

Fiscal Health of Ontario Large Cities: Is There Something to Worry About?¹

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Ontario cities, like many cities around the world, are concerned about their ability to provide adequate services with existing revenue sources. They are not only concerned about maintaining their present levels of public services but they are also worried about meeting the expenditure needs that many are expected to face in the future, especially to replace existing infrastructure and build new infrastructure. The extent to which they will be able to do so will depend on the state of their fiscal health.

This paper explores the fiscal health of the 30 largest municipalities in Ontario. The first section provides some background on Ontario municipalities including their expenditures and revenues as well as a brief description of the sample of municipalities in this study. The second section defines what we mean by fiscal health and briefly reviews the literature on the purpose of measuring urban fiscal health and some of the measures used to determine it. The third section reviews and evaluates some of the measures of fiscal health that have been estimated for Ontario municipalities in the past. The fourth section provides some descriptive measures of fiscal health for the largest Ontario municipalities. The fifth section calculates fiscal gap measures (the difference between expenditure need and fiscal capacity) and discusses the implications for the fiscal health of the largest Ontario municipalities. The sixth section concludes the paper.

1. Profile of Ontario Municipalities

Canada is a federation that includes the federal government, ten provincial and three territorial governments, and over 3,700 local governments. In the Province of Ontario, there are currently 444 municipalities classified as single tiers, lower tiers (in regions and counties), and upper tiers (regions and counties), as set out in Table 1.³ In terms of responsibilities, regions are generally responsible for region-wide services such as transportation, policing, sewer and water systems, waste disposal, and social services. Lower-tiers within regions are generally responsible for local

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³ For a discussion of the municipal restructuring in Ontario which reduced the number of municipalities from 839 in 1995 to the current 444, see Slack and Bird (2013).

functions such as fire protection, local roads, garbage collection, and recreation. Lower-tier municipalities in counties provide the majority of municipal services to their residents with county government responsibilities generally limited to arterial roads, health, and social services. Regions borrow on behalf of their lower-tier municipalities as a matter of process but the obligation to service their own debt remains with the lower tiers. In other words, the regions do the debt issuance and the negotiation with the fiscal agents but the lower tiers are responsible for paying their own debt service costs. Lower tiers in counties and the counties themselves borrow on their own behalf.

Table 1: Municipal Structure in Ontario, 2013

	Number of Municipalities
Single Tiers	
- Southern Ontario	29
- Northern Ontario	144
- Total single tiers	173
Lower Tiers	
- Within a region	43
- Within a county	198
- Total lower tiers	241
Upper Tiers	
- Region	8
- County	22
- Total	30
Total number of municipalities	444

Source: Found (2012)

Single-tier municipalities include separated municipalities that are geographically located within a county but are not part of the county for municipal purposes as well as all northern municipalities where there is no upper-tier governance body (District Social Services Administration Boards are used to share social service costs among single-tier municipalities, however). Single-tier municipalities also include former county or regional municipalities that were amalgamated into a single-tier municipality. Single-tier municipalities provide all local services and borrow on their own behalf.

Local governments in Canada are often referred to as “creatures of the provinces” because Canada's Constitution assigns local institutions as a provincial responsibility and each province has its own legislation governing municipalities. Municipalities have only those powers that are delegated to them by the province in which they are situated. Table 2 provides a breakdown of municipal expenditures per capita by function for all municipalities in Ontario in 2011. It shows

that the major municipal expenditures are for transportation (roads and transit), protection (mainly fire and police), social services, and environment (water, sewers, garbage collection and disposal). Unlike municipal jurisdictions in other parts of the world, primary and secondary education in Ontario is not a municipal government responsibility.⁴ The province is responsible for funding education and elected school boards for delivering education.

Table 2: Municipal Expenditures: Ontario, 2011

	Ontario	
	\$ per capita	%
General government	154	5.3
Protection	506	17.3
Transportation	643	22.0
Environmental	420	14.4
Health	150	5.1
Social services	494	16.9
Social housing	176	6.0
Recreation and culture	11	0.4
Planning & development	62	2.1
Other	23	0.8
Total expenditures	2,922	100.0
Source: Ontario Ministry of Municipal Affairs and Housing, Financial Information Returns		

Table 3 shows the breakdown of municipal revenues in Ontario in 2011. The major source of revenue is property taxes followed by conditional grants and user fees. Toronto is unique in the province in that it has the ability to levy taxes other than the property tax.⁵ The City of Toronto levies a land transfer tax and a billboard tax; it also levied an annual personal vehicle registration tax but discontinued it in 2011.

Figure 1 shows the pattern of municipal operating expenditures and selected revenues in Ontario over the last decade. In constant dollars per capita, expenditures have steadily declined over the period.⁶ Property taxes were also lower in 2011 than in 2000. As Figure 1 also suggests, the

⁴ Ontario municipalities participate in the Ontario Municipal Employees Retirement System (OMERS). This pooled pension fund cushions the fiscal impact of future pension obligations for municipalities.

⁵ Under the *City of Toronto Act* which came into effect on January 1, 2007, Toronto has the authority to levy any tax with the exception of taxes on income, profits, capital, wealth (including inheritance taxes), machinery and equipment used in research or development or manufacturing and processing, payroll, gasoline, natural resources, energy consumption, general sales of goods, use of highways, and accommodation (including hotels, motels, apartment houses, etc.). The city also cannot levy a poll tax. The city is permitted to tax alcoholic beverage entertainment establishments, motor vehicle ownership, land transfers, parking lots, road pricing, and billboards.

⁶ A change in reporting requirements in 2009 make it difficult to compare operating expenditures before and after 2009. Expenditures per capita for 2011 in Table 1 include some capital components; expenditures in Figure 1 only include operating expenditures.

impact of the recent recession on municipalities in Ontario was considerably milder than in other parts of the world.⁷ Although municipal operating expenditures per capita (in constant dollars) have declined steadily over the last decade or so, and there was a dip from 2008 to 2009, expenditures increased in 2010. Much the same happened with respect to property taxes. On the other hand, although transfers increased slightly in 2008 and 2009, they declined in 2010.

Table 3: Municipal Revenues, Ontario, 2011

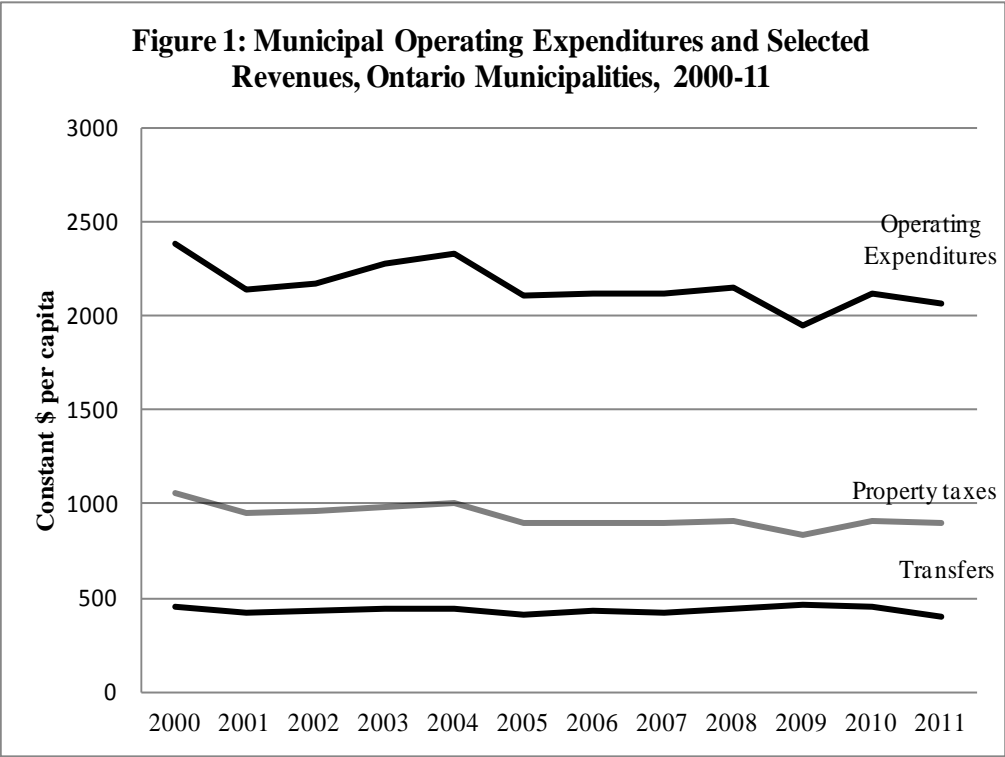
	Ontario	
	\$ per capita	%
Own-source revenues		
Property taxes	1,271	38.1
Payments in lieu of taxes	44	1.3
User fees	646	19.4
Licenses, permits, rents	81	2.4
Fines and penalties	44	1.3
Other	431	13.1
Total own-source revenues	2,517	75.6
Grants		
Unconditional grants	48	1.4
Conditional grants	718	21.5
Total grants	766	22.9
Revenues from other municipalities	49	1.5
Total revenues	3,333	100.0

Source: Ontario Ministry of Municipal Affairs and Housing, Financial Information Returns

In this study, measures of fiscal health are estimated for the 30 largest municipalities in Ontario. Table 4 identifies these municipalities and indicates that 13 are single-tier cities and 17 are lower-tier municipalities in regions. The lower-tier municipalities in each region are selected municipalities and do not include all of the municipalities in each region. The municipalities in this study cover all parts of the province. With the exception of Greater Sudbury, Sault Ste. Marie and Thunder Bay, all of these municipalities are located in southern Ontario.

⁷ Kitchen (2013) also concluded that Ontario municipalities were not as hard hit by the recession as municipalities in other countries. Even though the provincial economy which relies heavily on manufacturing was hit hard by the recession, the municipal sector does not appear to have suffered negatively. He even suggests that the recession might have had a positive long-term impact by driving municipalities to use more funding instruments for many operating and capital projects.

Although these are the largest municipalities in the province, they range in size from Sault Ste. Marie with approximately 75,000 people to Toronto at almost 2.8 million people. Not only is there wide variation in population, as Table 4 indicates, there is also wide variation in the extent to which these municipalities have grown over the last 12 years. For example, Brampton, Vaughan, and Richmond Hill have more than doubled in size whereas Thunder Bay has declined and Greater Sudbury and Sault Ste. Marie have experienced no growth.



2. Measures of Fiscal Health: A Review of the Literature

Municipal fiscal health refers to the ability of a municipality to meet its expenditure requirements with its revenue sources. This definition considers the relationship between levels of expenditure requirements and revenues at a point in time as well as the relationship between growth rates in expenditures and revenues. Some authors have referred to the dynamic dimension of fiscal sustainability by defining fiscal health as the ability to meet financial and service obligations both now and in the future (Hendrick, 2004).

Table 4: Population of the 30 Largest Municipalities in Ontario

Municipality	Population 2011	Population Growth (%) 2000-2011
Single Tier Cities		
- Toronto	2,790,200	23
- Barrie	141,000	79
- Brantford	93,650	16
- Chatham-Kent	104,075	1
- Guelph	121,688	32
- Hamilton	531,057	15
- Kingston	123,363	12
- London	366,150	11
- Ottawa	927,118	28
- Windsor	210,891	5
- Greater Sudbury	160,300	0
- Sault Ste. Marie	75,141	0
- Thunder Bay	108,339	-6
Two-Tier Regions		
Region of Durham		
- Oshawa	151,627	15
- Pickering	92,364	21
- Ajax	114,830	81
- Clarington	89,900	53
- Whitby	128,310	75
Region of Halton		
- Burlington	178,761	31
- Oakville	182,500	47
Region of Peel		
- Brampton	523,911	101
- Mississauga	741,000	40
Region of York		
- Vaughan	304,639	136
- Markham	315,588	94
- Richmond Hill	191,623	104
Region of Niagara		
- Niagara Falls	82,997	10
- St. Catharines	131,400	3
Region of Waterloo		
- Cambridge	126,700	27
- Kitchener	234,300	33
- Waterloo	124,900	50

Source: Ministry of Municipal Affairs and Housing, Municipal Financial Information Returns

Why is it important to measure municipal fiscal health? The reason is that the major role of municipalities is to deliver local services and their ability to do so without disruption is contingent on funding (Honadle, 2003). Citizens want to be sure that their services will continue uninterrupted and provincial governments want to know that local governments will be able to deliver services and meet their financial obligations. Of course, the province can intervene in the financial affairs of municipalities that get into financial trouble and measures of fiscal health highlight the municipalities that may be in need of provincial assistance. The province has the power to provide financial assistance to municipalities and has used this power sparingly in circumstances of significant assessment loss. The province also has extensive supervisory powers that can be imposed in the case of actual defaults on obligations.⁸

How fiscal health is measured depends, in large part, on the purpose for which it is used, the context in which it is being used, and the information available. The purpose of the indicators may be to: assess financial management, develop a credit rating for a municipality, understand which municipalities are facing severe fiscal stress, and design grant formulas. Although many of the actual measures used are similar, fiscal health measures to determine a credit rating for a municipality, for example, will not be exactly the same as measures to determine the formula for an equalization transfer.

