

Provincial Transfers and Financing Municipal Infrastructure in Alberta
EXTENDED VERSION
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1. Introduction

Municipal finances have been an ongoing public issue in Alberta.¹ These issues have recently become more prominent as the Alberta government has adopted a variety of policies that impact municipal finances as well as announcing plans to transition the Municipal Sustainability Initiative program that, since 2007, has been the major provincial transfer supporting municipal governments, to a new transfer program, the Local Government Fiscal Framework, that is still being defined. This has created new uncertainties about municipal finances, especially in the context of provincial government fiscal restraint.

In this paper we examine trends in, and the funding of, municipal infrastructure in Alberta, with a particular focus on provincial transfers to municipalities. Our review of provincial capital transfers indicates that capital transfers have not been closely related to municipal capital purchases. As well, the allocation of grants has tended to favour “have” municipalities with above average fiscal capacities, i.e., that those with a large per capita tax base and especially those with a large non-residential tax base.

In view of the perverse allocation of grants, we propose a new system of provincial transfers to municipalities with two components. One component would provide matching grants to municipalities for spending on infrastructure, such as roads and water treatment facilities, that directly benefit non-residents and that generate fiscal benefits for the provincial government from increases in economic activity. A second component would provide grants to municipalities with deficient property tax bases. We also propose a change in the way provincial transfers to municipalities are funded, whereby the province should stop earmarking the provincial property tax for education spending and instead use those revenues to fund municipal grants and possibly provide additional property tax room for municipalities.

The paper is organized as follows. In Section 2, we provide a broad overview of trends in and interprovincial comparisons of municipal infrastructure investment and government transfers to municipalities. Section 3 describes the municipalities’ reliance on debt and financial assets to finance infrastructure spending, as well as a detailed analysis of the allocation of provincial transfers among the municipalities and of the relationship between provincial transfers

¹ See for example, McMillan (2019), McMillan and Dahlby (2014), Dahlby and McMillan (2021) and Peterson (2021).

and the municipalities' capital spending. Section 4 is an analysis of the disparities in the municipalities' fiscal capacities. Section 5 contains our proposal for reforming the allocation of provincial transfers to municipalities and how such transfers are funded. The final section is a summary of the main points in this report.

2. Overview of Municipal Investment and Infrastructure and its Finance

Municipal infrastructure is essential for local residents and businesses. In Alberta, municipal infrastructure (i.e., net capital stock) has tended to equal about one-half of provincial government's net capital stock but that share has grown since 2005 to essentially equal the provincial stock.²

In this section we provide some background on municipal infrastructure stocks, investment and finance. In the initial sections, the review examines infrastructure and its finance at the aggregate level in the province by relying heavily upon Statistics Canada data supplemented by Alberta Municipal Affairs aggregate data. First considered is the municipal net capital stock and how it has changed over 30 years. Second, the levels and trends in municipal investment are reviewed. The third area examined is government transfers to Alberta's municipalities and their role in (particularly) capital/investment finance. A short conclusion summarizes those topics. The second major portion of this section looks at the same topics but by type of municipality -- for example, cities, towns, villages, and municipal districts and specialized municipalities – to determine whether all municipal types have experienced similar developments. A third major portion provides an inter-provincial comparison and a fourth examines determinants of municipal infrastructure investments.

