approximately 4,600 municipal governments in Canada organized in regional and metropolitan governments, cities, towns, villages, counties, and rural municipalities; to these can be added First Nations/Indigenous reserves as well as 8,000 assorted school boards, commissions, public utilities, conservation areas, and miscellaneous others (McMillan, 2006: 41).

The issue of finding basic information is further complicated by the availability and nature of fiscal data. Understanding the finances of municipalities requires finding data, which in turn is a particularly challenging exercise given that municipal budgets in Canada are not very transparent and vary widely across municipalities. A recent study grading the financial presentations of 31 Canadian municipalities found that municipalities typically present information that does not allow Canadians to readily understand what municipal governments are doing with taxpayers' money. Indeed, part of the problem is that municipal governments should present budgets using the same public-sector accounting standards (PSAS) and format that they use in their annual financial statements, but most do not, while those that present supplementary PSAS-consistent information in their budgets typically do not do it in user-friendly ways (Robson and Omran, 2019). Moreover, municipalities generally show capital spending on a cash, up-front basis despite the fact that they are amortized over many years and they do not separate the capital and operating budgets. As a result, the budget picture typically suggests a "fragile" budget balance necessitating tax increases even though there are generally large positive balances on the operating budget and many cities have substantial positive net worth (Omran and Robson, 2020).

The municipal public sector usually provides local education, transportation, protection services, social and housing assistance, and recreational services in a highly visible manner to citizens, while the provinces generally provide post-secondary education, welfare and social services, transportation, regional planning and development, and health care. The core services provided by municipalities in Canada include roads, streets and public transit, sanitation services, water, public order and safety, and local recreation and cultural services (Dahlby and McMillan, 2019: 2). However, education is also provided via local boards and partially funded by property taxes at both the municipal and provincial level depending on the province.⁴

In Canada, the budgeting process of municipalities typically separates operating and capital budgets, with borrowing only allowed by the provinces for capital projects. As noted by Tassonyi (2002: 181), the purpose of municipal budgeting is a projection of revenues and expenditures and a planning and management tool designed:

- to set out a complete programme of all expenditures of the municipality during the coming year, and the purpose for which they are to be made, and to forecast the revenues from which such expenditures are to be financed;
- to provide a method of controlling expenditure so that a municipality may live within its means.

The operating budget includes employee salaries and wages of employees and their pension contributions; payments made under local income-redistribution programs; the purchase of services, materials, and supplies, and non-capital equipment; and expenditures on repair and maintenance. In addition, operating budgets also include the servicing of long-term debt (principal and interest) and contributions to “reserve funds” established for specific purposes, including contingency funds. As well, an operating budget may include transfers of funds to the capital budget for “upfront” financing of a portion of capital projects.

While the operating budget is a current spending plan, the capital budget is a longer-term capital acquisition plan and is affected by current deficiencies or projected needs in infrastructure such as roads and sewers and is generally financed with a transfer out of the operating budget, a transfer from a reserve fund, or through borrowing (Tassonyi, 2002: 182–186). In the end, the provinces maintain fairly strict control of municipal finances with mainly conditional grants, a balanced-budget rule on operating spending,

4. For an overview of municipal property taxation, see Kitchen, Slack, and Hachard, 2019.

and well-developed rules for approval of municipal borrowing, an outgrowth of the years of the Great Depression when many municipalities experienced financial difficulties (Tassonyi, 2002: 186–188; see also Tassonyi and Conger, 2019).

Spending and revenues can differ across municipalities for a variety of reasons. Important determinants of expenditures include the extent of unionization as well as the terms of collective agreements and the size of municipal payrolls (Trotter, 2011). Across municipalities, residents can also have preferences for different public goods that will be reflected in different tax and expenditure bundles that attract residents according to the decentralized provision and tax-competition model set out in the work of Charles Tiebout (1956). Other factors include population density and economies of scale, which can affect costs; the degree of positive or negative spillovers of public goods and services from adjacent jurisdictions; whether municipalities outsource services or provide them in house (and how they do so); the degree of autonomy a municipality has both in raising revenues as well as making expenditures; the degree to which taxing and spending decisions are linked;⁵ and the wealth of their respective tax and revenue base in terms of economic activity.⁶

It should also be noted that, as part of the federal nature of Canada, there are some differences in the services provided by municipalities as provincial policies and directives towards their municipalities differ from province to province. For example, there may be differences in social services or social housing, with some provinces affording a larger municipal as opposed to provincial role. There are similar differences with respect to transit services, where levels of involvement by provinces in the provision of these services varies, especially in large metropolitan areas, with subsequent differences in policies and funding. This can account for some of the differences in municipal spending and revenue patterns across municipalities and provinces.

Ultimately, this study is dependent on the quantity, quality, and availability of the data on municipal public finances. The aggregate data is available from standard public sources of financial data: namely Statistics Canada, which provides annual Canadian government finance statistics for municipalities and other local public administrations; and the federal government's Fiscal Reference Tables, which provide aggregate data for the local public sector, including Indigenous governments. As a result, it should be noted that the terms municipal and local are sometimes used interchangeably but the data is essentially local public-sector data.

5. Bird and Slack (2014) note a key element in municipal finance should be a strengthening of the linkages between revenues and expenditures—what they describe as the Wicksellian connection.

6. For further discussion, see Filipowicz and Emes, 2019.

Dimensions and trends

Municipalities in Canada are nominally creatures of the provinces under the provisions of the British North America Act but nevertheless command a significant proportion of economic resources. Moreover, they provide services that have a high degree of visibility to populations because of their local nature: the services can range from drinking water to snow removal. Between 2000 and 2018, total local government expense⁷ in Canada rose from \$85.148 billion to \$178.714 billion, while provincial government spending rose from \$221.672 billion to \$492.986 billion. Over this same period, as a percentage of gross domestic product, local government spending rose from 7.7% to 8.0% while provincial spending rose from 20.0% to 22.2%.⁸

Along with its growth in aggregate expenditure over time, the municipal public sector has slightly increased its expenditure share since 1990. There has been a centralization of fiscal power at the provincial-local level—which has occurred especially relative to the federal government—that began in the 1960s and has continued to the present.⁹ As figure 1 illustrates, between 1990 and 2018, the local government (including Aboriginal) share in particular rose from 18.2% to 21.8%.¹⁰

As municipalities typically run surpluses or balanced operating budgets, their total revenues are an excellent indicator of their fiscal activity over time. Figure 2 plots total real revenues of the local government (including Aboriginal) sector (in \$2018) as well as real per-capita revenues for the period from 1991 to 2018.¹¹ Between 1991 and 2018, total real local government revenues in Canada grew from \$107 billion to \$186 billion—an increase of 74%—while real per-capita total revenues have grown from \$3,831 in 1991 to \$5,024 in 2018—an increase of 31%.¹²

7. Local public sector as opposed to municipalities is a broader term and includes Aboriginal government. Source: table 43, Fiscal Reference Tables, 2019.

8. Author's calculations. Local and provincial-territorial expenditure data from Fiscal Reference Tables, 2019, tables 40 and 43. GDP from Statistics Canada, v62787312 Canada [11124]; Current prices (Dollars); Gross domestic product at market prices.

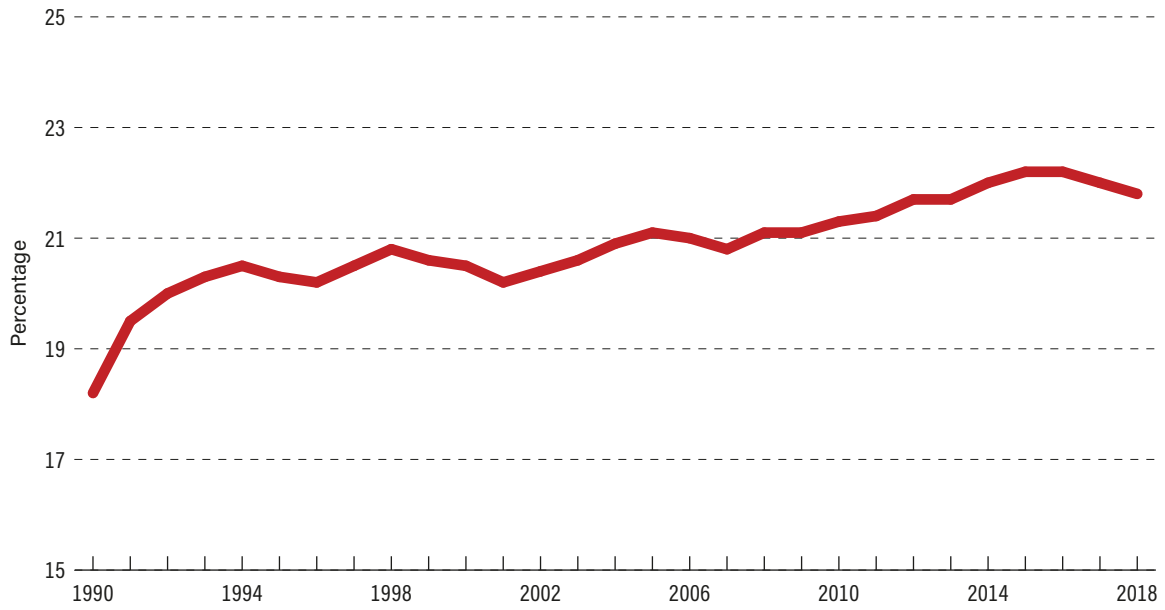
9. For a discussion, see Di Matteo (1995). For the other two levels, from 1990 to 2018 the provincial-territorial share of total government spending rose from 41.9% to 51.3%, whereas the federal share declined from 39.9% to 26.9%.