2.1 Financial Management

Fiscal health measures are used extensively to determine how well a municipality is being managed financially. Fiscal health in this context is measured by the financial condition and financial position of the municipality.

2.1.1 Financial condition

Financial condition refers to the ability of a municipality to meet all of its existing financial obligations.⁹ The Public Sector Accounting Board (PSAB) describes three different but interrelated characteristics of the fiscal condition of governments: sustainability, flexibility and vulnerability.¹⁰

⁸ Borrowing is limited by regulation in terms of both the extent and type of debt. Unlike US jurisdictions, municipalities do not have access to bankruptcy protection in Ontario. Since the 1930s, supervision has been imposed in rare circumstances in very small municipalities and creditors, rather than ratepayers, have been protected (Tassonyi, 1994).

⁹ Other definitions take a longer term approach by also including a government's ability to continue to meet its obligations over time (Sohl et al., 2009).

¹⁰ The Public Sector Accounting Board is a board of the Canadian Institute of Chartered Accountants. In Ontario, municipal accounts must conform to the general accounting principles established by PSAB. Similar indicators were used as measures of municipal fiscal health in Tassonyi (1994) and Reinhart and Rogoff (2009). These indicators are also used with respect to sovereign borrowers. For a more detailed discussion of the PSAB methodology, see Bird (2013).

Sustainability is the degree to which a government can maintain its existing financial obligations with respect to service commitments to the public and its financial commitments to creditors and employees without increasing the relative tax and debt burdens in the economy.¹¹ Perennial operating deficits or a trend of an increasing share of debt charges in current revenues suggest an unsustainable fiscal condition. For local governments, the ratio of outstanding debt to annual revenue provides an indication of the future revenue that may be encumbered to finance past spending.¹²

Flexibility or revenue capacity is the degree to which a government can increase the relative levels of debt or taxes to meet existing financial obligations both in respect of its service commitments to the public and financial commitments to creditors, employees, and others. For local governments, the ratio of public debt charges (debt service) to own-source revenues is an indicator of flexibility in spending.¹³ An increase in this indicator over an extended period of time during a period of relatively stable interest rates means that the government has consistently chosen borrowing over increases in taxation or user fees to meet its financial and service commitments. Increasing borrowing will eventually affect flexibility, assuming that debt service takes priority over other mandatory expenditure commitments.¹⁴ Flexibility is also captured by the debt to assessment ratio as a rise in this ratio impairs municipal fiscal capacity either through a reduction in the tax base or an increase in mandatory expenditure resulting from increased indebtedness. With respect to taxes, the ratio of own-source revenues to taxable assessment is commonly used. A change in taxable assessment or its growth rate relative to own-source revenues could influence a municipality's flexibility (PSAB 2007).¹⁵

Lastly, the degree of *vulnerability* of a local government can be a function of either transfer dependency or the risks created by exogenous shocks that impact its tax base. Transfer dependency is usually measured by the ratio of transfers to total revenues.

2.1.2 Financial position

Financial position measures relative fiscal health. Governments are ranked against an average for each indicator on measures such as cash and cash equivalents, net debt, non-financial assets, and

¹¹ PSAB (2007, 6).

¹² PSAB (2007, 10).

¹³ PSAB (2007, 11).

¹⁴ "Failing to do so would impair its future ability to borrow or to roll over its existing debt." (PSAB, 2007, 11). Also sub-national governments do not control monetary policy, precluding using inflation as an alternative to debt service.

¹⁵ Although household income may be a better measure of flexibility, the data are not generally available on an annual basis.

accumulated surplus/deficit. Although measures of financial condition and position may be affected by exogenous factors (such as a downturn in the economy or an increase in interest rates, for example), they are largely the result of policy choices made at the municipal level.¹⁶

Four general approaches have been used to measure municipal financial position (Jacob and Hendrick, 2012): trend analysis, group norms, benchmarking, and multiple indices. Trend analysis considers the trends of different fiscal indicators. Sohl et al. (2009), for example, used 29 indicators to measure the comparative financial position based on the ICMA's Financial Trend Monitoring System (FTMS).¹⁷ The advantage of trend analysis is that it examines the indicators over time, usually a 5-year period, so that problems can be identified before they become serious. The disadvantage of this system is that it requires a lot of information and thus is difficult to use for assessing the financial condition of hundreds of municipalities. The other problem with this approach is that it only describes where a municipality is and not where a municipality should be. For example, a municipality in poor fiscal condition that is improving would look the same as a municipality in better financial condition with improving trends. For this reason, many analysts use group comparisons or some form of benchmarking.

The group norms approach measures a small number of factors against group norms. The reference group may be all local governments in the province/state and normal may be defined as the mean or median of that group. The problem with this approach is that the group average may not be a good barometer for measuring financial condition because the entire region may be fiscally distressed. If so, a municipality may look good relative to the group average but may still be in poor fiscal condition.

The benchmarking approach tries to get around the problem of group averages by benchmarking the financial condition of a municipality over time relative to an industry-wide standard such as the Government Finance Officers Association (GFOA) recommended standards. The problem with this approach is that there is not one widely accepted industry standard and so the choice of a benchmark is arbitrary (Jacob and Hendrick, 2012).

¹⁶ Two municipalities may make different choices but be equally fiscally healthy. For example, one municipality might choose a high level of service and high taxation and another might choose a low level of service and lower taxation. The municipal financial condition will also be affected by decisions made by the federal and provincial governments. For example, federal stimulus spending will have an impact on financial condition as well as transfers from the provincial government. Federal and provincial standards for service delivery and other regulations will also affect the financial condition of a municipality.

¹⁷ The indicators included estimated population, government full-time equivalent employees, general fund revenues, general fund expenditures, five year growth rate, square miles, median household income, total revenues, total expenditures, median home value, Fortune 500 headquarters in city limits, bond rating, unemployment rate, education (percentage of people with a bachelor's degree or higher), property crime scores, hospital beds, union versus non-union workers, poverty, four-year college in city limits, median age, airport with daily service, form of government, top industry score, and geography (Nollenberger, Groves and Valente, 2003).

The fourth approach, which uses multiple indices, allows the analyst to develop scores on different factors that reflect the fiscal condition. One example of a scoring system provided by Kloha, Weissart, and Kleine (2005) is used in the State of Michigan. It follows four steps: (1) data on a specific variable (such as assessment growth) is collected; (2) a standard is set for each variable to distinguish between best and worst performance; (3) a local government receives a score of 0 if performance is “good” and 1 if it is “poor;” and (4) the scores are added up for each municipality. The more points a municipality receives, the worse it is doing. Of course, the problem with this method is that each variable is given equal weight even though some variables contribute more to the fiscal condition of municipalities than others.

2.2 Credit Ratings

Fiscal indicators are used by credit rating agencies to rate municipal governments for borrowing purposes. The ratings are important because they determine the amount of interest municipalities pay. A high bond rating, for example, will come with a lower interest rate and still be marketable. A low bond rating will require a higher interest rate to attract investors. Variables are selected that will determine the probability that a municipal government will be able to meet its debt repayment schedule. Credit ratings follow a fairly comprehensive approach, including both financial management and economic information.

Ratings range from AAA to BBB- and are based on an analysis of the main factors that relate to municipal finance: the economy, the issuer’s finances, debt, governance and management strategies, and the structural features of the bond (Weikart, 2012). Moody’s, for example, analyzes four key rating factors and assigns different weights to each: economic strength, financial strength, management and governance structure, and debt profile.

2.3 Fiscal Distress

Fiscal distress is defined as “an imbalance between the level of resources a unit of government has committed and potential available revenue” (Citizens Research Council of Michigan, 2000, p. 1). Fiscal distress can lead to fiscal crisis when the local government cannot pay its bills or provide existing levels of service and basic operations are jeopardized (Honadle, 2003). Other points of reference include whether the public’s needs are being met, whether residents can obtain a reasonable level of service at a reasonable level of sacrifice, and what the balance of commitments and resources looks like in terms of long term revenue and expenditure trends (Advisory Commission on Intergovernmental Relations, 1973; Bradbury, 1982; and Kloha, Weissert & Kleine, 2005).

One obvious way to measure fiscal distress would be to focus on deficits. One might simply measure the extent to which a municipality can cover public expenditures out of its current revenues, for example, by reducing its dependence on transfers or borrowing. A slightly more

complicated example would be to say that a local government is in crisis – and hence, presumably, unhealthy - when its potential to raise revenues is insufficient to cover the expenditures that it is legally required (usually by higher levels of government) to carry out (Inman 1995).

The signs of a fiscal crisis can be revealed in a series of indicators that include structural, economic, demographic, and institutional factors (Taylor, 2009). Some of the indicators might include, for example, erosion of the economic base, declining population, declining tax base, a decline in productivity, etc. Internal factors (such as management and political factors) can also affect whether a municipality will be in fiscal distress.

To determine fiscal stress, some studies have looked at how a local government performs on a series of factors. Michigan, for example collects data on ten different factors (e.g. population growth, real taxable valuation growth, general long term debt as a percentage of taxable value etc.). For each factor, a local government is given a score of 0 (not a problem) or a score of 1 (there is a problem). The scores are then added together for each local government. If the total score is between 1 and 4, the local government is fiscally neutral; if it is between 5 and 7, it is put on fiscal watch; and if it is between 8 and 10, it is considered to be in fiscal stress. Other studies simply rank each municipality on a series of indicators, add the rankings together and divide by the number of rankings. This method assumes that each variable is equally important and is given the same weight. The overall ranking of rankings determines which municipalities have poor fiscal health.

2.4 Equalization Transfers

To design equalization transfers, fiscal health reflects the balance between revenue-raising capacity and the amount a municipality must spend to provide public service of average quality (expenditure need). Horizontal fiscal imbalances occur when individual municipalities have different abilities to raise revenue and cover their costs. The objective of such an approach is to determine a municipality's underlying or structural ability to deliver public services to its residents independent of the budgetary decisions made by city officials.¹⁸

Revenue-raising capacity measures the impact of broad economic, social, and fiscal trends on the municipality's ability to raise revenue. Expenditure need is measured by the impact of the same trends on the amount the municipality must spend to provide public services of average quality. Once both the revenue-raising capacity and the expenditure need of a municipality are determined, it is possible to calculate the municipality's fiscal health or need-revenue gap. The

¹⁸ This approach is used by Ladd and Yinger (1989) to measure fiscal health. They compare actual fiscal health to a standardized measure of fiscal health.

gap is simply calculated as the difference between the expenditure need and the revenue-raising capacity.

An index can be created to reveal the net effect of a municipality's economic, social and demographic characteristics on its ability to deliver services. A positive fiscal health index, which implies that revenue-raising capacity is greater than expenditure need, indicates the percentage of its revenue a municipality would have left over for increases in service quality or for tax cuts after it had provided the baseline service quality at the standard tax burden. A negative fiscal health index indicates the percentage increase in revenue the municipality would have to receive from outside sources, such as other governments, to be able to provide the baseline service quality at the standard tax burden.

When looking at fiscal health in the context of designing a formula for an equalization transfer, only variables over which the municipality has no control (exogenous variables) such as tax base per capita are used. The use of exogenous variables means that the recipient municipalities are unable to use their expenditure or revenue policies to influence the amount of grant they receive.

3. Fiscal Health of Large Ontario Municipalities: Previous Measures

In recent years, two exercises were undertaken that have involved measuring fiscal health for Ontario municipalities: the Provincial-Municipal Fiscal and Service Delivery Review (PMFSDR) and the Ontario Municipal Partnership Fund (OMPF).

3.1 Provincial-Municipal Fiscal and Service Delivery Review (PMFSDR)

PMFSDR was an exercise to sort out the responsibilities between the provincial and municipal governments in Ontario in 2005. As part of this exercise, it provided a framework for evaluating the fiscal health of Ontario municipalities. Fiscal health was measured by 26 indicators that were divided into six categories: property tax, assessment base, municipal costs, demographics, economic, and financial (see Table 5). Individual factors were weighted and municipalities were given a composite fiscal health score from one to ten (best to worst).