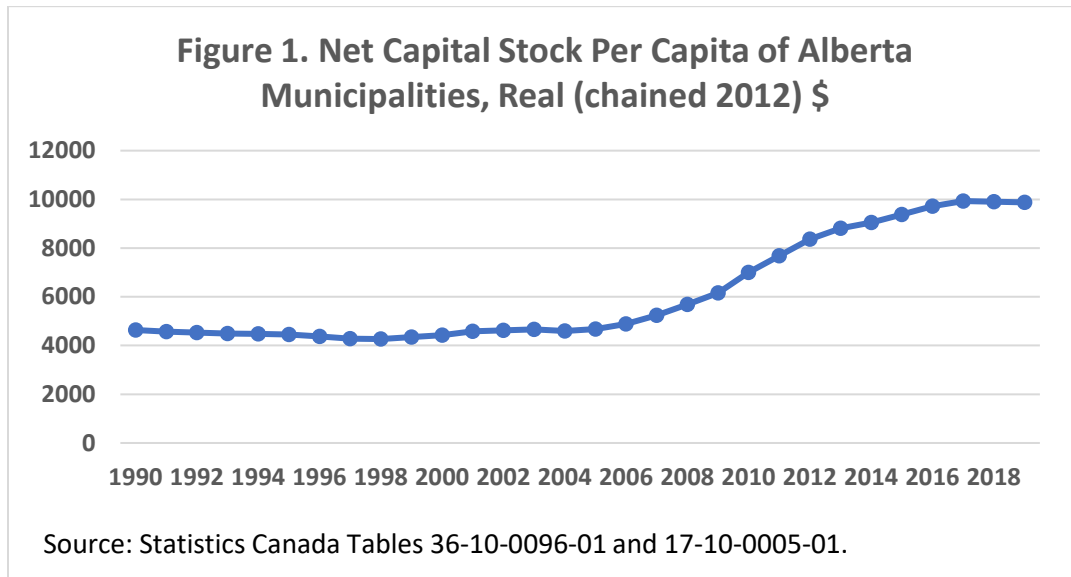
2.1 Municipal Net Capital Stock

Figure 1 shows the levels of municipal net capital stock on a per capita basis from 1990 to 2019 in real 2012 dollars.³ The level was relatively constant from 1990 to 2005 averaging

² See McMillan (2019, especially section 3) for a brief review extending back to 1961. The Federation of Canadian Municipalities (<https://fcm.ca/en/focus-areas/infrastructure>) claims that “municipalities build and maintain 60 per cent of the core public infrastructure that supports our economy and quality of life.” For further detail, see Federation of Canadian Municipalities (2016).

³ Net capital stock here is measured net of geometric depreciation. Linear depreciation provides a similar pattern but with a larger net measure. Net capital stock using the geometric measure is approximately 82 per cent of the linear measure. Geometric depreciation also generates smoother year to year changes in net capital stock. Linear depreciation depreciates an asset by a given amount each year while geometric depreciation depreciates an asset at a given percentage rate each year.

\$4500 per person. After 2005, the net capital stock per capita rose steadily to reach \$9931 in 2017 before leveling off at about \$9900. That is, in 2019, the real per person level was about 2.2 times greater than it was before 2006. That growth very likely reflects the resurgence of the Alberta economy, the population growth that accompanied it, the large investment in new infrastructure and some catching up from low investment during the previous decade.

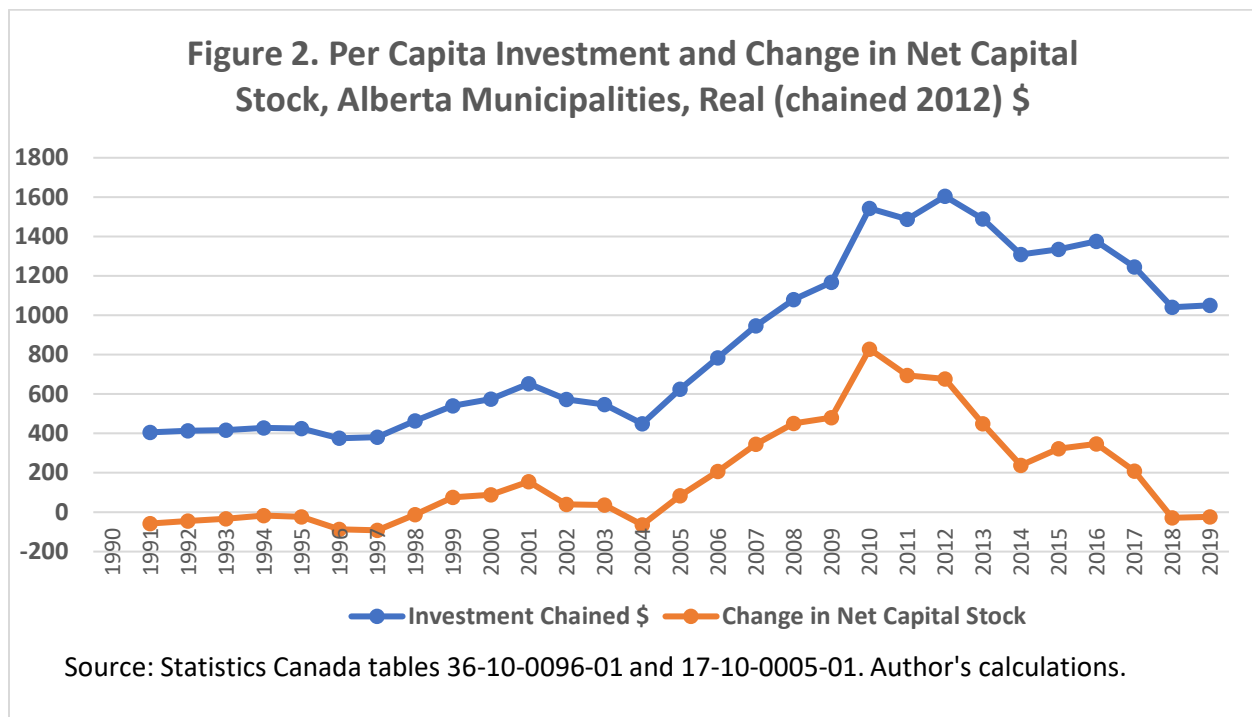


2.2 Investment in Municipal Capital

The post-2005 growth in net capital stock implies a large increase in investment during that period. That growth appears in Figure 2. Municipal investment averaged \$407 (2012 dollars) per capita from 1991 to 1997 (somewhat depressed by lower levels in 1995 and 1997). It then grew to \$653 in 2001 before dropping back to \$449 in 2004 and then starting its serious upward movement. Over the next eight years it rose sharply to \$1604 in 2012. Since then, it has declined to \$1051 in 2019.