10. Author's calculations. Local, provincial territorial and federal expenditure data from Fiscal Reference Tables, 2019 and 2010. Intergovernmental grants and transfers accorded to the recipient jurisdiction as expenditures.

11. Author's calculations. Local total revenue data is from Fiscal Reference Tables, 2019. Population data is from Statistics Canada, v52154496 Canada [11124]; Total marital status; Both sexes; All ages (Persons). CPI is Statistics Canada, table: 18-10-0005-01 (formerly CANSIM 326-0021), \$2002=100.

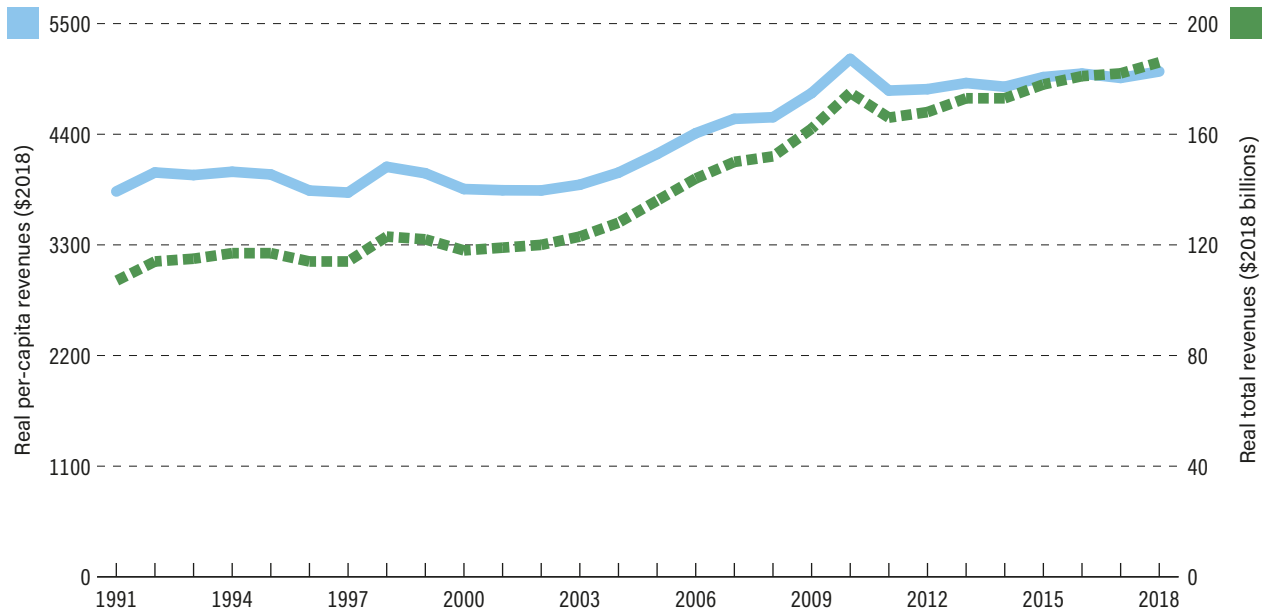
12. Given that expenditures closely track revenues at the municipal level, real per-capita spending would behave the same over time.

Figure 1: Local government expenditure share (%) net of grants to recipient jurisdictions, 1990–2018



Sources: Canada, Department of Finance, Fiscal Reference Tables, 2019, 2010.

Figure 2: Local government revenues (including Aboriginal), 1991 to 2018

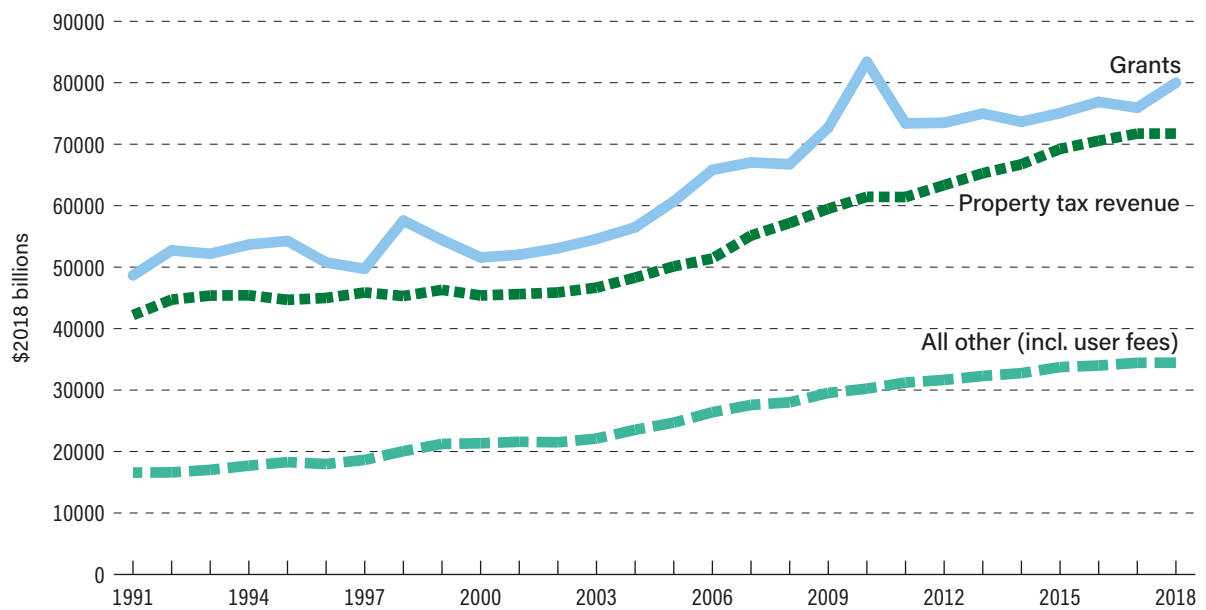


Sources: Canada, Department of Finance, Fiscal Reference Tables, 2019, 2010; v52154496 Canada [11124]; table: 18-10-0005-01 (formerly CANSIM 326-0021): Total marital status; Both sexes; All ages (Persons).

The major source of municipal own-source revenues is the property tax and is in many respects an ideal revenue source for local spending, given it is on a local tax base that is immovable and visibly tied to services to property. At the same time, it has been viewed as not sensitive to economic condition (inelastic); unresponsive to needs as it is not tied to specific benefits; and regressive, not only with respect to ability to pay out of incomes but also when commercial and business property taxes are used to fund local school boards. For example, in the case of Ontario, non-residential property contributes about 55% of Ontario’s education property tax and pays 6.3 times the residential rate (Dahlby and McMillan, 2019: 7).

Figure 3 plots the main sources of consolidated local government (including Aboriginal) revenue from 1991 to 2018, dividing them into property-tax revenue, grants from upper tier governments (largely provincial), and all other sources of revenue, largely user fees and charges such as those for sewer and water plus miscellaneous taxes on goods and services.¹³ Total real property-tax revenue in 2018 dollars grew from \$42.2 billion in 1991 to reach \$71.7 billion by 2018, an increase of 70%. Meanwhile, revenue from government grants grew from \$48.7 billion to \$80 billion for an increase of 64%, while all other

Figure 3: Main revenue components (\$2018 billions) of local government (incl. Aboriginal), 1991 to 2018



Sources: Canada, Department of Finance, Fiscal Reference Tables, 2019, 2010.