Table 5: PMFSDR Indicators

Category	Indicator	Low value equals better relative fiscal health	Weight %
Property taxes	Total municipal residential property taxes compared to median household income	Yes	12.5
	Average commercial-industrial tax rate	Yes	4.17
Assessment base	Total raw assessment per household	No	1.67
	Weighted assessment compared to raw assessment	Yes	1.67
	Real compounded weighted assessment growth (2001-2007)	No	5.0
	Raw farmland and managed forest assessment as proportion of total raw assessment	Yes	1.67
	Raw commercial, industrial and pipeline assessment compared to total raw assessment	No	1.67
	% of raw assessment generated by top 20 assessed properties	Yes	5.0
	Municipal costs	Social service costs per household as % of total raw assessment, and median income (3 different indicators)	Yes
Emergency service costs per household as % of total raw assessment, and median income (3 different indicators)		Yes	2.78
Demographics	Youth population compared to working age population	Yes	4.17
	Senior population compared to working age population	Yes	4.17
	Change in population (2001-2006)	No	3.33
	Projected change in population (2006-2016)	No	0.83
	Rural small community measure	No	4.17
Economic	Average government transfer expenditure per household	Yes	4.17
	Low income population as % of total population	Yes	8.33
	2001 employment rate	No	4.17
Financial	Change in municipal position per household (2001-2006)	No	4.17

	Municipal position per household (2006)	No	5.83
	Average debt per household (2006)	Yes	3.33
	Average discretionary reserves per household (2006)	No	3.33

Considerable effort and detail went into the measure of fiscal health derived by PMFSDR. There were, nevertheless, some problems with these measures not least of which was that there were far too many indicators. Some of the variables could be combined into one variable. If weighted assessment (which is not actually one of the variables) were used as an indicator, for example, it would not be necessary to include additional indicators for percentage of farm assessment or percentage of commercial/industrial assessment. Presumably these two variables would already be reflected in weighted assessment. It is not clear why weighted assessment relative to unweighted discounted assessment was used rather than simply a measure of weighted assessment which is a better reflection of the actual tax capacity being used. Unweighted assessment underestimates the actual pressure on municipalities.

In terms of the purpose of fiscal health measures discussed earlier, it appears that PMFSDR was interested in indicators that would achieve most of them. Many of the PMFSDR indicators are endogenous in the sense that municipal policies can directly affect these measures. As noted earlier, although endogenous variables are appropriate for some measures of fiscal health, they are not appropriate to use in grant formulas because the municipality can influence the size of the grant by changing the value of the measure.

Some of the indicators are subject to interpretation. For example, low debt in a municipality is considered a measure of good fiscal health (good financial management) but it could also mean that the municipality is not investing sufficiently in infrastructure and will face a large infrastructure deficit in the future (see the discussion of capital assets below). Similarly, high debt costs could serve as a warning of poor fiscal health but, in a growing municipality with large infrastructure needs and an increasing tax base (for example, York Region), it might not be a problem.

There is no PMFSDR measure that reflects the state of the infrastructure. Indeed, a municipality can score high on fiscal health measures but be facing significant infrastructure challenges. The accumulated infrastructure backlog and ongoing replacement needs are not reliably measured on an individual municipal or regional basis and are thus not included in measures of fiscal health. At the moment, there is insufficient accurate data to develop meaningful fiscal health measures of infrastructure needs and backlogs for Ontario municipalities. Even if we could measure infrastructure deficits accurately, consistently, and comparably, there is still an issue of whether

future funding should reward municipalities that have not maintained their asset base or those who have.

The use of composite scores (aggregating data into one composite index) has been criticized by some authors. Hendrick (2004), for example, argues that the indicators of financial health should be looked at in isolation because, although related, the relationships are non-linear and indirect. Since we do not really know the relationships among the variables and we are unclear about which are the most important determinants of fiscal health, combining the indicators into one composite score may result in a less important indicator having too much influence. To get around this problem, PMFSDR applied weights to each indicator. Weighting each indicator has a significant impact on the measure of fiscal health and yet the weights were arbitrarily chosen. Why, for example, would the percentage of assessment generated by the top 20 properties be more important than the other assessment variables?

3.2 The Ontario Municipal Partnership (OMPF)

OMPF, which is the major unconditional transfer payment to municipalities, was first introduced in 2005. It largely comprised four separate grants that together were designed to support municipal expenditure needs and equalize municipal fiscal capacity. Although these grants were unconditional, the formulas were designed to provide grants to rural and northern communities, municipalities with relatively high social program costs, rural communities with policing costs, and municipalities with weak property tax assessment bases.¹⁹ The grants for social services and policing reflected the increased expenditure needs related to the downloading of these two services.

Some of the shortcomings with the original OMPF model were that it did not consider key cost drivers for municipal expenditures (for example road kilometres or the extent to which a municipality is rural). Seasonal populations were not taken into account. Lastly, it provided assistance to all Northern municipalities without distinguishing those that may not have been in need of a grant.

In 2013, the Province re-designed OMPF and reduced the transfer to reflect the ongoing uploading that was taking place as part of the PMFSDR. The 2013 funding was designed to ensure that municipalities receive a guaranteed level of support based on their 2012 allocation. Municipalities in the north receive at least 95 percent of the 2012 allocation and municipalities in other regions receive 90 percent of their 2012 allocation. These minimum funding levels are enhanced up to 100 percent for eligible municipalities with more challenging fiscal conditions.

¹⁹ An additional transitional assistance grant is designed to cushion significant fluctuations in the OMPF entitlement a municipality receives each year for those municipalities that meet the eligibility criteria.

To this end, the Province has designed a municipal fiscal circumstances index (MFCI) to determine which northern and rural municipalities face more challenging fiscal circumstances. Thus, the northern and rural MFCI measures a municipality's fiscal circumstances relative to other northern and rural municipalities in the province.

The indicators include primary indicators (weighted assessment per household and median household income) and secondary indicators (average annual change in assessment i.e. new construction, employment rate, ratio of working age to dependent population, and percent of population above low-income threshold). The MFCI is measured on a scale from 0 to 10; a lower index corresponds to relatively positive fiscal circumstances; a higher index corresponds to challenging fiscal circumstances. For municipalities with an MFCI of 9 or more, funding levels are maintained at 2012 levels. For 2013, the enhancement to municipal funding levels is based on the higher of (i) funding based on the northern and rural MFCI and (ii) the ratio of the 2012 OMPF compared to its own-source revenue.²⁰

Although the MFCI only provides information on the municipal fiscal condition of northern and rural municipalities in Ontario, it has some positive features.²¹ First, it includes a small number of variables over which municipalities have no direct control. Second, it captures their ability to make expenditures through variables such as weighted assessment and median income as well as their need to make expenditures through variables such as percentage of the population above the low-income threshold, dependency ratios, and employment rate. These measures do not, however, reflect the state of the infrastructure in these municipalities. As noted earlier, a municipality can score well on a fiscal health index that measures fiscal capacity and expenditure need but could face serious challenges now and in the future if its infrastructure is falling apart.

4. Descriptive Analysis of the Fiscal Health of Ontario Municipalities

As noted earlier, basic indicators related to levels of taxation, indebtedness, and transfer dependency have been defined by the Public Sector Accounting Board (PSAB) to describe three different but interrelated characteristics of the fiscal condition of governments: sustainability, flexibility and vulnerability.²² This section derives standard indicators of municipal fiscal health for the 30 largest municipalities in Ontario spanning the period from 2000 to 2011.²³ This data covers revenues (own- source revenues, transfers from the senior levels of government),

²⁰ More detailed information on the calculation of the MFCI can be found in the OMPF Technical Guide (<http://www.fin.gov.on.ca/en/budget/ompf/2013/techguide.pdf>).

²¹ Although municipalities in northern and rural municipalities likely have lower fiscal health, on average, than other municipalities in the province, not all northern and rural municipalities are poor and not all other municipalities are rich.

²² These were discussed in section 2 above.

²³ The introduction of full accrual accounting in 2009 required a restatement of operating revenues and expenditures to allow for reasonable comparisons over the time period. For example, in comparisons of operating revenues, government transfers reported from 2009 to 2011 have been adjusted to remove those dedicated to the acquisition of capital assets.

expenditures (operating and capital expenditures), borrowing (debt burden and debt charges), and the state of capital assets (net book value). From this data, standard indicators have been constructed reflecting measures suggested by PSAB as well as other commonly used measures of the municipal fiscal situation.

In order to compare the municipal financial information of single-tier municipalities with municipalities in two-tier regions, we added upper-tier information to lower-tier information for most of the expenditure and revenue data. As a result, the information in the following tables does not always reflect the actual expenditures and revenues in each lower-tier municipality but rather a constructed amount.²⁴ The data are measured in 2002 constant dollars.²⁵

4.1 Revenues

Own-source revenues as a percentage of total revenues

Table 6 provides information on own-source revenues (property taxes, user fees, and other revenues) as a percentage of total revenues from 2000 to 2011. The extent to which municipalities have a high proportion of revenues from own sources reduces its vulnerability to a change in transfers from other levels of government. The 30 municipalities in Ontario rely heavily on own-source revenues which account for about 80 percent of total operating revenues for the regions in the Greater Toronto Area (GTA), the City of Toronto, and most of the other cities in southern Ontario.²⁶ The exceptions are Chatham-Kent which averages only 67 percent through the time period, Niagara Region at 63 percent, Thunder Bay at 76 percent, and Sault Ste. Marie and Sudbury at 60 percent and 64 percent respectively.²⁷ Lower-tier municipalities generally raise over 90 percent of their operating revenues from their own sources. In general, the services provided by lower-tier municipalities in regions have not been cost-shared with the Province nor are they eligible for any significant transfers under the current OMPF formula. However, in 2010 and 2011, some municipalities took advantage of federal transfers for transportation with a consequent reduction in the percentage of own-source revenues (see Table 6 which also provides information on transfers).

The percentage of own-source to total revenues shows remarkable stability at the level of the individual municipality over the 12 years with the exception of the three northern municipalities where provincial unconditional transfers were reduced in 2010 and 2011.

²⁴ Our methodology is similar to Chernick and Reschovsky (2011) which did something similar for municipalities in counties in the U.S.

²⁵ Detailed information on the calculations used is available from the authors.

²⁶ The GTA includes the City of Toronto and municipalities in the Regions of Durham, Halton, Peel, and York.

²⁷ Lower than average own- source revenues are offset by higher transfer dependency as discussed below.

Transfers as percentage of total revenues

Transfers include Ontario unconditional and conditional transfer payments plus transfers from the federal government for operating services.²⁸ Transfer dependency increases the vulnerability of municipalities to a reduction in transfers that will have to be made up by an increase in taxes (or other own-source revenues) or a reduction in expenditures.

The largest 30 municipalities in Ontario do not rely heavily on transfers -- the average ratio of transfers to total revenues peaked at 13.3 percent in 2009 and then fell below 10 percent in 2011 for the entire sample. A closer examination of the municipal level data shows that transfers vary around 20 percent in the GTA regions at the upper-tier level and the City of Toronto. Some municipalities (such as Chatham-Kent, Niagara Region, Sault Ste Marie and Sudbury) have average ratios above 30 percent which suggests a greater level of transfer dependency. The higher transfer dependency in these municipalities reflects the relatively more significant impact of the provincial-local cost sharing of social services in these municipalities.²⁹ For upper tiers and single tier-cities, average transfers as a per cent of total revenues were 24 per cent in 2006 falling to 17.8 per cent in 2011.

The overall diminishing reliance on transfers from the Province in larger municipalities is the result of unconditional grants being appropriately targeted to those municipalities in greater need as well as reductions over time in conditional funding with provincial uploading of the funding of social services in recent years. Recent decreases in federal transfers for operating purposes (by \$70 million between 2010 and 2011) have reinforced the reduction in provincial transfers.

Taxes per capita

Property taxes per capita (in constant dollars) include taxes on residential and non-residential properties for municipal purposes.³⁰ Upper and lower-tier taxes have been summed to be able to make a comparison with single-tier cities (see Table 7). The sample mean of real taxes per capita peaked in 2004 at \$1,025 per capita and fell to \$968 in 2011.³¹ The coefficient of variation

²⁸ The measure excludes conditional grants for the acquisition of capital assets.

²⁹ Simcoe County provides social services in the City of Barrie resulting in a lower level of transfer revenues compared to other cities in this sample.

³⁰ For the purposes of this analysis, taxes for education purposes, while levied on property assessment, have been excluded in large part because they are levied by the provincial government. For an analysis of the interaction between municipal and education taxes, see Locke and Tassonyi (1993), Bird, Slack and Tassonyi (2012), and Tassonyi (2011). This analysis also ignores differences in residential and non-residential taxation for the sake of simplicity. The differences in the two forms of property tax are discussed at length in Bird, Slack and Tassonyi (2012).