The change in net capital stock reports the combined impacts of new investment less depreciation; that is, what is happening to the stock of municipal capital after wear and obsolescence. Clearly, the change in net capital stock has a similar pattern to gross investment but (due to depreciation) at a lower level. The bulge in net capital investment (notably between 2005 and 2017), which led to the significant upward shift in the per capita net capital stock

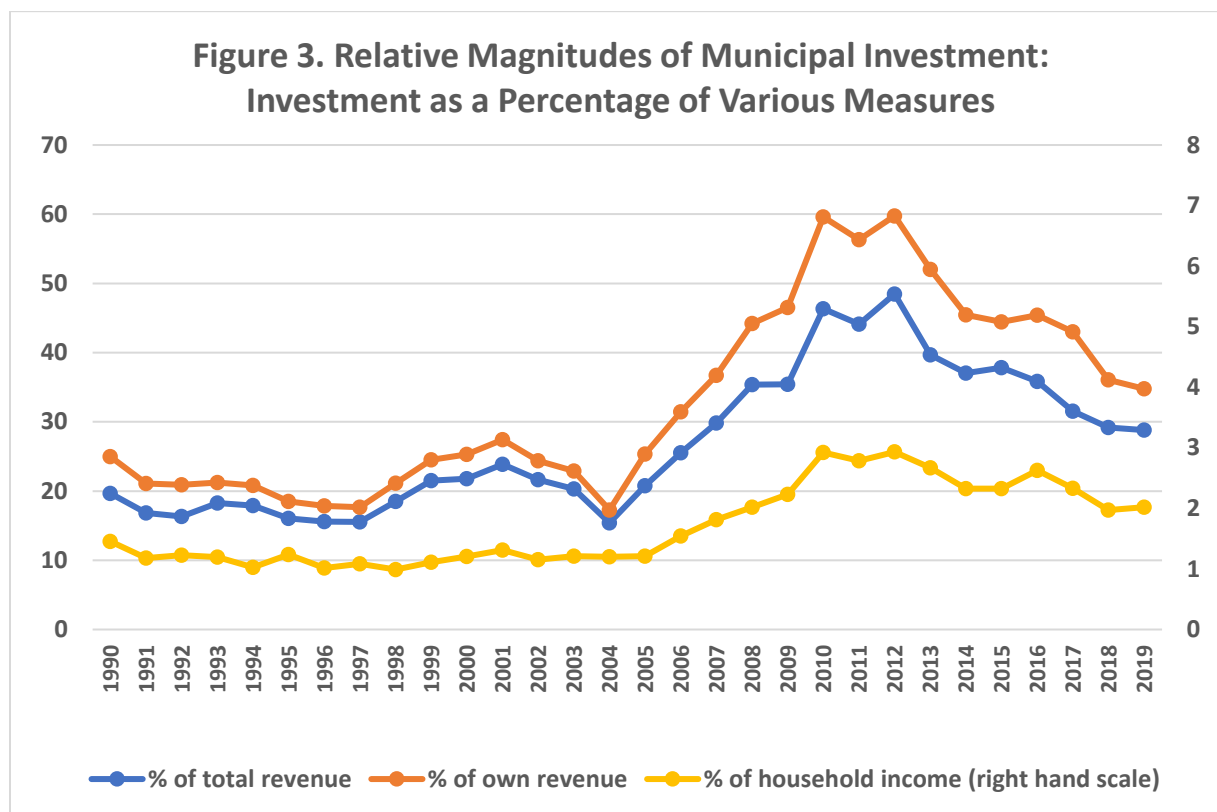
observed in Figure 1, is most noticeable. Interesting, however, is that the change in the net capital stock was actually slightly negative in 11 of the 29 years. During the period reported, the change was negative for eight consecutive years from 1991 to 1998. Notably, it has become negative again in 2018 and 2019 although investment is still about \$1045. That is, in contrast to the first half of the years examined when an investment of about \$475 per person was adequate to maintain the municipal capital stock, an annual investment of about \$1075 (i.e., over twice as much in real 2012 dollars) is now required to maintain Alberta's currently larger municipal capital stock.