13. Author’s calculations. Local total revenue data is from Fiscal Reference Tables, 2019. CPI is Statistics Canada, table: 18-10-0005-01 (formerly CANSIM 326-0021), \$2002=100.

revenues grew 107%, from \$16.6 billion to \$34.4 billion. Thus, own-source revenues of one type or another saw the most robust growth. Government grants to local government exhibited weaker growth and were subject to considerable fluctuation in the wake of the 1991 and 2009/10 recessions.

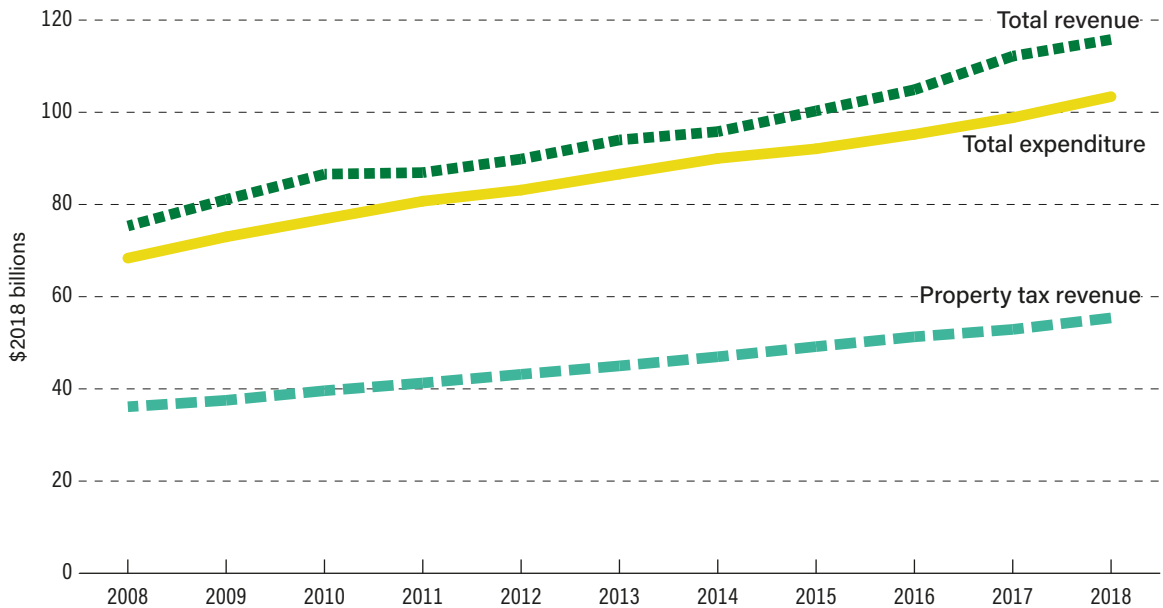
Over the years and particularly since 2008, the importance of other own-source revenues such as user fees and development charges has also grown while grants from the provincial government have become a smaller proportion of total revenues, though still nearly equivalent to property taxes as a share of revenues. It should be noted that property-tax revenues are also divided into residential and non-residential (commercial and industrial business property taxes) and, while residential tax shares have been growing over time, the burden on businesses is still considerable. In another study of the burden of property taxes in five major Canadian metropolitan areas, commercial and industrial tax rates were found to be typically higher than residential rates and sometimes by relatively large amounts (Filipowicz and Globberman, 2019).

The previous figures present data on the local government sector that includes spending and revenues of Aboriginal government as well as local government in the Territories, which can differ in scope and activities from municipal government in the provinces given the more rural and remote nature of both First Nations areas and the Territories. Using recent and more specific Statistics Canada’s Government Finance Statistics on Municipalities and other local public administrations for the ten provinces narrows the focus specifically to urban Canada. Statistics Canada defines municipalities and other local public administrations as: municipalities and “regional service commission and boards (utilities, fire protection, etc.), regional hospital districts, regional library districts, housing corporations, improvement districts, recreation boards, conservation authorities, irrigation districts and other local public administrations”.¹⁴

Figure 4 presents total revenues, total property-tax revenues, and total expenditures for all provinces over the period from 2008 to 2018. Over this period, total municipal operating revenues rose from \$75.3 billion to \$115.7 billion, an increase of 54%; and total property-tax revenues grew from \$36.1 billion to \$55.4 billion, a 53% increase; while total expenditures went from \$68.4 billion to \$103.3 billion, a 51% increase. Over this entire period, total revenues exceeded total expenditures in each year for aggregate annual operating surpluses ranging from \$5.8 billion in 2014 to \$13.4 billion in 2017.

14. Source: Statistics Canada, table 10100020, Canadian government finance statistics for municipalities and other local public administrations, annually (Dollars). This data only spans the period from 2008 to 2018 and is not compatible with earlier data for the 1988 to 2007 in Statistics Canada table 3850003 as it refers to local rather than municipal government and therefore includes a broader range of institutional entities.

Figure 4: Municipal total operating revenues, property tax revenue, and expenditures (\$2018 billions), all provinces, 2008–2018



Source: Statistics Canada, table 10-10-0020-01.

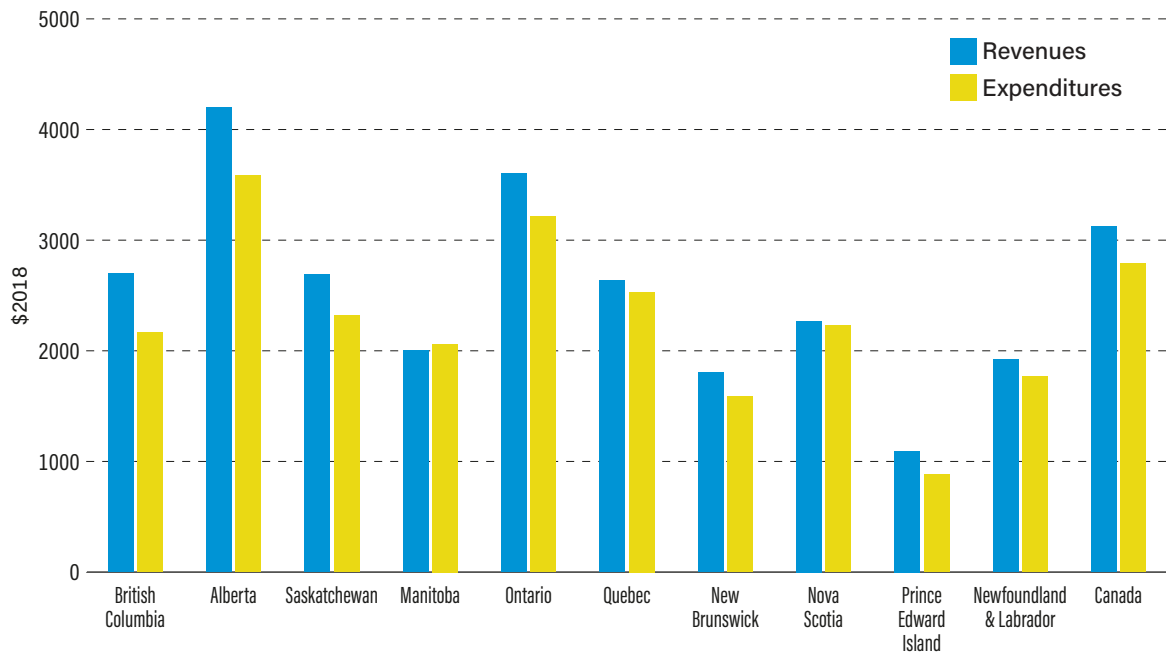
Figure 5 presents per-capita municipal government operating revenues and expenditures by province for the last year of available data, 2018. Per-capita municipal government operating revenues ranged from a high of \$4,199 in Alberta to a low of \$1,094 in Prince Edward Island, with a provincial average of \$3,124. Expenditures ranged from a high of \$3,584 in Alberta to a low of \$879 in Prince Edward Island, with a provincial average of \$2,790. Some of these differences appear quite large, reflecting that there are indeed differences in the services provided by municipal government across the provinces that generate large differences in per-capita spending and revenue. The Atlantic provinces generally have the lowest per-capita amounts in the country while Ontario and British Columbia have the highest. Some of this may reflect the larger role provincial governments play in the smaller provinces as well as geographic and historical differences.¹⁵

All the provinces, excepting Manitoba, had local public-sector operating surpluses (positive gross operating balance);¹⁶ all provinces combined on average have a surplus of \$334

15. For example, in New Brunswick education was transferred from municipalities to the provinces in the 1960s. Indeed, education is entirely provincial in a number of provinces including Quebec and Prince Edward Island. Quebec has the most extensive system of counties and rural municipalities while in British Columbia large parts of the province have yet to be fully municipally organized. As well, some of the differences have historical roots given that municipal government was the most developed in Ontario and Quebec at the time of confederation (Di Matteo, 1995: 650).