³¹ Kitchen (2013, 18) notes the stability of property taxation and increased reliance on user fees in a study based on an aggregation of all Ontario municipalities.

across municipalities has fallen from above 12 percent in the early years of the panel to under 10 percent in 2011. Most of this convergence has taken place since 2005.³²

Table 6: Own-Source Revenues as a Percentage of Total Revenues

Municipality	Own-source Revenues				Transfers			
	% of Total Operating Revenues			Average	% of Total Operating Revenues			Average
	2000	2005	2011	2000-2011	2000	2005	2011	2000-2011
Single Tier Cities								
- Toronto	82.0	80.0	80.1	79.5	18.0	20.0	19.9	20.5
- Barrie	99.7	99.1	99.0	98.9	0.3	0.9	1.0	1.1
- Brantford	75.4	79.3	83.4	78.8	24.6	20.7	16.6	21.2
- Chatham-Kent	74.0	67.2	68.1	66.7	26.0	32.8	31.9	33.3
- Guelph	83.9	81.6	89.2	83.9	16.1	18.4	10.8	16.1
- Hamilton	83.8	78.1	80.9	77.9	16.2	21.9	19.1	22.1
- Kingston	76.8	78.7	84.1	79.5	23.2	21.3	15.9	20.5
- London	78.6	79.6	81.0	79.9	21.4	20.4	19.0	20.1
- Ottawa	82.1	83.1	86.5	83.5	17.9	16.9	13.5	16.5
- Windsor	88.4	82.3	78.8	81.3	11.6	17.7	21.2	18.7
- Greater Sudbury	64.7	57.5	74.3	60.4	35.3	42.5	25.7	39.6
- Sault Ste. Marie	72.5	56.9	88.2	64.2	27.5	43.1	11.8	35.8
- Thunder Bay	73.7	71.7	87.2	75.5	26.3	28.3	12.8	24.5
Two-Tier Regions								
Region of Durham								
- Oshawa	78.6	79.8	80.6	79.9	21.4	20.2	19.4	20.1
- Pickering	97.6	98.6	92.5	97.9	2.4	1.4	7.5	2.1
- Ajax	99.5	99.3	99.2	98.8	0.5	0.7	0.8	1.2
- Clarington	96.9	99.3	99.7	99.0	3.1	0.7	0.3	1.0
- Whitby	99.0	99.0	99.5	99.1	1.0	1.0	0.5	0.9
- Whitby	99.7	98.9	96.5	98.6	0.3	1.1	3.5	1.4
Region of Halton								
- Burlington	80.6	85.6	86.1	84.0	19.4	14.4	13.9	16.0
- Oakville	99.2	97.5	94.5	97.0	0.8	2.5	5.5	3.0
- Oakville	98.7	99.0	99.7	98.6	1.3	1.0	0.3	1.4
Region of Peel								
- Brampton	84.2	81.7	81.0	81.1	15.8	18.3	19.0	18.9
- Mississauga	99.5	99.8	99.9	99.7	0.5	0.2	0.1	0.3
- Mississauga	99.7	99.7	99.8	98.9	0.3	0.3	0.2	1.1
Region of York								
- Vaughan	84.8	85.1	83.1	84.3	15.2	14.9	16.9	15.7
- Markham	99.9	99.8	99.4	99.7	0.1	0.2	0.6	0.3
- Richmond Hill	99.7	99.3	99.6	99.3	0.3	0.7	0.4	0.7
- Richmond Hill	99.6	99.8	98.0	98.9	0.4	0.2	2.0	1.1
Region of Niagara								
- Niagara Falls	61.9	63.4	71.4	63.4	38.1	36.6	28.6	36.6
- Niagara Falls	97.8	94.9	98.1	95.3	2.2	5.1	1.9	4.7
- St. Catharines	98.4	94.0	98.4	97.1	1.6	6.0	1.6	2.9
Region of Waterloo								
- Cambridge	75.8	76.1	78.8	76.1	24.2	23.9	21.2	23.9
- Cambridge	98.1	98.9	99.0	97.8	1.9	1.1	1.0	2.2
- Kitchener	99.7	99.7	99.8	99.1	0.3	0.3	0.2	0.9
- Waterloo	99.6	99.2	99.6	98.2	0.4	0.8	0.4	1.8
Sample Average	88.4	87.3	89.9		11.6	12.7	10.1	

Source: Ontario Ministry of Municipal Affairs and Housing, Financial Information Returns

³² Measured on a per household basis, property taxes show an even greater degree of stability as the number of persons per household has increased in the high growth municipalities in York and Durham and remained stable elsewhere.

Generally, Toronto, Ottawa, and Kingston have the highest per capita taxes while Brantford and Mississauga are at the low end of the spectrum. In terms of variance through the time period at the municipal level, only York Region's municipalities have experienced a coefficient of variation above 11 percent. Toronto's taxation levels have varied very little over the period on a real per capita basis with an average coefficient of variation of only 1.2 percent.

4.2 Expenditures

Total operating expenditures per capita

Table 8 shows total municipal operating expenditures per capita (constant dollars).³³ Again, upper and lower-tier expenditures per capita have been summed to be able to make a comparison at the lower-tier level with single tier cities. In real terms, expenditures per capita ranged from a high of \$3,839 in Toronto in 2011 to a low of \$1,582 in Ajax with an average of \$2,209 per capita.

In general, the coefficient of variation for operating expenditures per capita for individual municipalities is nearly double the coefficient of variation for taxes per capita for the sample on an annual basis. It would seem that the most variable expenditures are those that are transfer-funded, especially social services.³⁴ The coefficient of variation increased from 15.3 percent in 2000 to a peak in 2007 at 24.7 percent. To 2011, there was some reduction in variation and convergence with this coefficient falling to 23 percent. The actual mean value has increased in real terms from \$1,921 in 2000 to \$2,209 in 2011.

The variation in expenditure is generally significantly larger than the variation in tax levels from year to year in individual municipalities. For example, the average coefficient of variation for Toronto on expenditures is 13 percent compared to 1 percent for taxes per capita or Thunder Bay with coefficients at 19 percent on expenditure and 7.6 percent on taxes per capita.

*Total capital expenditures per capita*³⁵

Again, upper and lower-tier capital expenditures per capita have been summed to be able to make a comparison at the lower-tier level with single-tier cities (see Table 8). The perceived

³³ The Financial Information Return consolidates various municipal boards and directly controlled utilities. For example, the Toronto Transit Commission and the public utility commissions providing water services at the lower-tier level in the Niagara Region are consolidated with municipal expenditures.

³⁴ Some of this variation reflects the impact of provincial initiatives to reverse the downloading of funding responsibilities that took place in 1998.

³⁵ From 2000-2008, capital expenditures were reported on an annual cash basis. For 2009-2011, the number used for comparative purposes represents "Additions and Betterments" to Tangible Capital Assets, as shown in schedule 51 of the Financial Information Return.

lumpy and unpredictable nature of capital expenditures is visible in the differences among municipalities in a given year as well as from year to year. For example, in Barrie, the municipalities in Waterloo Region, Brampton and Chatham-Kent, capital spending in 2011 on a per capita basis is nearly double their long-term average level. Thus, the coefficients of variation both for the sample on an annual basis as well as on the observations for individual municipalities are relatively high. For the sample, the coefficient of variation ranges between 41 percent and 67 percent on an annual basis. The mean capital expenditures per capita for the sample peak in 2011 are \$765 in real terms having increased from an average for the sample of \$511 in 2007. In 2000, the average per real per capita expenditure for capital was \$410.

Capital expenditures as percent of operating expenditures

The ratio of capital expenditures to operating expenditures is an indicator of the continuity of a municipality's approach to capital investment. While operating expenditures per capita exhibit stability, as noted above, there is considerable year-to-year variation in capital expenditures per capita. From 2000 to 2008, the average of the ratios of capital expenditures to operating expenditures for the sample varied between 25 and 30 percent (see Table 9). In 2010, this number increased to 32 percent and to over 40 percent in 2011, reflecting the increase in mean capital expenditures per capita in many of the smaller municipalities in the sample. It can also be noted that the ratios for Toronto and Durham for 2009 to 2011 are below the long-run average suggesting that the rate of re-investment in infrastructure has fallen.

In general, capital expenditures have increased in real terms relative to operating expenditures and on a per capita basis for several reasons. Federal and provincial cost-shared programs have motivated capital spending. Municipal capacity has also been enhanced to deliver capital programs. The uploading of social service funding has provided some fiscal flexibility. The low interest environment has also made debt financing more attractive.

Table 7: Revenues per Capita

Municipality	Revenues Per Capita				Constructed			
	Property Tax per Capita				Property Tax per Capita			
	2000	2005	2011	Avg (2000-2011)	2000	2005	2011	Avg (2000-2011)
Single Tier Cities								
- Toronto	1,185	1,206	1,192	1,200	1,185	1,206	1,192	1,200
- Barrie	905	788	875	864	905	788	875	864
- Brantford	782	883	931	904	782	883	931	904
- Chatham-Kent	698	812	894	810	698	812	894	810
- Guelph	932	921	1,059	995	932	921	1,059	995
- Hamilton	1,054	945	983	997	1,054	945	983	997
- Kingston	878	1,026	1,135	1,060	878	1,026	1,135	1,060
- London	853	953	972	950	853	953	972	950
- Ottawa	1,199	1,134	1,137	1,187	1,199	1,134	1,137	1,187
- Windsor	1,047	1,197	1,042	1,141	1,047	1,197	1,042	1,141
- Greater Sudbury	805	879	988	870	805	879	988	870
- Sault Ste. Marie	878	934	940	908	878	934	940	908
- Thunder Bay	877	1,105	1,034	992	877	1,105	1,034	992
Two-Tier Regions					Constructed Upper Tier + Lower Tier			
Region of Durham	560	556	615	594				
- Oshawa	417	501	529	501	977	1,057	1,144	1,060
- Pickering	357	383	404	389	917	939	1,019	948
- Ajax	364	346	311	353	924	902	925	913
- Clarington	422	326	352	373	982	882	966	933
- Whitby	382	340	370	377	942	896	984	936
Region of Halton	599	532	509	552				
- Burlington	407	437	514	455	1,006	969	1,023	1,007
- Oakville	466	489	565	504	1,065	1,021	1,074	1,056
Region of Peel	581	458	460	506				
- Brampton	381	360	402	396	962	818	862	901
- Mississauga	348	309	347	337	929	767	807	843
Region of York	670	562	559	609				
- Vaughan	495	348	361	399	1,165	910	920	1,008
- Markham	378	288	280	319	1,048	850	839	928
- Richmond Hill	414	281	305	329	1,084	843	865	943
Region of Niagara	499	552	509	528				
- Niagara Falls	433	693	575	568	932	1,245	1,084	1,097
- St. Catharines	393	417	456	428	892	969	965	956
Region of Waterloo	544	535	532	548				
- Cambridge	368	370	387	380	912	905	919	928
- Kitchener	341	337	314	340	885	872	846	889
- Waterloo	349	355	357	360	893	889	889	908
Sample Average		618.4	626.6	644.2	954	951	968	

Source: Ontario Ministry of Municipal Affairs and Housing, Financial Information Returns

Table 8: Operating and Capital Expenditures (Constructed Local Governments)

	Expenditures per Capita							
	Operating Expenditure Per Capita				Capital Expenditure Per Capita			
	2000	2005	2011	Avg (2000-2011)	2000	2005	2011	Avg (2000-2011)
Single Tier Cities	\$	\$	\$		\$	\$	\$	\$
- Toronto	2,665	3,196	3,839	3,175	447	486	453	490
- Barrie	1,539	1,268	1,978	1,496	562	660	2,056	754
- Brantford	1,977	2,104	1,817	2,131	465	374	975	451
- Chatham-Kent	1,762	2,013	2,233	2,005	270	437	576	425
- Guelph	1,719	1,916	2,300	2,023	568	386	1,018	485
- Hamilton	2,135	1,994	2,395	2,137	285	452	576	398
- Kingston	1,934	2,080	2,565	2,244	200	757	628	611
- London	1,660	1,857	2,136	1,869	355	319	810	499
- Ottawa	2,341	2,138	2,689	2,367	430	512	602	545
- Windsor	2,505	2,901	2,741	2,754	532	614	360	510
- Greater Sudbury	2,681	2,612	2,352	2,535	310	436	582	445
- Sault Ste. Marie	2,092	2,620	1,957	2,423	258	616	432	425
- Thunder Bay	2,115	2,709	3,458	2,811	381	447	901	593
Two-Tier Regions								
Region of Durham								
- Oshawa	1,696	1,792	1,951	1,778	244	591	396	369
- Pickering	1,634	1,684	1,644	1,660	302	266	253	260
- Ajax	1,643	1,659	1,582	1,647	312	450	446	427
- Clarington	1,715	1,604	1,689	1,681	286	335	361	401
- Whitby	1,707	1,643	1,631	1,694	280	320	346	373
Region of Halton								
- Burlington	1,700	1,751	1,927	1,855	658	475	842	592
- Oakville	1,808	1,850	2,329	1,945	834	506	893	685
Region of Peel								
- Brampton	1,597	1,544	1,823	1,735	262	707	1,103	632
- Mississauga	1,593	1,410	1,884	1,618	340	575	975	547
Region of York								
- Vaughan	2,228	1,873	2,162	2,069	668	834	844	779
- Markham	1,895	1,614	2,011	1,788	458	859	612	640
- Richmond Hill	2,076	1,644	1,918	1,870	546	704	383	560
Region of Niagara								
- Niagara Falls	2,390	2,893	2,665	2,650	269	553	1,323	624
- St. Catharines	2,080	2,287	2,337	2,263	284	441	568	432
Region of Waterloo								
- Cambridge	1,806	1,990	1,986	1,860	454	349	1,024	572
- Kitchener	1,887	2,192	2,180	2,089	405	450	1,168	685
- Waterloo	1,824	1,738	2,086	1,880	660	402	1,445	795
Sample Average	1,947	2,019	2,209		411	523	765	