The expanded per capita capital stock puts greater demands on municipalities and taxpayers. This shift is reflected in the trends shown in Figure 3 which shows municipal investment levels relative to various measures. The center line in Figure 3 reports investment as a percentage of municipal total revenue. That averaged 18.6 per cent between 1990 and 2004 but, even after declining from its 2012 peak, it was 28.8 per cent in 2019.⁴ Investment also increased

⁴ The amount of investment is taken from Statistics Canada Table 36-10-0096-01. Data for government revenues come from Table 10-10-0061-01 (Financial Management Series, FMS) for 1990 to 2008 and from Table 10-10-

relative to municipal own revenue – from an average of 21.7 per cent up to 2004 and in 2019 (despite the rise and decline) was still 34.8 per cent. Compared to household income, municipal investment increased from an average of 1.17 per cent (the right hand scale) to a peak of 2.9 per cent and in 2019 was 2.0 per cent. Clearly, the almost doubling of the net capital stock demands more municipal and household resources to be maintained.

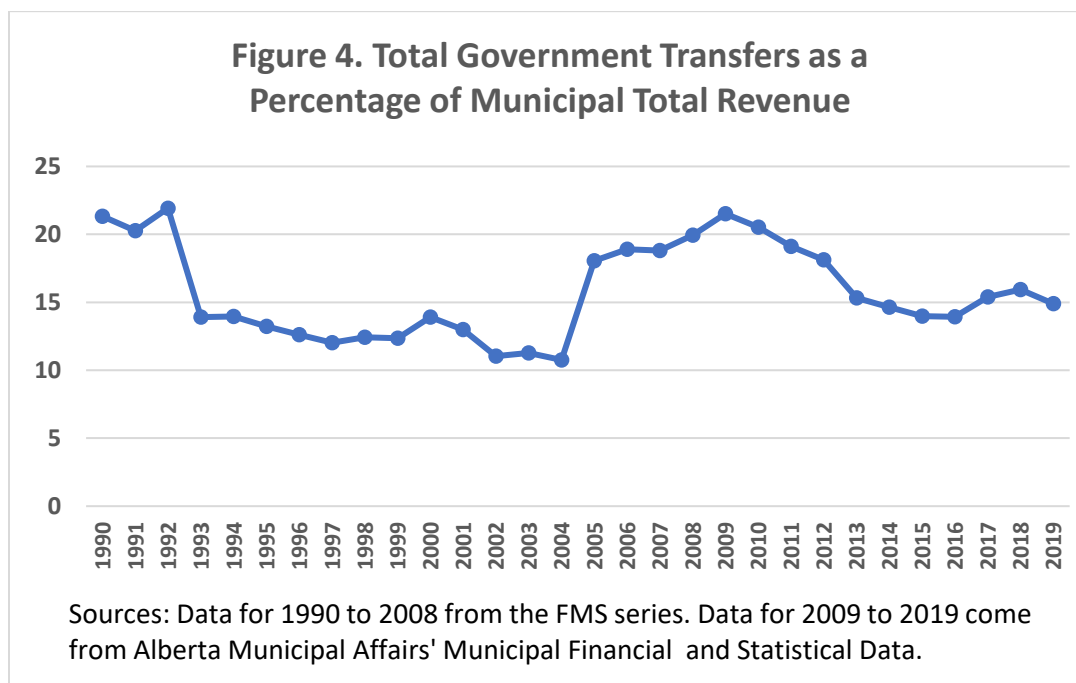


2.3 Government Transfers to Alberta Municipalities

Transfers to the municipalities affect the impact of capital spending upon local residents/taxpayers. As demonstrated by Figure 4, the contribution of transfers to Alberta municipalities has varied greatly since 1990. From 1990 to 1992, transfers from federal and provincial governments accounted for over 20 per cent of municipal revenues. They were,

0020-01 (Canadian Government Financial Statistics) for 2009 to 2019. The FMS and CGFS are not comparable in many ways but the revenue statistics correspond reasonably closely for the overlapping year (2008). Household income comes from Table 36-10-0226-01.

however, reduced dramatically in 1993 and from 1993 to 2004 averaged 12.5 per cent. Then, during the next eight years, government transfers were increased again averaging 19.4 per cent from 2005 to 2012. But, since then, they have been reduced and have averaged only 14.9 per cent. These (typically sharp) increases and decreases in government transfers make transfers an unreliable source of revenue and one that complicates municipal budgeting.⁵