16. The gross operating balance or what is termed here an operating surplus is total revenue minus total expenditure. However, it should be noted that a surplus is a cash-accounting concept while operating

Figure 5: Per-capita municipal operating revenues and expenditures (\$), by province, 2018



Sources: Statistics Canada, table 10-10-0020-01; table: 17-10-0005-01.

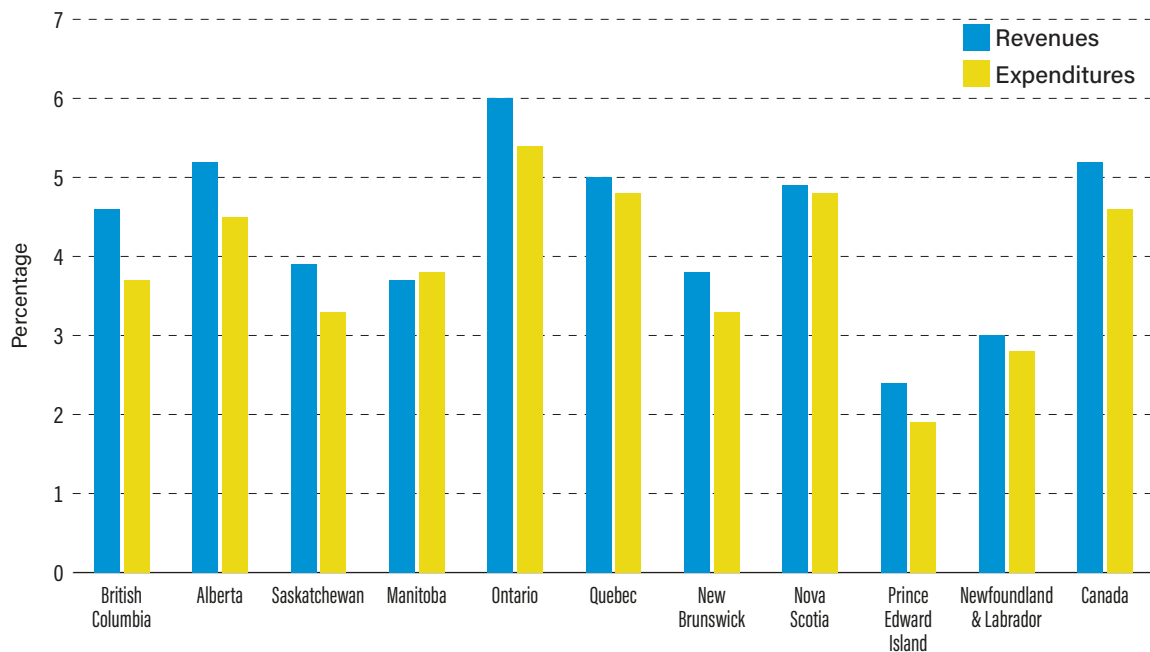
per capita at the municipal level. Operating surpluses are of course useful in that they demonstrate the prudence that municipalities must show in managing their finances given that they are not allowed to run deficits. Operating surpluses are available to be added to reserve funds that can be drawn down to finance special projects, capital projects, or contribute to a budgetary shortfall. While the combined net worth of all governments in Canada is often close to zero or even negative (Di Matteo, 2017: 16), municipalities characteristically have a positive net worth and it has been rising over time. Indeed, the total provincial net worth of municipalities in Canada in 2008 was \$207 billion whereas by 2018 it had risen to about \$363 billion.¹⁷

Figure 6 presents an alternative way of looking at the size of municipal government sectors across provinces by providing operating revenues and expenditures as a share of GDP. Ontario in 2018 had the largest percentage of municipal revenue to GDP at 6% while the lowest was in Prince Edward Island at 2.4%. Meanwhile, the share of expenditure to GDP was again largest in Ontario (5.4%) and smallest in Prince Edward Island (1.9%). As a share of GDP, the provinces collectively had an operating surplus in their municipal operating sector and across the provinces this was about 0.6% of GDP or a total of approximately \$13.3 billion dollars.

balances—as used in the GFS—are not based on cash accounting. Therefore, there may be differences between a “surplus” and an “operating balance”.

17. Author’s calculations. Data source: Statistics Canada, table 10100020. Series: v91605634, v91605838, v91606042, v91606246, v91606450, v91606654, v91606858, v91607062, v91607266, v91607470.

Figure 6: Municipal operating revenues and expenditures as a share (%) of GDP, by province, 2018

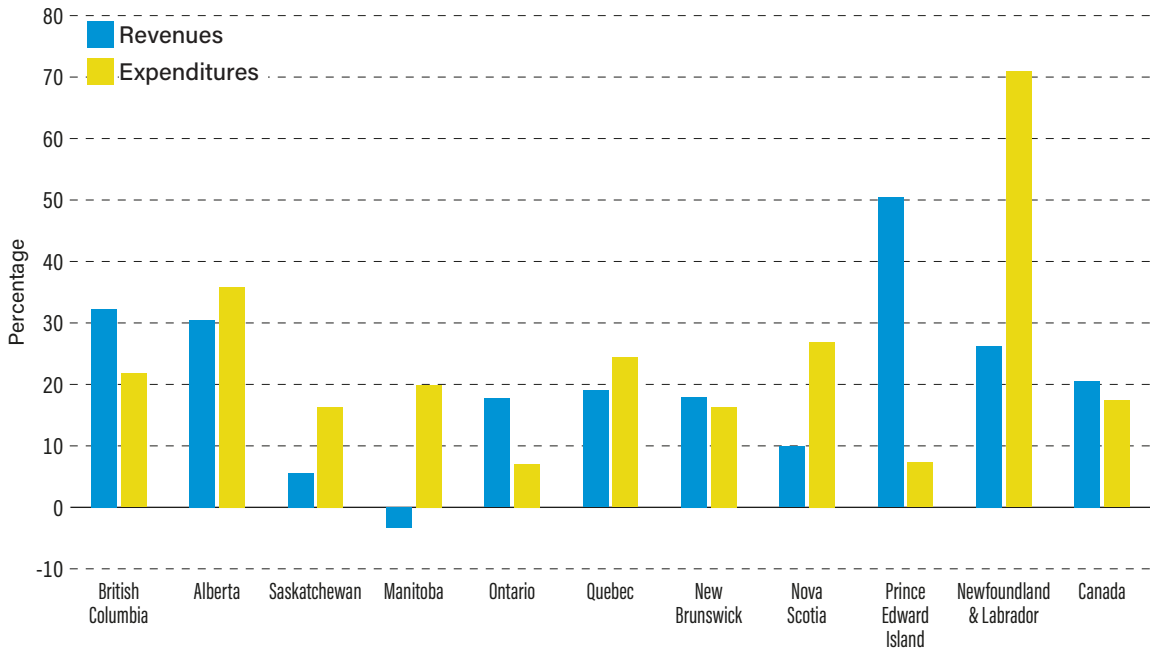


Sources: Statistics Canada, table 10-10-0020-01; table: 36-10-0221-01.

Figure 7 builds on figure 5 by presenting the percentage change in real per-capita municipal government operating revenues and expenditures between 2008 and 2018. For real per-capita revenues, the percentage change ranged from a high of 50.4% for Prince Edward Island to a low of -3.4% for Manitoba with all provinces together at 20.6%. Meanwhile, on the expenditure side, the increases ranged from a high of 70.9% for Newfoundland & Labrador to a low of 7.1% for Ontario, with the average for all provinces at 17.4%. For Prince Edward Island, New Brunswick, Ontario, and British Columbia, the percentage change in real per-capita revenues exceeded expenditures. For the remaining provinces, expenditures grew faster than revenues.