Source: Ontario Ministry of Municipal Affairs and Housing, Financial Information Returns

Table 9: Ratio of Capital to Operating Expenditures

Ratio of Capital Expenditures to Operating Expenditures (%)					
Municipality	2000	2005	2011	2000-2011	
Single Tier Cities					
- Toronto	16.8	15.2	11.8	15.6	
- Barrie	36.5	18.9	104.0	48.5	
- Brantford	23.5	19.5	53.7	21.5	
- Chatham-Kent	15.3	24.7	25.8	21.0	
- Guelph	33.1	19.5	44.3	23.9	
- Hamilton	13.4	25.6	24.1	18.6	
- Kingston	10.4	29.1	24.5	26.8	
- London	21.4	27.1	37.9	26.7	
- Ottawa	18.4	26.3	22.4	22.9	
- Windsor	21.2	24.1	13.1	18.3	
- Greater Sudbury	11.6	13.0	24.8	17.6	
- Sault Ste. Marie	12.3	33.5	22.1	17.5	
- Thunder Bay	18.0	28.7	26.0	21.2	
Two-Tier Regions					
Region of Durham	14.1	27.0	10.4	18.5	
- Oshawa	14.9	61.5	27.9	31.1	
- Pickering	27.0	18.9	17.8	18.7	
- Ajax	28.4	51.4	58.3	49.3	
- Clarington	21.0	34.9	34.3	41.7	
- Whitby	20.4	29.8	35.1	35.6	
Region of Halton	43.5	23.3	32.1	31.7	
- Burlington	30.5	32.5	64.0	32.7	
- Oakville	50.0	32.4	45.3	40.1	
Region of Peel	16.3	46.3	61.3	34.9	
- Brampton	16.5	45.3	59.5	41.1	
- Mississauga	28.6	32.7	40.7	31.9	
Region of York	23.2	58.4	14.7	35.8	
- Vaughan	35.8	29.7	71.1	41.1	
- Markham	25.4	45.5	55.2	36.3	
- Richmond Hill	29.4	20.7	33.5	32.2	
Region of Niagara	11.5	16.5	22.6	15.6	
- Niagara Falls	10.9	21.7	82.5	33.0	
- St. Catharines	17.6	24.1	27.2	25.5	
Region of Waterloo	60.4	26.9	60.0	43.7	
- Cambridge	34.6	14.7	38.5	23.7	
- Kitchener	25.5	20.6	45.7	29.5	
- Waterloo	60.4	26.9	82.0	50.3	
Sample Average	24.9	29.1	40.3		

4.3 Debt Indicators³⁶

Total debt burden per capita

Total debt burden per capita measures the extent to which municipalities have the flexibility to meet expenditure requirements in the future. From 2000 to 2007, the average real total debt burden per capita for the whole sample nearly doubled from approximately \$243 to \$408 per capita (see Table 10). During the next few years, the mean debt burden fell but reached a new peak at \$428 per capita in 2011. Borrowing increased substantially in Barrie, Toronto, York and Peel Regions, and in the City of Ottawa. It should be noted that many of the lower-tier municipalities in the GTA, including Mississauga and Brampton (Peel), Whitby (Durham), Richmond Hill and Markham (York) have pursued pay-as-you go policies and have eschewed debt financing thus shifting the costs of capital directly on to the owners of new development.³⁷ By contrast, the City of Oshawa has \$74 million in outstanding debt issued to finance capital for recreation. A low interest rate environment and cost-sharing infrastructure investment programs to accommodate growth have motivated a shift away from pay-as-you go financing.

In relative terms, York Region, Toronto, Niagara Falls, Barrie, Chatham-Kent, Kingston, Ottawa and Thunder Bay currently have debt burdens above \$1,000 per capita. Other than Barrie, these municipalities have generally been relatively more indebted than the rest of the sample.

Over the period from 2000 to 2011, Thunder Bay had the highest average per capita debt at \$1,173, which peaked in 2005 at \$1,879 per capita. Greater Sudbury had the lowest average per capita debt at \$191 while the municipalities that currently have the highest debt burdens had debt per capita varying from \$800 to just under \$1,000 per capita in real terms. While the debt per capita measure is indicative of the size of the burden faced by a municipality, it says nothing about the ability to repay the debt.

Debt charges per capita

Debt charges consist of the principal and interest payments made annually to service debt. These expenditures must be made to avoid putting a borrowing entity into default. The trend in real debt charges per capita follows that of debt burden per capita (see Table 10). Toronto currently has the highest debt charges per capita at \$233 although reduced from 2010 levels at \$426. Debt

³⁶ The implications of debt financing will likely be different for growth-related capital spending than for non-growth-related spending because growth-related capital debt can be funded through development charges whereas non-growth-related capital debt (for life cycle asset management and replacement) has to be funded through taxes and user fees.

³⁷ These municipalities have been highly reliant on development charges to finance their long-term capital needs. However, it is likely that the social cost of financing infrastructure is higher as individuals finance the payment of development charges through relatively expensive mortgage financing rather than applying the interest costs on municipal borrowing.

charges vary, however, on an annual basis depending on whether a balloon payment is reflected in the annual numbers. Overall, Toronto has had an average annual debt charge per capita level at \$185, which is the largest in the sample. Until 2008, Thunder Bay had a comparable level of debt charges per capita to Toronto. Elsewhere, York Region, Chatham-Kent, London, Guelph and Ottawa also had relatively higher levels above \$100 per capita during the period. Up until 2006, Windsor's debt charge levels were also relatively large. In 2011, the average for the sample was \$68 which represented an increase from nearly \$50 in real terms since 2000.

Debt charges as a percentage of operating expenditures

Municipal reluctance to borrow is seemingly related to the reduction in budgetary flexibility with mandatory repayment of debt. Thus, a comparison of debt charges relative to expenditures gives an indication of the extent to which municipalities have flexibility to make expenditures. From the individual municipal perspective, Toronto is the outlier with debt charges averaging nearly 7 per cent of operating expenditures over the period, having increased from 5.6 percent in 2005 to 16 percent in 2010 and falling back to 8.7 per cent in 2011 (see Table 11). Other municipalities such as York Region, Chatham-Kent, Hamilton, Kingston, London, Ottawa and Thunder Bay have averages for the period of between 4 and 5 per cent reflecting generally lower levels of indebtedness to 2006. In 2011, debt charges in London reached 9.1 per cent of operating expenditures but its debt charges varied around 5 per cent through most of the period. The current level of expenditures on debt service is thus about the same as the City spends on recreation and culture and about half the amount spent on police and fire services.

Debt charges as a percentage of own-source revenues

Ontario uses an ex-ante regulatory system to control municipal borrowing. A provincial regulation sets 25 per cent as the limit that debt charges can be as a percentage of own-source revenue without provincial permission. Because the actual calculation of the limit requires taking current carrying costs as well as future commitments beyond the term of council into account, there is a measure of forward-looking imposed on municipal debt management. This limit is applied to single-tier, upper-tier, and lower-tier municipalities as being the relevant units responsible for the repayment of debt.³⁸ Given the generally conservative behaviour of Ontario municipalities, it is not surprising that the mean of the sample has generally been under 5 per cent throughout the period (see Table 11). However, York Region reached 17 per cent in 2008, Toronto, 14.4 per cent in 2010, and London is currently at 14.1 per cent.³⁹ While the 25 per cent

³⁸ See Ontario Regulation 403/02 under the Municipal Act 2001 at www.e-laws.gov.on.ca. The exception is the City of Toronto which does not face provincial borrowing restrictions.

³⁹ Under the Municipal Act, debt charges cannot exceed 25 percent of own-source revenues (property taxes, user fees, and other own-source revenues) for municipalities in Ontario. As noted above, the exception is the City of Toronto which is governed by the City of Toronto Act and which has no provincially-imposed borrowing limits.

number is somewhat arbitrary, the gap between this benchmark and the municipal level data suggests that borrowing capacity does exist in most municipalities (at least from the regulatory perspective).

Table 10: Debt Burden and Debt Charges

Municipality	Debt per Capita							
	Debt per capita				Debt charges per capita			
	2000	2005	2011	Avg (2000-2011)	2000	2005	2011	Avg (2000-2011)
Single Tier Cities	\$	\$	\$	\$	\$	\$	\$	\$
- Toronto	500	804	1,416	978	115	149	233	185
- Barrie	134	134	1,031	239	36	26	87	31
- Brantford	290	290	294	218	49	18	35	39
- Chatham-Kent	1,468	1,468	1,152	909	49	128	164	103
- Guelph	735	735	794	789	132	129	90	121
- Hamilton	576	576	492	530	84	63	92	78
- Kingston	591	591	1,346	849	86	97	125	112
- London	1,100	1,100	868	840	72	137	243	129
- Ottawa	892	892	1,228	876	54	129	132	124
- Windsor	738	738	537	747	163	187	65	117
- Greater Sudbury	319	319	230	191	17	28	21	23
- Sault Ste. Marie	382	382	178	332	50	70	36	58
- Thunder Bay	1,879	1,879	1,248	1,173	42	140	174	144
Two-Tier Regions								
Region of Durham	206	345	197	253	21	36	31	33
- Oshawa	107	543	443	413	22	35	53	39
- Pickering	12	137	166	133	9	26	25	23
- Ajax	151	95	85	126	14	23	14	20
- Clarington	48	232	215	259	27	29	60	35
- Whitby	222	120	0	128	118	17	0	29
Region of Halton	114	266	416	312	43	51	68	55
- Burlington	167	208	312	237	43	35	52	40
- Oakville	102	146	300	165	25	30	37	29
Region of Peel	545	322	626	400	0	18	42	22
- Brampton	27	166	0	17	34	0	0	6
- Mississauga	1	0	0	0	0	0	0	0
Region of York	411	815	1,444	865	60	90	122	100
- Vaughan	47	103	174	117	56	2	26	20
- Markham	13	0	29	7	14	2	0	2
- Richmond Hill	66	0	0	7	2	0	0	2
Region of Niagara	239	378	492	368	65	63	82	69
- Niagara Falls	55	152	718	259	30	25	77	36
- St. Catharines	125	327	394	317	39	54	70	53
Region of Waterloo	210	234	314	252	66	35	57	44
- Cambridge	42	4	122	26	17	5	8	6
- Kitchener	115	186	335	206	21	24	37	28
- Waterloo	865	634	450	658	82	70	81	66
Sample Average	244	426	501		49	55	68	

Source: Ontario Ministry of Municipal Affairs and Housing, Financial Information Returns

Toronto, however, has set its own borrowing limit: debt charges cannot exceed 15 percent of the property tax levy. In the last few years, debt charges have been less than 12 percent of the property tax levy.