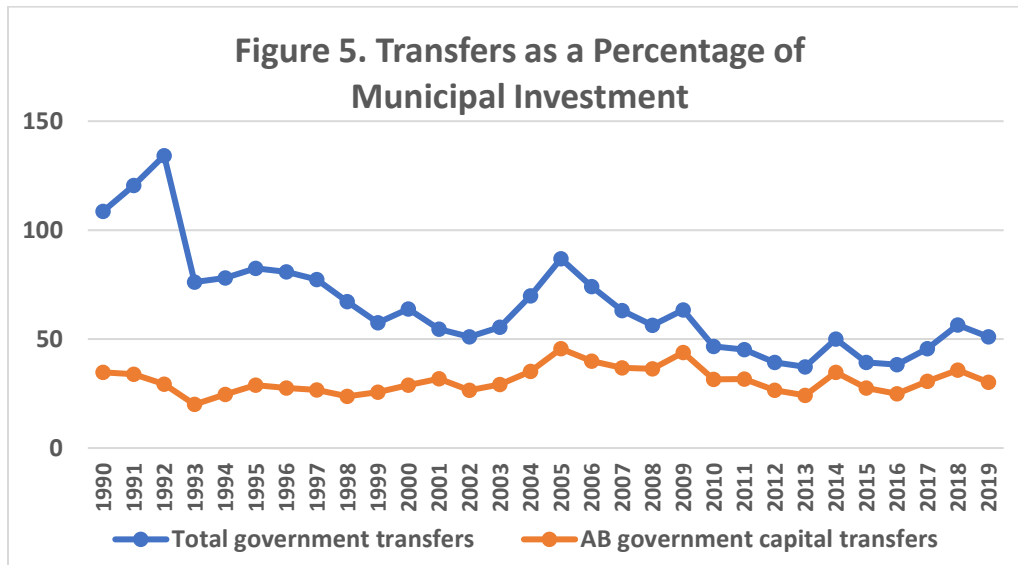


The nature of government transfers has changed substantially over the years. One indication of this change emerges from Figure 5 which shows total government transfers and provincial government capital transfers each as a percentage of municipal investment.⁶ Total transfers have declined relative to municipal investment from 1990 to the mid-2010s from 120 per cent to about 39 per cent but with a small recovery (to about 50 per cent) from 2017 to 2019. Interestingly, the Alberta government's capital transfers show greater stability but still range

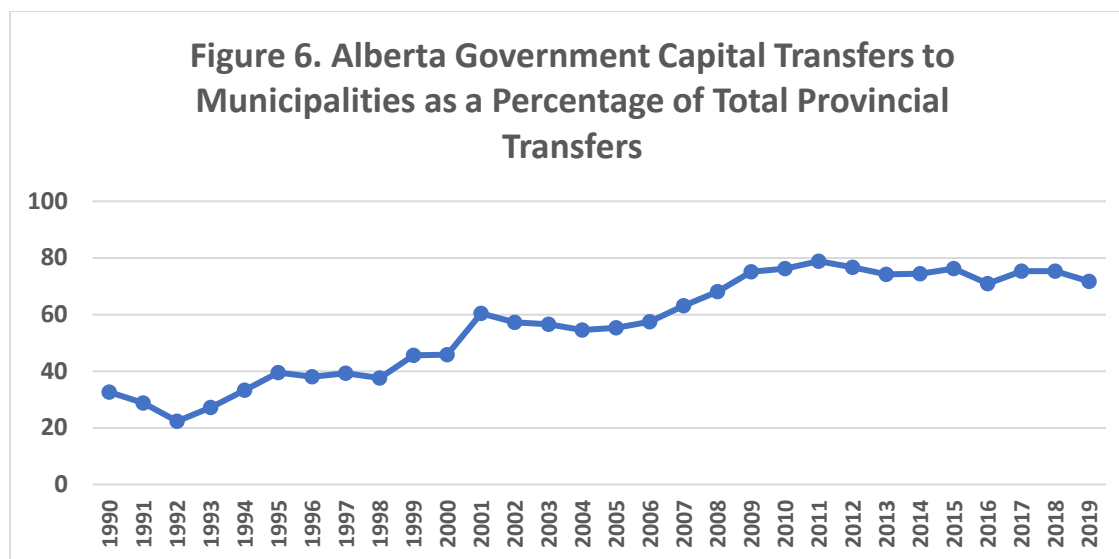
⁵ Such fluctuations are probably going to continue during the next few years. In response to the economic impacts of the Covid crisis, the provincial government is reshuffling (notably capital) transfers by bringing some of those planned between Budget 2020 and 2023 forward into 2020 and 2021 and then reducing (by about half) transfers in 2022 and 2023. See Budget 2021 and especially the capital plan on page 180.

⁶ As above, total government transfers are those from both the federal and provincial governments and include transfers for both capital and operating purposes.

from 20 to 45 per cent of municipal investment. The 30-year average is 30.9 per cent which is near the 2019 level of 30.2 per cent but which is some improvement from the low 2012-2016 levels which approximated the lows of the mid/late 1990s.