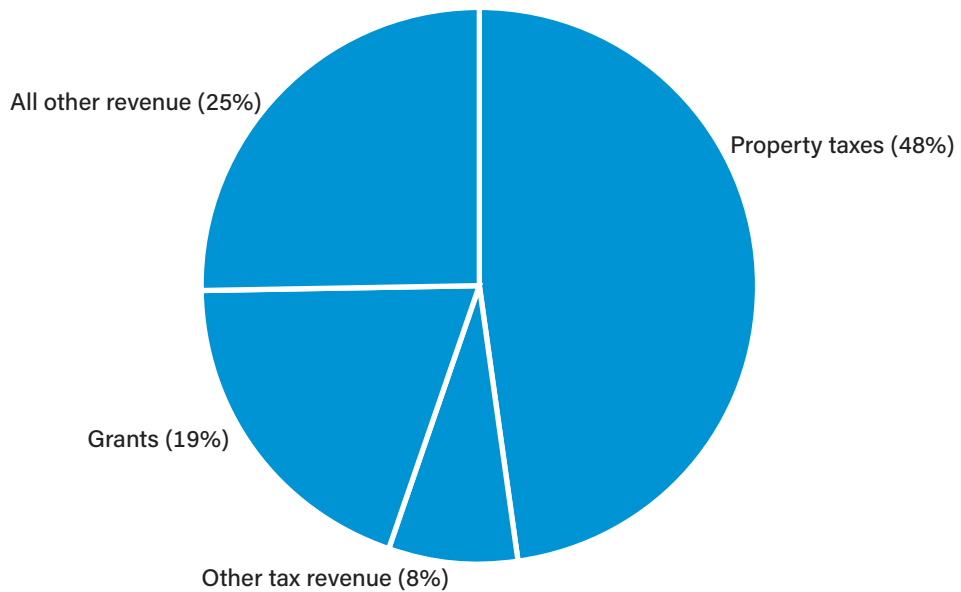
What is also of interest is the composition of municipal government revenues and expenditures. Figure 8 provides the distribution of the revenue of Canadian municipal governments by key component in 2018. Property taxes alone accounted for 48% of revenues, and another 8% came from other miscellaneous local taxes. Government grants yielded 19% of revenues; the remaining 25% came from all other revenues, consisting of assorted fees from services like transit or housing, recreational activities, and other goods that can vary across municipalities. It is this last portion of revenue that was affected most severely by the COVID-19 pandemic as activities like transit and recreation suffered large drops in use and therefore resulted in large decreases in revenue.

Figure 7: Change (%) in real, per-capita municipal operating revenues and expenditures (\$), by province, 2008–2018



Sources: Statistics Canada, table 10-1-0020-1; table 17-10-0005-01; table 18-10-0005001.

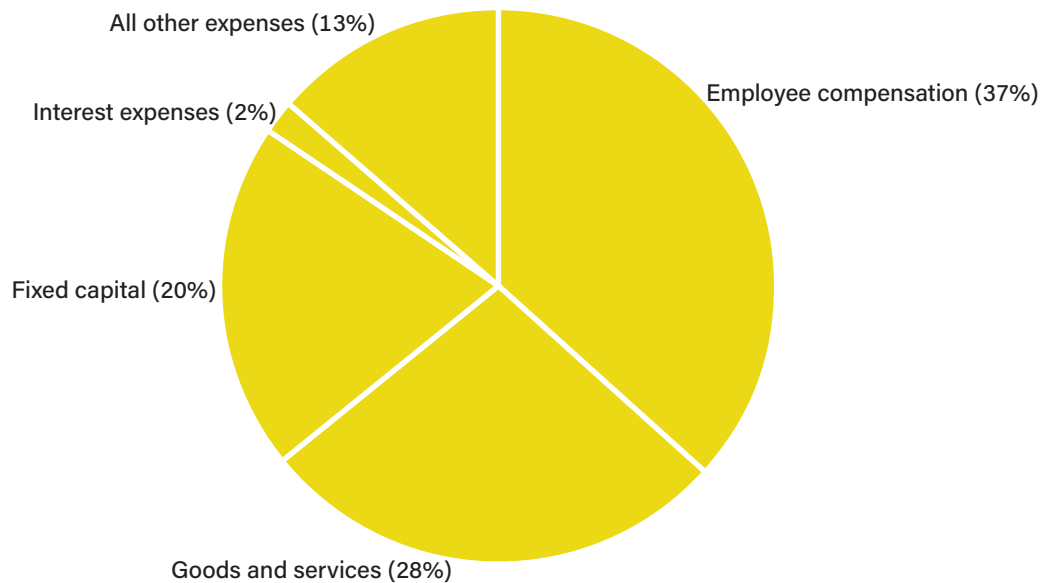
Figure 8: Distribution (%) of municipal operating revenues in Canada, by key component, 2018



Source: Statistics Canada, table 10-10-0020-01: Canadian government finance statistics for municipalities and other local public administrations.

Figure 9 provides the distribution of operating expense and shows that 37% of operating expenses stem from employee compensation; another 28% come from the purchase of goods and services to run municipal operations; and 20% are expenses associated with fixed capital consumption costs. Only 2% is associated with debt service costs, a reflection of general fiscal prudence at the municipal level imposed by provincial governments, which must approve debt acquisition by municipal governments. All other expenditures account for 13% of spending.

Figure 9: Distribution (%) of municipal operating expenses in Canada, by key component, 2018



Sources: Statistics Canada, table 10-10-0020-01: Canadian government finance statistics for municipalities and other local public administrations.

Of course, when it comes to the composition of revenues and expenditures at the municipal level, there are regional differences. For example, in the case of revenues, property taxes make up 60% of operating revenues in Quebec and 57% in the Atlantic provinces, but only 41% in the Prairie provinces and 44% in British Columbia, with Ontario in the middle at about 46%. The share coming from grants by federal and provincial governments also varies substantially from a low of 8% in British Columbia to a high of 23% in Ontario. When it comes to the use of assorted fees and revenue from sales of goods and services, British Columbia has the highest share at 36%, followed by the Prairies at 26%, then Ontario, the Atlantic provinces, and Quebec at 24%, 23%, and 22%, respectively. As for spending, the largest shares of operating expenditures on employee compensation are in Ontario (40%) and British Columbia (37%), followed by the Prairies at 35%, while the lowest shares are in Quebec (33%) and the Atlantic provinces (28%). Meanwhile, spending on fixed capital is the highest in the Prairies at 29% of total expenditures and the lowest in Ontario at 16%.

Empirical Analysis—Drivers of Revenue and Spending

Brief review of the literature about the determinants of municipal expenditure

There have been a range of studies both Canadian and international that have attempted to model the determinants of spending at the municipal level and they have been made using both municipal-level data as well as more aggregated regional data. The studies have often focused on variables such as characteristics of governance including the size and type of municipal organization with scale inefficiencies often shown in smaller municipalities with population size as a measure of economies of scale.¹⁸ In general, larger populations allow for the spreading of fixed costs and therefore declining costs per capita.

A wide variety of studies also include a range of socioeconomic discretionary and non-discretionary factors including income, population, employment or unemployment, and family or ethnic composition, which can affect the demand for local services as well as the costs of providing them. For example, Da Cruz and Marques (2014) in their study of the determinants of local spending and efficiency in Portuguese municipalities include as exogenous variables factors such as crime rates, literacy, voter turnout, population density, and per-capita GDP as well as other assorted institutional factors as determinants of spending.

In an aggregate approach using Canadian data from 1961 to 1991, Di Matteo (1995) uses the same determinants for both provincial and local spending, which include per-capita GDP, population and population density, intergovernmental transfer revenues, political party variables, and provincial fixed effects. Significant variables for both expenditures and revenues included income, population density, intergovernmental transfers with some differences across provinces but not with respect to political parties in power.

Kushner, Masse, Peters, and Soroka (1996) look at the factors affecting municipal expenditures in Ontario using a sample of Ontario's municipalities in 1991 consisting of 793 lower-tier/single-tier cities and 39 upper-tier/counties/regions. The basic estimating equation for per-capita service expenditures included population, age distribution, population density, the ratio of commercial-industrial assessment to total tax

18. For example, see Perez-Lopez, Prior, and Zafra-Gomez, 2018; Drew, Kortt, and Drollery, 2014; or Sole-Olle and Bosch, 2005.

assessments, and a dummy for regional governments. Multiple regression techniques found that regionalization of services has had no significant impact on spending though, within a regional government structure, per-capita spending increases with the size of the municipality. Population, regional dummies, and the amount of commercial-industrial tax assessment were also statistically significant but only in regions. The policy implication here is that the process of amalgamating municipalities was not a magic bullet for containing municipal expenditures.