Table 11: Debt Charges

	Debt service/own-source revenue (%)				Debt charges/operating expenditures (%)			
	2000	2005	2011	Avg (2000-2011)	2000	2005	2011	Avg (2000-2011)
Single Tier Cities								
- Toronto	5.6	6.5	7.7	7.6	4.3	5.6	8.7	6.9
- Barrie	1.0	2.2	5.3	2.0	1.3	1.0	3.3	1.2
- Brantford	3.3	1.1	1.9	2.3	1.8	0.7	1.3	1.5
- Chatham-Kent	3.2	10.4	10.7	7.8	1.8	4.8	6.2	3.9
- Guelph	9.1	8.5	4.3	7.5	4.9	4.8	3.4	4.6
- Hamilton	3.9	4.2	4.8	4.8	3.2	2.4	3.4	2.9
- Kingston	5.9	6.3	5.8	6.3	3.2	3.6	4.7	4.2
- London	5.6	9.4	14.1	8.4	2.7	5.1	9.1	4.8
- Ottawa	3.0	7.6	5.9	6.5	2.0	4.8	4.9	4.7
- Windsor	5.3	8.5	3.1	5.2	6.1	7.0	2.4	4.4
- Greater Sudbury	1.0	1.9	1.2	1.5	0.7	1.0	0.8	0.9
- Sault Ste. Marie	2.4	4.8	2.1	3.9	1.9	2.6	1.3	2.2
- Thunder Bay	2.8	7.3	5.6	6.7	1.6	5.3	6.5	5.4
Two-Tier Regions								
Region of Durham	2.6	4.3	2.8	3.5	0.8	1.4	1.2	1.2
- Oshawa	3.9	5.0	7.3	5.7	0.8	1.3	2.0	1.5
- Pickering	1.7	4.7	4.1	4.1	0.3	1.0	0.9	0.9
- Ajax	2.6	4.2	1.9	3.2	0.5	0.9	0.5	0.7
- Clarington	5.0	6.1	8.9	6.4	1.0	1.1	2.2	1.3
- Whitby	19.2	3.3	0.0	4.7	4.4	0.7	0.0	1.1
Region of Halton	5.1	6.2	5.9	6.0	1.6	1.9	2.6	2.1
- Burlington	7.4	5.2	5.9	5.4	1.6	1.3	2.0	1.5
- Oakville	3.7	4.1	3.0	3.5	0.9	1.1	1.4	1.1
Region of Peel	0.0	2.6	4.8	2.7	0.0	0.7	1.6	0.8
- Brampton	5.3	0.0	0.0	0.8	1.3	0.0	0.0	0.2
- Mississauga	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Region of York	7.3	11.8	11.8	11.5	2.3	3.4	4.6	3.8
- Vaughan	5.0	0.3	2.4	2.1	2.1	0.1	1.0	0.8
- Markham	0.8	0.3	0.0	0.2	0.5	0.1	0.0	0.1
- Richmond Hill	0.2	0.0	0.0	0.2	0.1	0.0	0.0	0.1
Region of Niagara	8.1	7.0	8.2	7.5	2.4	2.4	3.1	2.6
- Niagara Falls	3.1	1.9	6.4	3.3	1.1	0.9	2.9	1.3
- St. Catharines	3.0	8.2	8.0	7.1	1.5	2.0	2.6	2.0
Region of Waterloo	8.7	4.7	6.1	5.4	2.5	1.3	2.1	1.6
- Cambridge	2.5	0.5	0.8	0.8	0.6	0.2	0.3	0.2
- Kitchener	1.3	2.2	3.0	2.6	0.8	0.9	1.4	1.0
- Waterloo	5.4	9.8	8.5	7.9	3.1	2.6	3.1	2.5
Sample Average	4.3	4.7	4.8		1.8	2.1	2.5	

Source: Ontario Ministry of Municipal Affairs and Housing, Financial Information Returns

4.4 Fiscal Indicators

Debt to tax ratio

The debt to tax ratio is a standard measure of a government's fiscal sustainability. Since 2000, the mean value of this measure has crept up from 41 percent to 50 per cent by 2007 and fell back to 44 to 47 percent in 2008 to 2010 and then increased to 54 percent in 2011 (see Table 12). However, some municipalities have exceeded a two-to-one ratio at various points in the period under scrutiny including York Region in 2011 at 2.58 and Waterloo from 2000 to 2004.⁴⁰ The ratio has been calculated separately by municipality (upper and lower tiers) to reflect the appropriate decision-making unit as well as the unit with the primary responsibility to service the debt.

Taxes receivable as a per cent of current taxes levied

Municipal taxes in Ontario are collected by single-tier and lower-tier municipalities. Municipalities report current taxes in arrears as well as those of prior years plus penalties and interest. Taxes deemed to be uncollectible are also reported and have been netted from the receivables for the purpose of calculating this indicator. Total current taxes levied (without adjustments) for all purposes including school and upper tier levies, where appropriate, forms the denominator of this standard measure. The tax collecting municipality can legally charge back uncollected taxes against its obligations to the other levying bodies. Increasing levels of taxes in arrears are indicative of cash-flow problems for both a municipality as well as its ratepayers. This measure may also reveal a weakened assessment base.

In 2000, the average taxes receivable as a percent of taxes levied for the sample stood at 7.8 percent, suggesting a relatively high level of taxes in arrears (see Table 13). This measure fell to 5.3 percent in 2006 and increased to 6.6 percent in 2009 and was at 5.8 percent in 2011. However, several municipalities have reported ratios close to 8.5 percent and over 10 percent, including Windsor, Pickering, Niagara Falls, Cambridge, and Guelph. While some of these municipalities also have a lower fiscal capacity rating, a higher proportion of low-income ratepayers, or businesses suffering cash flow pressures (such as Windsor and Niagara Falls), other municipalities may simply be less aggressive at pursuing current and prior years' arrears.⁴¹

⁴⁰ These ratios are very low from a historical perspective. See Tassonyi (2012, 204) . During the 1920s and 1930s, this ratio was above 4:1.

⁴¹ By comparison, in the recession of 1990-1992 the provincial average of this measure rose from 6.2 percent to 9.8 percent having been below 5 percent during the previous five years. See Tassonyi (1994, 22).

Table 12: Debt to Tax Ratio

Municipality	Debt to Tax Ratio			
	2000	2005	2011	Avg (2000-2011)
Single Tier Cities				
- Toronto	0.42	0.67	1.19	0.81
- Barrie	0.11	0.17	1.18	0.28
- Brantford	0.31	0.33	0.32	0.24
- Chatham-Kent	0.23	1.81	1.29	1.09
- Guelph	0.71	0.80	0.75	0.80
- Hamilton	0.29	0.61	0.50	0.53
- Kingston	0.54	0.58	1.19	0.79
- London	0.48	1.15	0.89	0.88
- Ottawa	0.43	0.79	1.08	0.74
- Windsor	0.66	0.62	0.52	0.65
- Greater Sudbury	0.10	0.36	0.23	0.22
- Sault Ste. Marie	0.39	0.41	0.19	0.37
- Thunder Bay	0.44	1.70	1.21	1.15
Two-Tier Regions				
Region of Durham	0.37	0.62	0.32	0.43
- Oshawa	0.26	1.08	0.84	0.81
- Pickering	0.03	0.36	0.41	0.34
- Ajax	0.41	0.27	0.27	0.36
- Clarington	0.11	0.71	0.61	0.73
- Whitby	0.58	0.35	0.00	0.34
Region of Halton	0.19	0.50	0.82	0.57
- Burlington	0.41	0.48	0.61	0.51
- Oakville	0.22	0.30	0.53	0.32
Region of Peel	0.94	0.70	1.36	0.78
- Brampton	0.07	0.46	0.00	0.05
- Mississauga	0.00	0.00	0.00	0.00
Region of York	0.61	1.45	2.58	1.46
- Vaughan	0.09	0.30	0.48	0.32
- Markham	0.04	0.00	0.10	0.02
- Richmond Hill	0.16	0.00	0.00	0.02
Region of Niagara	0.48	0.69	0.97	0.70
- Niagara Falls	0.13	0.22	1.25	0.45
- St. Catharines	0.32	0.78	0.86	0.73
Region of Waterloo	0.39	0.44	0.59	0.46
- Cambridge	0.11	0.01	0.31	0.07
- Kitchener	0.34	0.55	1.07	0.61
- Waterloo	2.48	1.79	1.26	1.82
Sample Average	0.39	0.61	0.72	

4.5 State of Capital Assets

A municipality can appear to have good fiscal health, based on its expenditures, revenues, and debt profile. Yet, if its infrastructure is in need of major repair, its fiscal health may not be as strong as its profile might suggest. For this reason, Table 14 looks at the state of the infrastructure by comparing the net book value of capital assets as a percent of the cost of the capital assets for the 36 largest municipalities (upper and lower tier) in 2011.⁴² Comparing the book value of assets (defined as the current value less depreciation) to the original cost provides information on the extent to which municipalities have been investing in capital assets. To preserve the value of capital assets, municipalities would have to invest at least the same amount of money as is represented by the amount of depreciation (Eastern Ontario Wardens` Caucus 2012). In 2011, the 36 municipalities as a whole (upper and lower tiers) held assets which were valued at \$134.9 billion. After accumulated depreciation, these assets are now estimated to be worth \$92.8 billion (book value). The result is that municipal assets have lost \$42.1 billion in value since acquisition. This \$42.1 billion can be considered to be the minimum level of infrastructure deficit for all types of municipal infrastructure for these 36 municipalities. The cost to replace these assets would actually be much higher than the original cost because of price increases for the same asset over the last decade. Inflationary increases for municipal goods and services are generally higher than the consumer price index.

As can be seen in Table 14, municipal capital assets were worth 68.8 percent of their original cost. A ratio of less than 100 percent means the investment has not kept pace with depreciation and the assets are losing value. There is significant variability among the municipalities, however.⁴³ For example, the Town of Vaughan has preserved 90 percent of the value of its capital assets and Mississauga has preserved 84.5 percent. At the other extreme, Thunder Bay has only preserved 47.8 percent of its capital assets.

⁴² This information is only available for the years since 2009 when PSAB rules resulted in a change in municipal reporting.

⁴³ It is anticipated that this ratio would be higher in rapidly growing municipalities but there is no evidence that growing municipalities are doing any better than the others in maintaining their capital assets.

Table 13: Tax Arrears

Constructed Municipalities	Total Taxes Receivable/Current Taxes Levied (%)			
	2000	2005	2011	2000-2011
Single Tier Cities				
- Toronto	3.24	5.08	4.31	4.45
- Barrie	8.39	5.08	7.04	7.17
- Brantford	8.49	3.95	5.63	5.00
- Chatham-Kent	7.48	6.01	7.10	6.49
- Guelph	5.18	2.04	3.40	2.89
- Hamilton	13.67	7.97	8.49	9.42
- Kingston	8.33	4.44	4.65	5.41
- London	2.09	2.15	2.31	2.64
- Ottawa	4.31	3.72	3.73	3.66
- Windsor	9.35	7.48	10.85	8.96
- Greater Sudbury	5.15	4.79	2.55	4.99
- Sault Ste. Marie	8.57	5.03	4.14	7.24
- Thunder Bay	4.89	9.37	4.00	6.14
Two-Tier Regions				
Region of Durham				
- Oshawa	5.54	2.35	2.93	3.55
- Pickering	8.42	7.05	9.61	8.03
- Ajax	6.68	3.98	5.75	5.14
- Clarington	14.50	7.35	7.87	9.33
- Whitby	9.54	5.84	5.48	6.68
Region of Halton				
- Burlington	5.13	3.34	3.93	3.86
- Oakville	7.95	5.02	4.77	5.76
Region of Peel				
- Brampton	14.87	9.26	7.20	8.84
- Mississauga	10.29	4.66	3.67	6.31
Region of York				
- Vaughan	9.04	6.65	6.35	7.35
- Markham	7.93	7.97	5.83	7.08
- Richmond Hill	9.48	7.55	7.10	8.34
Region of Niagara				
- Niagara Falls	10.03	9.33	9.89	10.40
- St. Catharines	7.44	4.53	5.77	5.79
Region of Waterloo				
- Cambridge	6.07	4.50	8.52	6.00
- Kitchener	8.98	6.52	6.60	6.94
- Waterloo	3.51	2.25	5.97	3.84
Sample Average	7.82	5.51	5.85	

Table 14: Net book value of capital assets, 2011

Municipality	Value of capital assets at cost (\$ millions)	Book value (\$ millions)	Net book value as % of capital cost
Single-Tier Cities			
- Toronto	30,272	17,728	58.6
- Barrie	2,039	1,597	78.3
- Brantford	1,116	673	57.7
- Chatham-Kent	1,371	796	58.1
- Guelph	1,450	858	59.2
- Hamilton	6,406	4,104	64.1
- Kingston	1,758	1,143	65.0
- London	4,468	3,022	67.6
- Ottawa	14,003	10,350	73.9
- Windsor	2,725	1,683	61.8
- Greater Sudbury	2,439	1,306	53.5
- Sault Ste. Marie	633	402	63.6
- Thunder Bay	1,964	938	47.8
Two-Tier Regions			
Region of Durham	4,303	3,043	70.7
- Oshawa	870	559	64.3
- Pickering	367	186	50.5
- Ajax	562	412	73.4
- Clarington	588	383	65.1
- Whitby	893	609	68.2
Region of Halton	4,004	3,054	76.3
- Burlington	1,036	708	68.4
- Oakville	1,890	1,329	70.3
Region of Peel	10,415	7,857	75.4
- Brampton	3,849	2,878	74.8
- Mississauga	8,779	7,417	84.5
Region of York	4,825	3,336	69.1
- Vaughan	7,556	6,804	90.0
- Markham	3,890	3,211	82.5
- Richmond Hill	1,017	633	62.3
Region of Niagara	2,125	1,257	59.1
- Niagara Falls	923	604	65.4
- St. Catharines	867	513	59.2
Region of Waterloo	2,630	1,527	58.0
- Cambridge	618	382	61.8
- Kitchener	1,223	817	66.8
- Waterloo	980	660	67.4
All 36 upper and lower tiers	134,903	92,777	68.8

Source: Ministry of Municipal Affairs and Housing, Municipal Financial Information Returns

4.6 Summary Comments on Fiscal Indicators

This review of the fiscal health of the 30 largest Ontario municipalities shows that single tiers, upper tiers, and lower tiers manage their fiscal affairs rather conservatively. Over the past 12 years, these municipalities have consistently relied heavily on own-source revenues and, with few exceptions, have not been particularly transfer-dependent. Reliance on own-source revenues has made them less vulnerable to changes in transfers.