The gap between total transfers and the provincial government's capital transfers reflect the declining importance of non-capital transfers and the growing relative importance of capital transfers. Figure 6 shows that transition. Provincial capital transfers were about 30 per cent of total provincial transfers to municipalities in the early 1990s but increased to about the 75 per cent level where it has hovered since 2009. The trends in the provincial grants tell essentially the full story because they dominate the government transfers. For example, provincial grants represented 92 per cent of total grants over the 30 years (but slightly less, 88 per cent, since 2010). Thus, while provincial capital transfers to the municipalities have grown, that has been at the expense of provincial non-capital transfers.

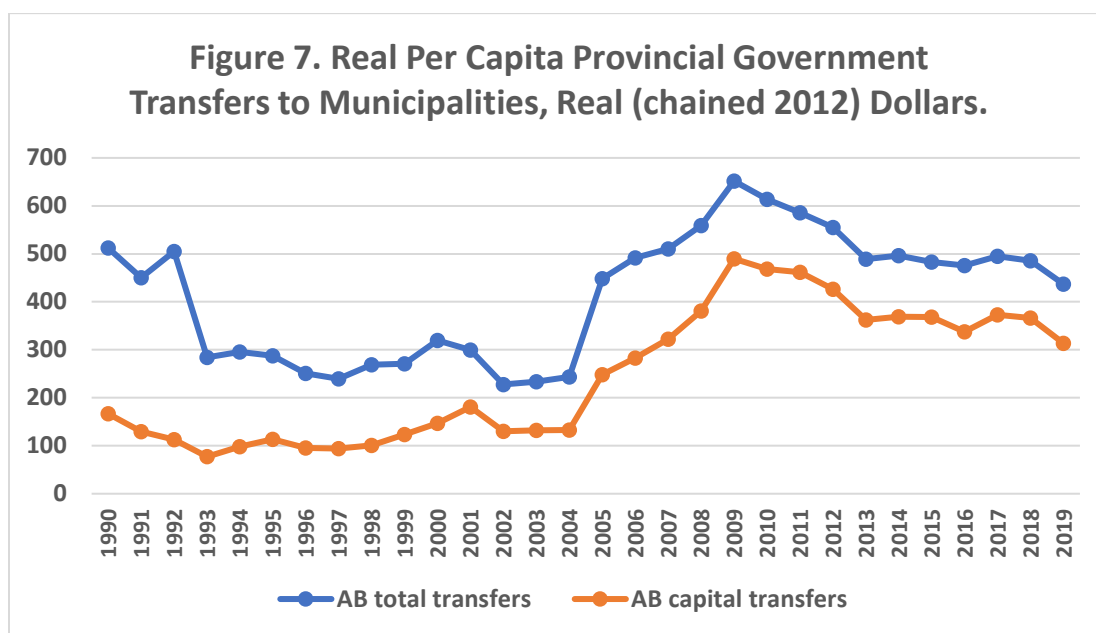


The transition to capital transfers is clear from the data reported in Figure 7 which reports the real (2012 dollar) per capita amounts of provincial transfers. Total provincial transfers were about \$500 per person in the early 1990s, fell sharply to about \$270 until 2005 and then were increased to about \$500 again (although the amount slipped to \$437 in 2019). In contrast, the capital transfers declined somewhat and remained relatively low after 1990 until 2004, were almost doubled in 2005 and continued to grow reaching about \$490 by 2009. They have subsequently been reduced but may have (at least temporarily) stabilized at about \$370 per person (although the 2019 value was \$313).⁷ The shrinking gap between the total transfer and the capital transfer lines shows what has happened to non-capital transfers. The difference (or the non-capital transfer) was about \$340 per capita in 1990 but that shrank to about \$120 by 2001 and typically has remained close to that level since. Hence, comparing recent years with the early 1990s, there was a reversal of capital and operating grants in Alberta. While the province's total real per capita transfers to municipalities are at the same level, operating grants clearly dominated in the early 1990s but capital grants are now dominant (and have for the past 15 years).⁸

⁷ See Peterson (2021) for a discussion of recent trends and projected changes (based on the province's 2021 budget) in Alberta's transfers to its municipalities.

⁸ This is not the first time that there has been large changes in the structure of Alberta's grants to its municipalities. From 1972 to 1978, unconditional transfers declined from 60 per cent to 26 per cent largely as a result of rapid growth of conditional transfers. A review of provincial-municipal relations followed (Provincial Municipal Finance

What has not been constant is the real size of municipal government. Between 1990 and 2019, real per capita municipal government revenues/expenditures has increased about 1.55 times. That is, municipal governments in 2019 are about 55 per cent larger in terms of per capita revenues/expenditures than they were in 1990. Note, however, that relative to household income, municipal government has increased comparatively little because household income has also grown. The fiscal footprint of Alberta municipalities is equivalent to about 6.7 per cent of household income (up from 6.1 per cent in the early 1990s). Similarly, although real per person provincial government transfers have recently been about the same level as they were in the early 1990s, they have declined from about 20 per cent of municipal government revenues (and a level regained a decade ago) to about 13 per cent over the past five years (and 12.3 per cent in 2019).