Holcombe and Williams (2008) specifically examine the relationship between population density (defined as population per square mile) and per-capita municipal government expenditures using data from 487 municipal governments in the United States with populations greater than 50,000 people. Among the confounding factors controlled for are population growth rates, commuting times, age, and median incomes. They find no significant relationship between per-capita total government expenditures and operational expenditures for cities smaller than 500,000 while, for cities larger than 500,000, higher population densities are associated with higher per-capita government spending. Meanwhile, infrastructure expenditures decline with increases in population density for cities smaller than 500,000, whereas expenditures on services tend to increase with population density for cities larger than 500,000. These results suggest that increases in population density—which are often thought to be associated with economies of scale and lower cost in the provision of public goods—will not always be associated with reductions in per-capita government expenditures.

Rios, Pacual, and Cabases (2017) find local government spending in Spain was driven mainly by economic factors (per-capita taxes, transfers, and GDP) while demographic (population density and net migration) and political factors (such as regional alignment, election years, and ideology) were less relevant.

Tran, Dollery, and Lopez (2018), using the example of local government in South Australia, examine the determinants of local government spending in the wake of the inability to improve performance of local governments there. Along with population and population growth, they also include median employee wages, council types ranging from larger metropolitan and regional types to smaller rural municipalities, unemployment rates, and the presence of single-parent families as determinants of per-capita municipal expenditures, both total amounts as well as subdivided into expenditure categories. They found the main factors affecting the expenditure of metropolitan councils to be population size, the number of pensioners and single parents, as well as unemployment. In the case of the regional councils, the main variables that affected expenditure were population size, the proportion of aboriginal residents, population growth, the number of single parents, income levels and, unemployment.

In a study using Danish municipal data, Blom-Hansen, Houlberg, Serritzlew, and Treisman (2016) examine the effect of municipal amalgamations on jurisdiction size and local government expenditures. They note that theory suggests that there are economies of scale and cost savings with larger governments but as governments grow, jurisdictions of larger size can also have higher transaction, communication, and coordination costs. However, they find using multiple regression analysis that increasing local jurisdiction size in Denmark through amalgamations seemed to have no systematic consequences on spending at all with some functional areas seeing higher spending (roads and administration) and others seeing lower spending (education, day care, and elder care).

Econometric model—specification and variables

A simple pooled time series panel-regression model regresses the log of real per-capita provincial municipal expenditures on a set of variables that the literature on municipal spending determinants has deemed as relevant drivers. The data set was constructed from Statistics Canada's table 10-10-0020-01 (formerly CANSIM 385-0037), *Canadian government finance statistics for municipalities and other local public administrations with economic data from other Statistics Canada series at the provincial level for the years 2008 to 2018*. The variables are described and sources provided in the Appendix (p. 27). Summary statistics for the key variables are provided in table 1.

The general form of the model is:

$$M_{it} = f(T_{it}, G_{it}, P_{it}, P_{it}^2, H_{it}, C_{it}, HS_{it}, W_{it}, LGE_{it}, R_{it}, TM_{it}, Z_{it})$$

where M_{it} is real per-capita provincial municipal expenditures of the i -th province in the t -th year, T_{it} is real per-capita provincial-level municipal property-tax revenues of the i -th province in the t -th year, G_{it} is real per-capita grant revenue, P_{it} is total provincial population and P_{it}^2 is total provincial population squared, C_{it} is the provincial crime rate in incidents per 100,000 population of the i -th province in the t -th year, H_{it} is provincial household income per person of the i -th province in the t -th year, HS_{it} is total housing starts of the i -th province in the t -th year, W_{it} is the real municipal hourly wage rate in the i -th province in the t -th year, LGE_{it} is the number of local government employees in the i -th province in the t -th year, R_{it} is a dummy variable for regional government that takes on a value of 1 if there were regional municipal government in an i -th province in a t -th year, TM_{it} is the total number of municipalities in the i -th province in the t -th year, and Z_{it} is a vector of regional dummy variables for Ontario, Quebec, British Columbia, and Alberta and the Atlantic provinces (Newfoundland & Labrador, Nova Scotia, Prince Edward Island, New Brunswick) and the Prairie provinces (Saskatchewan, Manitoba). The dummy variables are a way of controlling for the effect of provincial

Table 1: Summary statistics for key variables, 2008–2018

	Obs	Mean	Std. Dev.	Min	Max
Real per-capita municipal expenditure (\$2002)	110	1541.8	513.0	601.1	2549.3
Real per-capita municipal revenues (\$2002)	110	1739.5	587.0	518.0	3041.2
Real per-capita municipal operating balance (\$2002)	110	197.7	148.6	−97.5	608.4
Real per-capita grant revenue (\$2002)	110	342.8	162.9	72.1	810.6
Real per-capita property tax revenue (\$2002)	110	808.4	300.3	254.4	1288.2
Real per-capita sales of goods and services revenue (\$2002)	110	408.7	155.9	141.1	704.7
Population	110	3498862	4127974	138749	14000000
Real household income per person (\$2002)	110	34491	3661	27909	45166
Crime rate	110	6753	2424	3304	12709
Real median household income per couple family (\$2002)	110	82174	10185	66480	109760
Total housing starts	110	19656	22394	511	79123
Multiple-unit housing starts	110	11793	14609	191	54956
Average MLS price (\$)	110	295840	131913	142137	711564
Regional government	110	0.4	0.5	0.0	1.0
Total number of municipalities	110	358.4	332.8	50.0	1138.0
Real municipal wage rate (\$2002 per hour)	110	22.7	3.7	14.6	29.6
Local government employment (000s)	110	29.9	38.0	0.4	138.6

differences due to policy, geography, or history upon municipal spending and revenues. All real variables were generated by deflating using the provincial All-Items Consumer Price Index (\$2002).

Regression results are presented in table 2 and table 3. Both tables are estimated using a linear specification, Ordinary Least Squares (OLS) as the estimation technique in table 2 and Two-Stage Least Squares (2SLS) in table 3. Table 2 does not account for potential bi-directionality between property-tax revenues and economic conditions, namely income and population growth and the rise in housing prices that have affected property tax bases in many cities. Two-Stage Least Squares is a simultaneous equations approach with both an expenditure and property-tax revenue regression combined, and is designed to address this potential bi-directionality. Essentially, the same set of variables is used

Table 2: OLS regression results for determinants of municipal expenditures

Dependent variable: real per-capita municipal expenditure (\$2002); T-Statistics in **bold** are significant at 5%; those in ***bold italic***, at 10%.

	Coefficient	T-Statistic
Real per-capita property tax revenue (\$2002)	0.669	5.63
Real per-capita grant revenue (\$2002)	0.148	1.88
Real per-capita sales of goods and services revenue (\$2002)	1.081	3.95
Population	0.000	0.55
Population squared	0.000	-2.05
Real household income per person (\$2002)	0.008	1.40
Crime rate	-0.008	-0.71
Total housing starts	-0.004	-2.83
Real municipal wage rate	15.397	2.78
Local government employment	3.781	2.44
Regional government	34.112	0.87
Total number of municipalities	0.087	0.71
Atlantic	-739.106	-1.81
Quebec	-685.765	-2.91
Prairie	-614.492	-1.61
Alberta	-504.857	-1.56
British Columbia	-915.991	-3.23
Constant	539.622	1.19
Obs	110	
F (17, 92)	566.49	
Adjusted R-squared	0.9888	

in both the municipal-expenditure regression and the property-tax revenue regression but the latter contains variables deemed correlated with property-tax revenue and not expenditures and vice versa allowing for separate estimates.¹⁹

19. Along with the variables in the model, the real per-capita property-tax variable is also assumed to be a function of the MLS average housing price, median household income for couple families, the first difference of population, and the first difference of total housing starts.

Table 3: 2SLS regression results for determinants of municipal expendituresDependent variable: real per-capita municipal expenditure (\$2002); Z-Statistics in **bold** are significant at 5%; those in **bold italic**, at 10%.