The fiscal indicators on taxation for these cities show that:

- Notwithstanding the negative reputation of the property tax and the recent recession, property taxation provides a reasonably solid base for funding municipal services.⁴⁴
- Current levels of debt service are being easily met, even by older and northern municipalities with some weakness in their tax capacity.
- Tax effort measured in terms of both per capita and per household shows remarkable stability over the 12-year period with low variation for the sample as a whole and even lower variation over time at the individual municipality level.⁴⁵

On a more disquieting note, property taxes in arrears continue to be high in many of the older communities such as Windsor, Hamilton, and Niagara Falls, for example, and somewhat surprisingly, in some of the GTA municipalities such as Pickering and Brampton. It is likely that this indicator reflects weakness in the industrial sector. Furthermore, the municipalities that have experienced adversity in tax collections are also among those showing weaker fiscal capacity in the fiscal gap analysis in the next section of this paper.

With respect to spending and financing of infrastructure, the indicators suggest that:

- Large Ontario municipalities under-spent on capital infrastructure up until 2006.
- The infusion of federal and provincial gas tax funding and anti-recessionary stimulus funding has resulted in some municipalities expanding their infrastructure investment.
- The capacity to invest has been reinforced by the low interest rate environment for borrowing.
- Municipalities in the GTA (except for the City of Toronto) have lower taxes per capita, less dependence on operating grants, lower operating expenditures per capita, and lower

⁴⁴ Estimates of the position on the “revenue hill” for some of the municipalities were calculated in Bird, Slack and Tassonyi (2012) and suggest that there is room to increase property taxes in most GTA municipalities. It has been suggested that the level of water rates and other user fees should also be considered in future work on fiscal health and relative property tax burdens.

⁴⁵ Whether tax competition is constraining municipal decisions or whether tax mimicking is taking place is an empirical question that has been explored elsewhere. See Bird, Slack and Tassonyi (2012).

debt to tax ratios than the municipalities in the north and the older municipalities in the province. Thus, more capacity exists in the GTA to invest in capital.⁴⁶

In terms of debt burden and extent to which municipalities will be able to meet future expenditure requirements, the fiscal indicators suggest the following:

- The risk of municipal over-borrowing is limited as Ontario imposes “ex-ante” borrowing rules to govern the levels of municipal indebtedness. If municipalities default, the Province can impose a supervisory regime to the benefit of creditors. Furthermore, markets also impose constraints on those with perceived weaker fiscal capacity.
- Municipalities have been conservative in their willingness to borrow over most of the period. However, the pressures of growth in York and Barrie for example or dated infrastructure in more rural and older communities such as Chatham-Kent (rural) and London, Ottawa, Kingston and St. Catharines (older) combined with favourable borrowing conditions is evident in the data.

It is difficult, however, and perhaps dangerous to make simple generalizations and judgements on whether one should worry about the fiscal health of these 30 municipalities. Nevertheless it appears that, in several older municipalities, there is room for concern over the relative weakness in tax capacity as shown by the level of tax arrears combined with relatively larger levels of debt. This concern is heightened where there is stress from a local demand for increased social services and a relatively larger ratio of dependence in the population.

Finally, the fiscal indicators relied on in this study to evaluate the fiscal health of the largest municipalities in Ontario all look at past information. There are potential future risks, however, that need to be taken into account to understand the future fiscal health of these municipalities. Future infrastructure liabilities (for transit, housing, and other infrastructure), for example, are critical but not measured in most fiscal health indicators. The decline in the working age population throughout most of the province will mean incomes will be less robust over time. In the shorter term, the impact of the upload of social services to the provincial level will have a positive impact on municipal fiscal health. And, there are a number of unknowns going forward – will federal and provincial cost-shared capital programs continue? Will the industrial base recover from the aftermath of the financial crisis in 2008? Will funding transit in the Greater Toronto and Hamilton region through new revenue tools impact municipal tax room? The municipal fiscal health of Ontario municipalities in the future will be affected by all of these considerations.

⁴⁶ The ability to manage lower tax levels combined with capital expenditures likely reflects access to development charge revenues and relatively larger capital reserve funds which are not addressed in this study.

5. Preliminary Estimates of the Fiscal Gap for Thirty Ontario Municipalities

Another way to analyze the fiscal health of municipalities is to estimate the gap between expenditure need and revenue-raising capacity (the “need-capacity gap”). As a first step towards quantifying the fiscal gap for the 30 largest municipalities in Ontario, we follow the method originated by Ladd and Yinger (1989) and more recently applied by Chernick and Reschovsky (2006) to provide a rough approximation of relative fiscal condition. To do this, we generate a measure of expenditure need and derive a measure of each municipality’s revenue-raising capacity. We used this gap measure to rank the municipalities to estimate their fiscal health relative to each other. It is important to stress that the end result of this technique yields only a relative measure based on the sample used, rather than an absolute measure for each municipality.

5.1 Expenditure Need

Following Ladd and Yinger (1989), Ladd (1994) and Chernick and Reschovsky (2006), we use the regression-based cost approach to obtain a measure of expenditure need for each municipality. Using this approach, expenditure need is measured as the amount a municipality has to spend to provide a standard quality of public services given the set of services for which it is responsible and the costs it faces. The expenditure need (EN) of municipality i can be written as:

$$EN_i = \sum_j Q_j S_{ij} C_{ij}$$

where Q_j is standard per capita spending on the j -th expenditure function, S_{ij} is the i -th municipality’s index of service responsibility for the j -th spending category relative to the average of all cities, and C_{ij} is the i -th index of per capita costs for the j -th spending category relative to the average of all cities. In most applications, Q_j is measured by the average per-capita spending on the designated function.

In order to implement this approach, a regression equation is estimated for each municipality’s total per capita expenditures. The equation specifies per capita expenditures as a function of demand variables such as the income or wealth of city residents and cost factors or control variables that reflect characteristics of the city outside the control of municipal officials.⁴⁷ An expenditure cost index can then be constructed for each municipality by using the estimated coefficients from the regression equation to predict or simulate what the level of per capita

⁴⁷ Expenditure equations may also include measures of intergovernmental aid and preference variables that account for the preferences of local voters for public services.

spending would have been in each municipality if it had average values for the demand variables but its own values for the cost factors. The expenditure index for the i^{th} city is then defined as the simulated expenditure from the regression equation divided by the average value of per capita expenditures across the sample of municipalities.

In our analysis, we use total operating expenditures across municipalities rather than breaking down expenditures across different categories. As a basic expenditure equation, we specify real per capita operating expenditure to be a function of population, real income per capita, the dependency ratio (which is defined as the total percentage of the population either under the age of 19 or over 65 in each municipality), and real per capita property assessment. Future work will break down expenditures into various categories and add more explanatory variables.

We use a sample of the 30 largest municipalities in Ontario over the period from 2000 to 2011. Regressions are run in a panel in order to exploit the variation across time as well as among

Table 15

Summary Statistics for Variables Used in Cost Regression		
	Mean	Standard Deviation
Real Operating Expenditures Per-Capit	2,084	433
Across Municipalities		391
Across Time		198
Population	278,824	452,383
Across Municipalities		455,136
Across Time		62,033
Real Income Per-Capita	27,838	5,064
Across Municipalities		4,626
Across Time		2,213
Population Density	1,066	807
Across Municipalities		798
Across Time		186
Dependency Ratio	0.64	0.07
Across Municipalities		0.06
Across Time		0.02
Real Property Assessment Per-Capita	81,187	25,583
Across Municipalities		24,089
Across Time		9,593
Number of Observations		360

municipalities. With 30 municipalities across 12 years of data, there are 360 observations. The data sources can be found in the Appendix.⁴⁸

Table 15 provides sample statistics for the variables used in the expenditure equations. As might be expected, there is much more variation in the chosen variables between municipalities than there is in the same municipality over time.

As a basic specification for the expenditure equation, real operating expenditures per capita were regressed on population, real income per capita, the dependency ratio, and real property assessment per capita. We take the logarithm of all variables except for the dependency ratio. To control for the specific characteristics of each municipality not captured by the variables here, we run a fixed-effects regression. The results are presented in Table 16.

All variables are strongly significant with the exception of the assessment variable, which is significant only at the 10 percent level. At first it seems strange that the coefficient on the population variable is negative, which might imply that as population increases the expenditure per capita decreases.⁴⁹ Often this is used as evidence of an “economies of scale” effect in expenditures. However, it is important to note that population is in the denominator of the dependent variable (per capita expenditure). Thus, by construction, one might expect a negative coefficient on the population variable on the right hand side of the equation.

Table 16

Expenditure Equation Regression Results	
Logarithm of population	-0.164*** (0.0328)
Logarithm of real per-capita income	0.562*** (0.0679)
Dependency ratio	0.440** (0.217)
Logarithm of real per-capita assessment	0.0451* (0.024)
Constant	2.678*** (0.827)
R-squared	0.84
Number of observations	360

Note: The dependent variable is the logarithm of real per-capita operating expenditures. ***,** and * denote that the coefficient is significant at the 1, 5 and 10 percent levels respectively. Standard errors are in parentheses. Not shown are the coefficients on the fixed effects.

⁴⁸ For municipalities in which we can obtain a measure of median income on an annual basis from the Statistics Canada community profiles, we apply an annual growth rate to the Census data for the inter-censal years.

⁴⁹ Chernick and Reschovsky (2006) also found a negative significant coefficient on population in some specifications of their expenditure equations.

All other variables appear to have the expected sign. Expenditures per capita tend to increase with per capita income. As residents become wealthier, they may demand more expensive services. As well, per capita spending increases with the dependency ratio – the higher the proportion of elderly or young residents in the municipality, the more operating expenditures are expected to increase. Finally, per capita expenditures increase with an increase in the value of per capita assessment. As the property tax which depends on the size of the assessment base, is the main source of revenue for municipalities, it tends to be correlated with larger operating expenditures.⁵⁰

To calculate an expenditure index, we take the fitted values based on the regression coefficients for each municipality using each municipality's own value of population in 2011 (the most recent year available) and the average 2011 value across all municipalities in the sample for income, the dependency ratio, and assessment. Following the literature, we divide each resulting observation by the average value of real per capita expenditure among the municipalities in the sample to arrive at the expenditure index.

The estimated expenditure index for each municipality is shown in Figure 2. The index values indicate that, for example, Barrie has per capita operating expenditure that are 37 percent below the sample average, while Toronto has the highest relative expenditures at 50 percent above average.