2.3.1 Summary and Conclusions from Aggregate Municipal Data

The past 30 years has seen municipal government infrastructure and its finance change substantially and especially so over the past 15 years. With a surge in investment, municipal real per capita net capital stock more than doubled since 2004. That growth appears to have plateaued

Council, 1979). McMillan (1980) provided a review of the PMFC's report. Also see McMillan and Plain (1979) for further insight, review and analysis of the then existing grant structure and the proposals for change.

and the pace of investment has declined. In fact, net investment (i.e., after depreciation) in the latest two years (2018 and 2019) has hardly been sufficient to maintain the expanded net capital stock. Municipalities now require more resources just to maintain the much larger per person infrastructure. That is, investment for maintenance alone requires 50 to 60 per cent more of their revenues than was the case pre-2005. That in turn implies that municipal investment places greater demands on local residents with municipal investment in 2019 increased to 2.0 per cent of household incomes from 1.17 per cent before 2005.

Transfers from senior governments, about 90 per cent of which are provincial grants, assist municipalities and particularly assist them in making capital investments. Transfers, however, are an unreliable source of revenue. Total transfers have ranged from 10.7 to 21.9 per cent of total revenue (presently 14.9 per cent)⁹ and the levels have often changed quickly posing difficulties for municipal budgeting. After the early 1990s, Alberta government transfers have transitioned steadily from being primarily for non-capital purposes to become (at approximately three-quarters since 2009) predominately capital grants. While Alberta's real per capita capital grants increased, those for non-capital purposes did not grow. Hence, the growth in capital grants came largely at the expense of non-capital grants. After its initial spurt, even the growth in capital transfers did not keep pace with municipal investment. Combined with the lack of growth in other grants, total transfers have since 2013 provided a much reduced and relatively modest level of support for municipal governments.

2.4 An Examination by Municipality Type

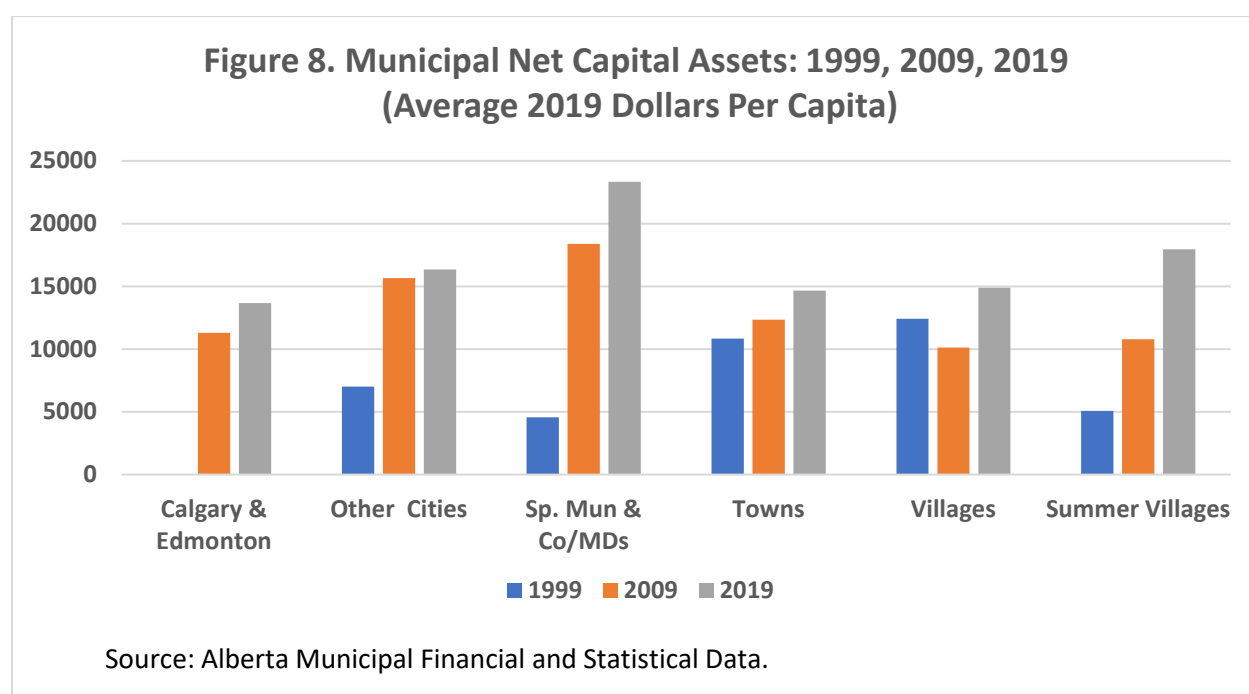
A question that arises is, have all types of Alberta's municipalities shown similar patterns of change over recent years? Alberta Municipal Affairs data provides insight towards answering this question. However, because collecting detailed year-by-year data is very time consuming, this analysis looks at selected characteristics for only three years; 1999, 2009 and 2019. As the aggregated data indicated, there were notable changes across those years. Of course, data for individual years pose the risk in being somewhat unique and may not reveal trends well.¹⁰ Nonetheless, they should provide some indication of consistencies or deviations at the municipal-type level compared to the aggregate patterns. In addition, it is important to keep in