	Coefficient	Z-Statistic
Real per-capita property tax revenue (\$2002)	0.390	1.73
Real per-capita grant revenue (\$2002)	0.176	2.17
Real per-capita sales of goods and services revenue (\$2002)	1.466	4.23
Population	0.000	1.34
Population squared	0.000	-1.82
Real household income per person (\$2002)	0.011	1.88
Crime rate	-0.006	-0.53
Total housing starts	-0.004	-2.87
Real municipal wage rate	15.204	2.61
Local government employment	3.544	1.99
Regional government	93.342	1.67
Total number of municipalities	-0.058	-0.36
Atlantic	-233.641	-0.46
Quebec	-381.469	-1.28
Prairie	-205.568	-0.47
Alberta	-192.947	-0.54
British Columbia	-791.332	-2.78
Constant	-35.115	-0.06
Obs	100	
Wald chi2 (17)	5702.74	
R-squared	0.9902	

When the results in table 2 are examined, real per-capita municipal expenditures are positively and significantly affected by revenues with own-source revenues—property taxes and the sales of goods and services—being the most significant.²⁰ This suggests that expenditures do expand to match the revenues available. Also, larger populations

20. All significant variables were at least at the 10% level. The tables note which are significant at the 5% level and which at the 10% level.

are eventually associated with declining per-capita expenditures though the magnitude of the drop, as evidenced by the coefficient on population squared, is small.²¹ At the same time, the number of housing starts are also associated with declining per-capita expenditures. Both these results suggest that greater population and urban growth have generated some economies of scale for the provision of municipal government services. The municipal wage rate and the number of municipal employees are both positive and significant determinants of per-capita municipal spending. Meanwhile, British Columbia, Quebec, and the Atlantic provinces spend significantly less per-capita than Ontario when controlling for all the other confounding factors.

When the results are estimated accounting for potential bi-directionality with respect to property tax revenues, the results in table 3 parallel those in table 2. Again, all three revenue sources are significant determinants of real per-capita municipal spending but grants and the sales of goods and services are this time more significant. Real household income per person is also now a significant positive determinant of municipal spending. Housing starts and population (again with a very small effect) are still negatively and significantly associated with municipal spending. The municipal wage rate and the total of local government employees remain significant positive determinants of spending and to this mix can be added the presence of regional government structures, which is also positive and significant. After all the confounding factors are accounted for, only British Columbia spends significantly less per capita on municipal spending than Ontario.

Given that most municipalities appear to run persistent operating surpluses that are then added to reserve funds, it is useful to also run the regressions with the real per-capita operating surplus (gross operating balance) as the dependent variable. A final set of regressions is provided in table 4 and table 5 with separate results using OLS and 2SLS and the results closely parallel each other. The size of the real per-capita municipal operating surplus is positively and significantly related to the real per-capita property tax revenues and real per-capita grant revenues. It is also positively and significantly related to the total number of housing starts as well as the total number of municipalities. The operating surplus is negatively and significantly related to both the total amount of local government employment as well as the real municipal wage rate. Relative to Ontario, municipalities in most other provinces appear to have larger operating surpluses. The sales of goods and services and population are not significant determinants of the operating surplus nor is the presence of regional government structures.

21. The coefficient on population squared is actually -0.0000000000476 .

Table 4: OLS regression results for determinants of municipal operating balance

Dependent variable: real per-capita municipal operating balance (\$2002);
T-Statistics in **bold** are significant at 5% level ; those in ***bold italic***, at 10%.

	Coefficient	T-Statistic
Real per-capita property tax revenue (\$2002)	0.203	1.96
Real per-capita grant revenue (\$2002)	0.830	12.02
Real per-capita sales of goods and services revenue (\$2002)	-0.027	-0.11
Population	0.000	1.09
Population squared	0.000	0.83
Real household income per person (\$2002)	-0.002	-0.48
Crime rate	0.004	0.45
Total housing starts	0.005	4.61
Real municipal wage rate	-12.941	-2.68
Local government employment	-3.724	-2.76
Regional government	9.373	0.27
Total number of municipalities	0.273	2.56
Atlantic	1162.562	3.26
Quebec	386.586	1.88
Prairie	1083.352	3.26
Alberta	1005.271	3.57
British Columbia	1192.883	4.82
Constant	-1148.967	-2.90
Obs	110.000	
F (17, 92)	57.490	
Adjusted R-squared	0.898	

Table 5: 2SLS regression results for determinants of municipal operating balance

Dependent variable: real per-capita municipal operating balance (\$2002);
 T-Statistics in **bold** are significant at 5% level ; those in **bold italic**, at 10%.

	Coefficient	Z-Statistic
Real per-capita property tax revenue (\$2002)	0.367	1.90
Real per-capita grant revenue (\$2002)	0.805	11.57
Real per-capita sales of goods and services revenue (\$2002)	-0.279	-0.94
Population	0.000	0.03
Population squared	0.000	0.79
Real household income per person (\$2002)	-0.004	-0.73
Crime Rate	0.004	0.42
Total housing starts	0.005	4.69
Real municipal wage rate	-11.915	-2.38
Local government employment	-3.148	-2.06
Regional government	-23.573	-0.49
Total number of municipalities	0.353	2.59
Atlantic	823.801	1.89
Quebec	178.298	0.70
Prairie	803.103	2.12
Alberta	772.385	2.54
British Columbia	1070.182	4.38
Constant	-798.672	-1.53
Obs	100	
Wald chi2 (17)	1056.730	
R-squared	0.915	

Discussion

These empirical results are interesting and are important to apply to our understanding of municipal finance policy in Canada on two levels, the long-run trends and the short term, which is currently being driven by the response to the COVID-19 pandemic and its impact on municipal finances. While the COVID-19 pandemic is indeed having a serious impact on municipal public finance, the sense of urgency to deal with it should not condition the policy response at the expense of some of the important long-run trends in municipal finances. The long-run trends need to be understood as the result of the longer-term determinants of municipal government spending in Canadian municipal government.

In the long term, it appears that supply-side forces have been more important in determining real per-capita municipal spending in Canada. When important demand variables such as household income or crime rates are included in the expenditure determinant regressions, they are generally insignificant. Even population itself appears to be associated with declining real per-capita expenditures, which means it is operating more as a supply-side variable capturing economies of scale. Housing starts are also negative and significant suggesting that the addition of new houses and growth raises the tax base and revenue and generates economies of scale more than it contributes to increased demands for, and expenditure on, services.

Growing revenues from property taxes, intergovernmental grants, and the sales of goods and services are positively related to rising per-capita municipal expenditures. Essentially, one can argue that per-capita municipal spending rises to fill the revenues available. Moreover, on the cost side, increases in the number of municipal employees as well as their pay rates are also positive cost-side drivers of rising municipal spending. This suggests that municipalities in Canada for the most part have been able to raise their spending over time because of a more-than-adequate ability to generate revenues to fuel that spending. Moreover, not only have they been able to cover their spending, but they have also been able to add substantially to their assets. Indeed, the real per-capita municipal operating balance is positively and significantly related to property-tax and grant-revenue streams and to the expansion of the tax base from total housing starts. As well, increases in municipal employment and their pay rates operate to erode the per-capita operating surplus.

Over the long term, municipalities have played an interesting game. They are prevented by provincial legislation from running operating deficits and they have not only managed to balance their budgets but generate operating surpluses most years and potentially

add to their reserves.²² Indeed, perhaps the requirement to run a balanced budget has encouraged municipal governments to run larger surpluses than they might otherwise require. Their ability to generate revenues has enabled them to raise their spending as well as expand both municipal employment and remuneration and generate surpluses. It can be surmised that, when municipal administrations during their budgetary processes put forward an increase in their tax levies, they are not only managing to factor in increases in costs of current operation and new spending increases, but are also building in a savings factor and deliberately planning to add to reserves. In other words, municipal ratepayers are not only paying for the payment of current public goods and funding increases in operating costs, but they are funding a long-term fiscal saving and insurance program.

Of course, such fiscal prudence is on the surface a laudable goal. After all, having substantial reserves is valuable insurance to meet unforeseen future needs as well as maintain credit ratings for long-term debt taken on for major infrastructure projects. At the same time, simply raising taxes more than required to fund current spending to add to reserves is not the only way to add to an operating surplus as the empirical results show, given that increases in both the total number of municipal employees as well as their rate of remuneration erodes the size of the surplus. Municipal administrations may indeed argue that they are being prudent but prudence requires more of an effort to rein in their own costs rather than simply loading all their fiscal insurance measures on municipal ratepayers and then, when pressed about rising property tax rates, argue that provincial legislation requires them to balance their budgets.

Of course, this situation is now muddied by the fiscal effects of COVID-19. While firm numbers are not available, it does appear that many municipalities are facing substantial shortfalls in their revenues not only from taxation but also drops in revenues from sales of goods and services or user fees. The shortfall for Canadian municipalities has been estimated as high as \$20 billion (CBC, 2020), which given a total revenue of \$116 billion in 2018 suggests a 17% drop in revenue this year. Another study by RBC Economics (2020) has estimated the total shortfall at \$12 billion with the revenue losses by five large cities²³ in Canada as 9.7% of revenues in a base case and 12.1% in a more pessimistic case.