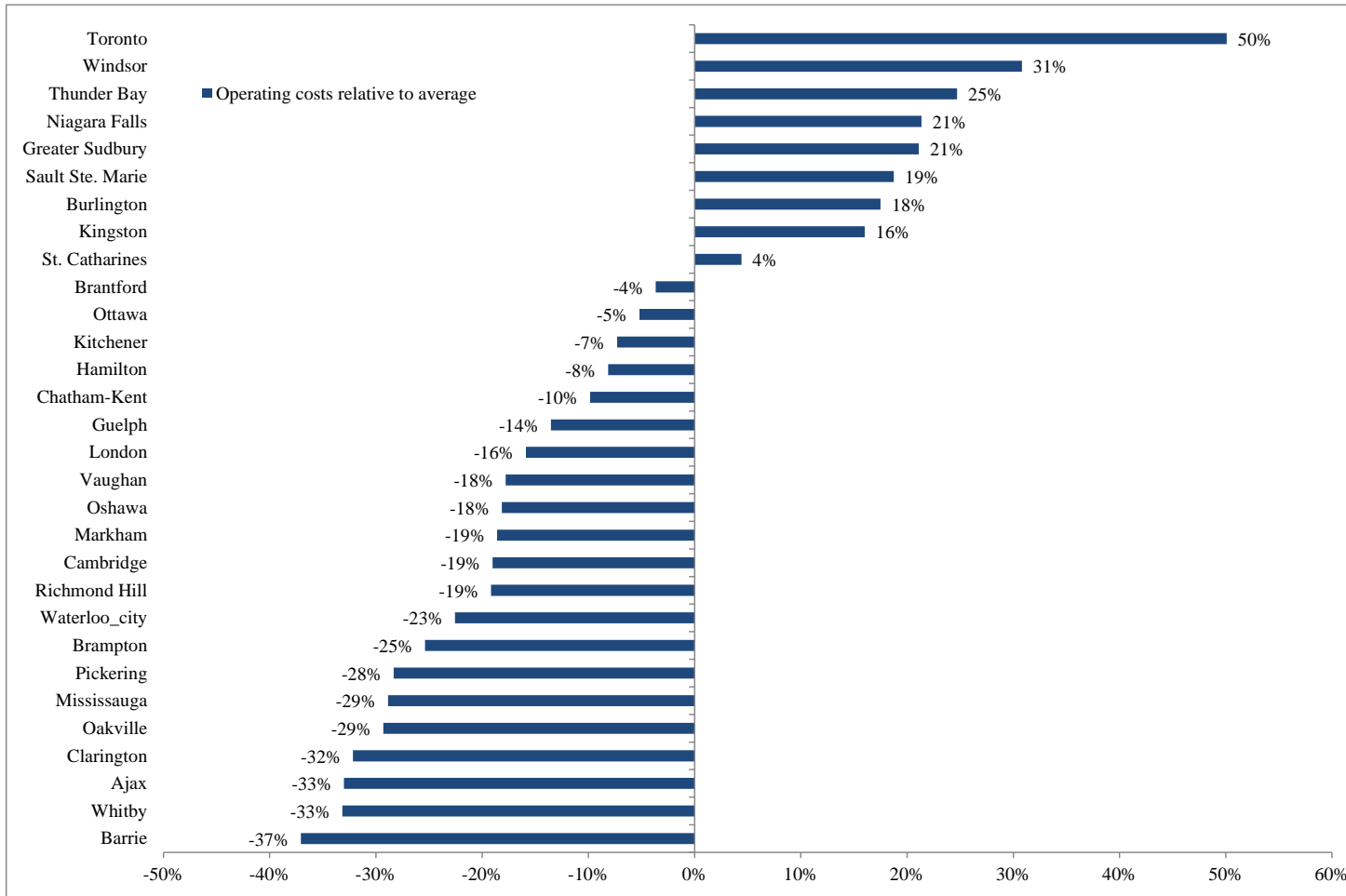
5.2 Revenue-raising capacity

Once a measure of expenditure need has been established, the next step is to calculate a measure of revenue-raising capacity. We use the tax-base approach, which gives a measure of the amount of revenue each municipality could raise if it levied average tax rates. The method multiplies each municipality's property tax base by the Ontario average property tax rate, for each tax class. While property taxes generally constitute the majority of municipal revenue, they are not the only source. Thus, by definition, the fiscal capacity indicator does not give an estimate of a municipality's complete revenue-raising capacity.⁵¹

⁵⁰ We also ran the expenditure equation without Toronto to check if it is driving the results given its much larger size. The coefficients changed only very slightly without Toronto in the sample, and it does not affect the significance of the variables. This finding likely results from our use of a fixed-effects specification which already controls for the "Toronto effect" by design.

⁵¹ Ladd and Yinger (1989) referred to this measure as the "Restricted Revenue-Raising Capacity"

Figure 2: Estimated Expenditure Index



As property tax rates vary by class in Ontario, we distinguish between the property tax base for residential, commercial, and industrial properties and pipelines. The total revenue-raising capacity (RRC_i) is defined as:

$$RRC_i = \sum_j t_j BASE_{ij}$$

Where t_j is the average tax rate for either residential, commercial, industrial or pipeline property and $BASE_{ij}$ is municipality i 's tax base for tax class j . In order to derive the revenue-raising capacity measure, we divide the total taxes collected in each municipality by the total taxable assessment to derive the effective tax rate. We then multiply the effective tax rate by the weighted assessment base. Each base and tax rate is divided between residential, commercial, industrial and pipelines. Table 17 summarizes the revenue-raising capacity for each municipality.

The City of Vaughan has the largest revenue-raising capacity by this measure while the City of Waterloo has the lowest revenue-raising capacity.

Table 17: Measure of Revenue-Raising Capacity

REVENUE RAISING CAPACITY					
(Average tax rate times real per-capita tax base)					
	Residential	Commercial	Industrial	Pipelines	TOTAL
Vaughan	1,258.34	676.25	361.46	4.87	2,300.92
Oakville	1,543.08	490.53	134.50	5.70	2,173.81
Burlington	1,199.99	484.65	152.69	7.39	1,844.72
Mississauga	967.32	648.63	184.69	3.42	1,804.06
Markham	1,146.77	515.37	102.79	3.36	1,768.29
Toronto	1,083.62	594.65	75.08	1.96	1,755.31
Richmond Hill	1,284.74	380.51	80.57	3.20	1,749.03
Pickering	943.45	337.78	101.09	5.16	1,387.48
Ottawa	894.73	408.04	40.40	5.09	1,348.26
Brampton	781.91	339.80	139.64	3.77	1,265.13
Oshawa	715.41	369.06	145.19	4.54	1,234.20
Guelph	817.49	258.19	146.97	3.86	1,226.51
Cambridge	731.56	315.56	169.47	3.92	1,220.51
Whitby	836.63	241.38	69.67	4.42	1,152.10
Barrie	750.29	341.69	55.45	3.51	1,150.93
Kingston	764.83	304.74	29.67	6.63	1,105.87
Ajax	788.22	199.33	55.60	3.34	1,046.48
Hamilton	759.80	214.56	55.06	8.61	1,038.03
Clarington	825.80	135.84	66.09	9.00	1,036.74
Brantford	639.26	247.93	119.04	4.23	1,010.47
St. Catharines	709.68	248.35	38.68	3.59	1,000.30
London	710.10	246.86	38.60	4.46	1,000.02
Chatham-Kent	689.49	171.97	46.67	15.31	923.44
Kitchener	652.10	216.19	50.55	0.17	919.01
Windsor	524.21	243.22	97.18	4.21	868.83
Greater Sudbury	582.32	186.71	67.60	9.24	845.87
Thunder Bay	470.76	193.11	52.32	5.12	721.31
Sault St. Marie	468.62	186.07	60.44	5.34	720.47
Niagara Falls	132.01	109.74	6.55	1.48	249.79
City of Waterloo	167.68	55.89	18.35	0.75	242.67
Average Tax Rate	1.19%	2.76%	3.44%	2.51%	

5.3 Measure of Relative Fiscal Health

Once the revenue-raising capacity and the expenditure need of each municipality are estimated, the next step is to calculate the city's fiscal health or need-revenue gap by examining the difference between the two. We can construct a capacity/need variable by simply taking the difference between the revenue-raising capacity measure for each municipality and the expenditure need. However, as stressed by Ladd and Yinger (1991), the expenditure need measure is based upon spending financed from all sources of revenue, whereas the revenue-raising capacity measure is by definition incomplete as it focuses solely on the property tax. Consequently, one can expect the difference between revenue-raising capacity and expenditure need to be negative for most municipalities. As a result, one should focus on differences in need-capacity gaps between municipalities relative to each other rather paying attention to the absolute magnitude of these gaps. As such, these measures of fiscal health are purely relative measures within the chosen sample, rather than absolute measures.

Table 18 presents the need-capacity gaps as well as the calculations of fiscal health and the relative ranking of each municipality. The relative gap, RG_i , is a measure suggested by Ladd and Yinger (1991) and is defined as the difference between the revenue capacity's deviation from its average value and the expenditure need measure's deviation from its average value, that is:

$$RG_i = (RRC_i - \overline{RRC}) - (EN_i - \overline{EN})$$

The results show that growing municipalities in the GTA have better fiscal health than most of the other municipalities in the sample. The municipalities with the poorest relative fiscal health tend to be in the north or in older industrialized cities. These findings are consistent with the fiscal indicators in section 4.

6. Conclusion: Is there something to worry about?

It is always difficult to answer the question "is there something to worry about?" without knowing what the future holds. Yet, the information we have compiled suggests that the fiscal health of some of the large municipalities in Ontario today (and in the past) may be better than others. In particular, the growing municipalities in the GTA appear to enjoy relatively good fiscal health compared to the northern municipalities and older, industrial municipalities with declining tax bases.

These findings are confirmed both by the fiscal indicators (such as debt to tax ratios, tax arrears etc.) as well as by the preliminary estimates of fiscal gap. The municipalities in the north and older, industrial municipalities with a relatively large fiscal gap are generally the municipalities that have the highest level of tax arrears and are the most transfer dependent. In the future, they

seem likely to face declining assessment bases, pressure to increase social service spending, and constraints on their ability to finance capital expenditures from current revenues. Nevertheless, based on standard measures, they are not necessarily the most indebted municipalities in the group of 30 municipalities suggesting they have been prudent borrowers.

By contrast, the municipalities with a smaller fiscal gap (such as municipalities in the GTA) experience higher growth rates and more up-to-date manufacturing facilities. Some of these municipalities have recently taken advantage of favourable conditions to increase their borrowing to pay for infrastructure. Some of these municipalities, however, have managed a pay-as-you-go policy for many years and thus have considerable capacity to borrow to invest in infrastructure since they are well below the provincially-set debt limits.

Finally, in answering the question of whether there something to worry about, we should remember that the measures of urban fiscal health only focus on fiscal measures. A city that balances its operating budget (which Canadian cities have to do by law), keeps property taxes low, and borrows very little looks fiscally healthy. But, is that a good thing? What if the infrastructure is deteriorating and the quality of service delivery is poor? We need to do more work on incorporating indicators that tell us something about the state of the infrastructure and the quality of service delivery into the measure of fiscal health.

Table 18: Estimates of Fiscal Gap

	Measure of Fiscal Health				
	Revenue	Expenditure	Relative	Fiscal Health	Rank
	Raising Capacity	Need	Capacity - Need		
Oakville	2,461	1,562	899	1,473	1
Vaughan	2,356	1,816	540	1,114	2
Mississauga	2,078	1,571	507	1,081	3
Pickering	1,590	1,583	7	581	4
Markham	1,765	1,798	-34	540	5
Richmond Hill	1,725	1,786	-60	514	6
Barrie	1,329	1,390	-61	513	7
Toronto	3,246	3,315	-69	505	8
Whitby	1,348	1,476	-129	445	9
Cambridge	1,620	1,789	-169	405	10
Guelph	1,723	1,910	-187	387	11
Ajax	1,205	1,480	-274	300	12
Brampton	1,371	1,648	-277	297	13
Ottawa	1,723	2,094	-371	203	14
Clarington	1,109	1,499	-389	185	15
Burlington	2,184	2,596	-412	162	16
London	1,292	1,858	-566	8	17
Oshawa	1,234	1,808	-574	0	18
Hamilton	1,378	2,029	-651	-77	19
Brantford	1,390	2,128	-738	-164	20
Kitchener	1,209	2,048	-839	-265	21
Chatham-Kent	1,029	1,991	-963	-389	22
St. Catharines	1,230	2,306	-1,076	-502	23
Kingston	1,439	2,562	-1,123	-549	24
City of Waterloo	320	1,711	-1,391	-817	25
Greater Sudbury	1,239	2,675	-1,437	-863	26
Windsor	1,249	2,889	-1,641	-1,067	27
Sault Ste. Marie	981	2,623	-1,642	-1,068	28
Thunder Bay	1,001	2,755	-1,753	-1,179	29
Niagara Falls	332	2,680	-2,348	-1,774	30
Average	1472	2046	-574	0	
Standard Deviation	586	501	85	659	

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Appendix: Data Sources for Fiscal Gap Calculations

Variable	Source	Notes
Operating Expenditures	Financial Information Returns, Ontario Ministry of Municipal Affairs and Housing	
Population	Financial Information Returns, Ontario Ministry of Municipal Affairs and Housing	
Income	Statistics Canada, Census data (2002 and 2006); Statistics Canada, Table 202-0411m Median total income by family type, 2010 constant dollars, annual (for 2007 to 2011).	Data is interpolated/extrapolated to fill in remaining years. For municipalities for which we can obtain a measure of median income on an annual basis from the Statistics Canada community profiles, we apply an annual growth rate to the Census data for the inter-censal years and from 2007 to 2011.
Dependency Ratio	Statistics Canada, Census data (2002, 2006 and 2011)	The dependency ratio is the sum of population under 19 and population over 65, divided by total population. We interpolate missing data points to fill in remaining years.
Taxable and weighted assessment base	Financial Information Returns, Ontario Ministry of Municipal Affairs and Housing	
Total taxes collected	Financial Information Returns, Ontario Ministry of Municipal Affairs and Housing	Effective tax rates are calculated by dividing total taxes collected by the taxable assessment base.
Price Index: Government current expenditure on goods and services	Statistics Canada	Used to deflate the government expenditure data
Price Index: General GDP deflator	Statistics Canada	Used to deflate other regression variables