22. “Reserves” is not a specific variable that is available in the Government Finance Statistics compiled by Statistics Canada, Table: 10-10-0020-01 (formerly CANSIM 385-0037). What is available are net worth, non-financial assets, net financial worth, and financial assets. In 2018, the total value of financial assets for municipalities across all ten provinces was \$3.4 billion, net financial worth was –\$347 million, non-financial assets were worth \$35.4 billion, and net worth was \$363.4 billion. In 2009, the total value of financial assets for municipalities across all ten provinces was \$1.7 billion, net financial worth was –\$113.2 million, non-financial assets were worth \$16.2 billion, and net worth was \$222.1 billion. Statistics Canada notes that, due to statistical methods of valuing capital depreciation costs used in their numbers, their numbers may differ from numbers calculated by public-sector budgeting techniques.

23. Toronto, Vancouver, Montreal, Calgary, and Halifax.

However, it must be kept in mind that over the period from 2008 to 2018, the operating surplus for municipalities in Canada ranged from a low of 6.1% of revenues in 2014 to a high of 11.9% in 2017. Indeed, after the effects of the 2008/09 recession—which still saw operating surpluses—total operating surpluses have grown going from \$7.1 billion in 2011 to \$10.7 billion in 2018. The RBC’s estimate of a shortfall of \$12 billion is quite close to the size of total operating surpluses in 2018.²⁴ To comply with provincial requirements to balance budgets—assuming there is no short-term relaxation of this requirement for 2020 with provinces approving municipal debt issues to meet the gap—requires some type of direct fiscal action to fill the gap, which amounts to about \$2 billion based on the RBC estimate and closer to \$10 billion based on the \$20 billion shortfall estimate. The options available include a reduction in municipal expenditures, drawing down on accumulated reserves built up over the years, receiving assistance from provincial and federal governments, or raising own-source revenues.

Raising property taxes after years of steady increases exceeding what was needed to fund operations should not be an option, given the economic costs of the pandemic on businesses and employment. Raising user fees and service charges is also not a realistic option to close this operating deficit gap, given that revenue drops for parking and public transit have been so severe as a result of the reduction in use that even hefty increases have no hope of recovering. Drawing down on accumulated reserves to address part of the shortfall is a good one-time option but a slippery slope as it introduces the temptation to do it again and not deal with other options such as a more concerted effort to curtail expenditures.

Given the significance of both municipal wage rates and employment numbers as positive drivers of spending and negative drivers of the operating surplus, it stands to reason that municipalities need to make more of an effort to address their spending. Only after such an effort can it be reasonable for municipalities to request additional support either from upper tiers of government or their own ratepayers. Municipal ratepayers and provincial and federal governments alike need to be cautious that the current crisis is not used by municipalities as simply an opportunity to finance a long-term enrichment of their spending.

24. It should be noted that this is an aggregate across all the provinces. For individual municipalities, some that did not experience a serious negative revenue impact would keep their surplus largely intact.

Appendix—the Variables and Their Sources

Variable	Description	Source
Real per-capita municipal expenditure (\$2002)	Municipal expenditures in \$2002 divided by provincial population	Statistics Canada: Table: 10-10-0020-01 (formerly CANSIM 385-0037) Canadian government finance statistics for municipalities and other local public administrations (x 1,000,000)
Real per-capita municipal revenues (\$2002)	Municipal revenues in \$2002 divided by population.	Statistics Canada: Table: 10-10-0020-01 (formerly CANSIM 385-0037) Canadian government finance statistics for municipalities and other local public administrations (x 1,000,000)
Real per-capita municipal operating balance (\$2002)	Real per-capita municipal revenues minus real per-capita municipal expenditures.	Statistics Canada: Table: 10-10-0020-01 (formerly CANSIM 385-0037) Canadian government finance statistics for municipalities and other local public administrations (x 1,000,000)
Real per-capita grant revenue (\$2002)	Provincial grants to municipalities in \$2002 divided by provincial population	Statistics Canada: Table: 10-10-0020-01 (formerly CANSIM 385-0037) Canadian government finance statistics for municipalities and other local public administrations (x 1,000,000)
Real per-capita property tax revenue (\$2002)	Municipal property tax revenues in \$2002 divided by provincial population	Statistics Canada: Table: 10-10-0020-01 (formerly CANSIM 385-0037) Canadian government finance statistics for municipalities and other local public administrations (x 1,000,000)
Real per-capita sales of goods and services revenue (\$2002)	Municipal revenues from the sales of goods and services in \$2002 divided by provincial population.	Statistics Canada: Table: 10-10-0020-01 (formerly CANSIM 385-0037) Canadian government finance statistics for municipalities and other local public administrations (x 1,000,000)
Population	Total provincial population	Statistics Canada. Table 17-10-0005-01 (formerly CANSIM 051-0001) Population estimates on July 1st, by age and sex.
Population squared	Total provincial population squared.	Statistics Canada. Table 17-10-0005-01 (formerly CANSIM 051-0001) Population estimates on July 1st, by age and sex.
Real household income per person (\$2002)	Household income divided by population in \$2002.	Statistics Canada: Table: 36-10-0226-01 (formerly CANSIM 384-0042)
Real household income per couple Family (\$2002)	Real median household income per couple family as reported by Statistics Canada.	Statistics Canada: Table: 36-10-0226-01 (formerly CANSIM 384-0042)
Total housing starts	Total annual number of housing starts (total units)	Statistics Canada: Table: 34-10-0126-01 (formerly CANSIM 027-0009)
Multiple-unit housing starts	Annual number of multiple unit housing starts,	Statistics Canada: Table: 34-10-0126-01 (formerly CANSIM 027-0009)
Average MLS price (\$)	Average MLS Home Value	Custom tabulation from the Canadian Real Estate Association (received on January 29, 2020).

Variable	Description	Source
Regional government	1 if province had regional governments that year, 0 otherwise.	Canadian Encyclopedia. < https://www.thecanadianencyclopedia.ca/en/article/regional-government >
Number of municipalities	Total number of municipalities in province.	Data provided by Provincial-Territorial Officials Committee on Local Government (PTOC) (received on February 12, 2020)
Real municipal wage rate	Average hourly local government wage rate in \$2002.	Custom Tabulation from the Labour Force Survey provided by Statistics Canada (received on February 19, 2020).
Local government employment	Number of employees in local, municipal, and regional public administration in province.	Custom Tabulation from the Labour Force Survey provided by Statistics Canada (received on February 19, 2020).
CPI	Provincial Consumer Price Index, Annual average, not seasonally adjusted, All Items, 2002=100. Used to generate all real (inflation adjusted) variables.	Statistics Canada: Table: 18-10-0005-01 (formerly CANSIM 326-0021)
Crime rate	Annual crimes per 100,000 population. Incident-based crime statistics, by detailed violations, Canada, provinces, territories, and Census Metropolitan Areas	Statistics Canada: Table: 17-10-0005-01 (formerly CANSIM 051-0001) and Table: 35-10-0177-01 (formerly CANSIM 252-0051)
Atlantic	1 if Newfoundland & Labrador, Nova Scotia, Prince Edward Island or New Brunswick, 0 otherwise	
Quebec	1 if Quebec, 0 otherwise	
Ontario	1 if Ontario, 0 otherwise	
Prairie	1 if Prairie, 0 otherwise	
Alberta	1 if Alberta, 0 otherwise	
British Columbia	1 if British columbia, 0 otherwise	

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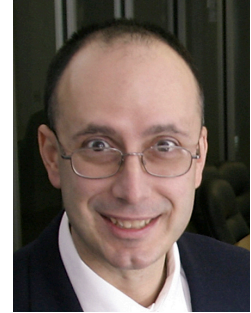
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Acknowledgments

The author wishes to thank the anonymous reviewers for many helpful comments and suggestions on an earlier draft and Fraser Institute staff for research support. Any remaining errors are the sole responsibility of the author.

As the researcher has worked independently, the views and conclusions expressed in this paper do not necessarily reflect those of the Board of Directors of the Fraser Institute, the staff, or supporters.

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Date of issue

2020

ISBN

978-0-88975-618-2

Citation

Livio Di Matteo (2020). *Local Leviathans: The Rise of Municipal Government Spending in Canada, 1990–2018*. Fraser Institute. <<http://www.fraserinstitute.org>>.

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