⁹ Provincial transfers in 2019 were a somewhat more modest 12.3 per cent of total revenues. A substantial increase in federal transfers in 2019 reduced somewhat the provincial share of total transfers that year.

¹⁰ A case to note, as pointed out below, comes in considering federal government transfers in 2019.

mind that there can be and typically is considerable variation among the individual municipalities within each type.

First, some figures reveal notable patterns among the types of municipalities between 1999 and 2019. Figure 8 shows the average net capital assets in 2019 dollars per person.¹¹ Net (constant dollar) capital assets per person are highest in 2019 for all municipality types. Also, the growth since 1999 has been very large in the case of the cities other than Calgary and Edmonton, municipal districts and specialized municipalities (MD&SM),¹² and the summer villages.¹³ The growth for the towns is more modest and, in the case of the villages, the per capita value actually declined somewhat in 2009. Regardless, the net capital stock has grown considerably and relatively steadily across all types of Alberta municipalities over the past 20 years.



¹¹ Note that the per capita values for the summer villages must be viewed with caution as the calculation is made using permanent residents while the population served (and number of residences occupied) during the summer is typically much larger. In 2019, summer villages averaged 4.7 residences per permanently occupied dwelling.

¹² Municipal Affairs refers to the rural municipalities as municipal districts although those municipalities may call themselves counties or municipal districts. The municipal districts are occasionally referred to here as the rural municipalities.

¹³ No 1999 figure is reported for Calgary and Edmonton because the Municipal Affairs data for Edmonton that year is suspiciously small.

The growth in net assets implies substantial new investment. That growth is indicated in Figure 9 which shows the capital assets purchased in each year in constant dollars. Over the three years, purchases of capital assets was greatest per capita in 2009 for all types of municipalities but for the villages (which remained about steady in 2019) and the summer villages (for which purchases were actually larger per person in 2019). Overall, these data are consistent with the aggregate data in Figure 2; that is, with per capita investment peaking about 2009.

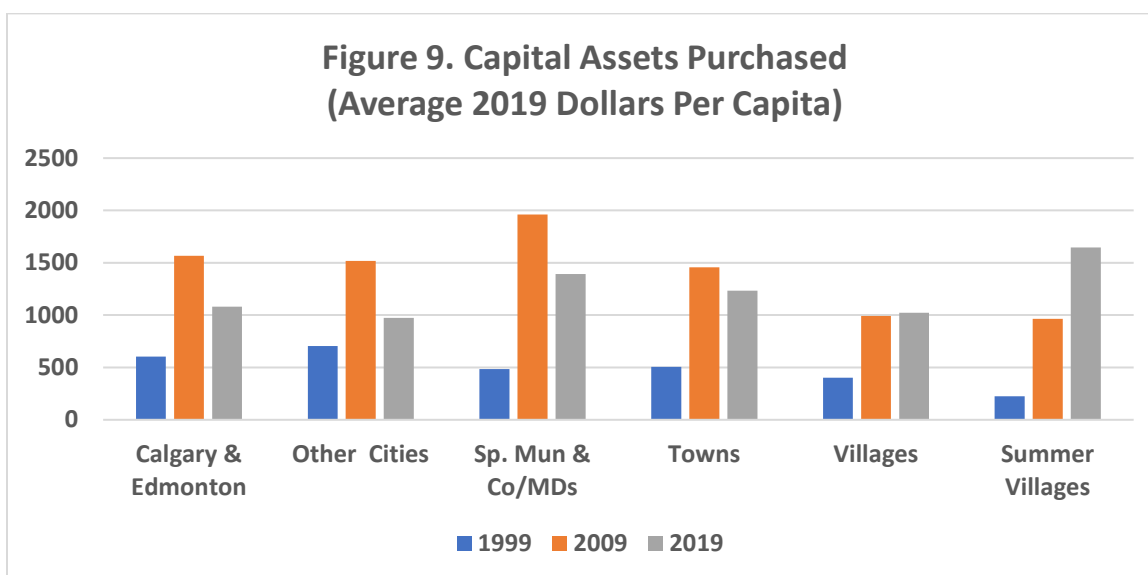
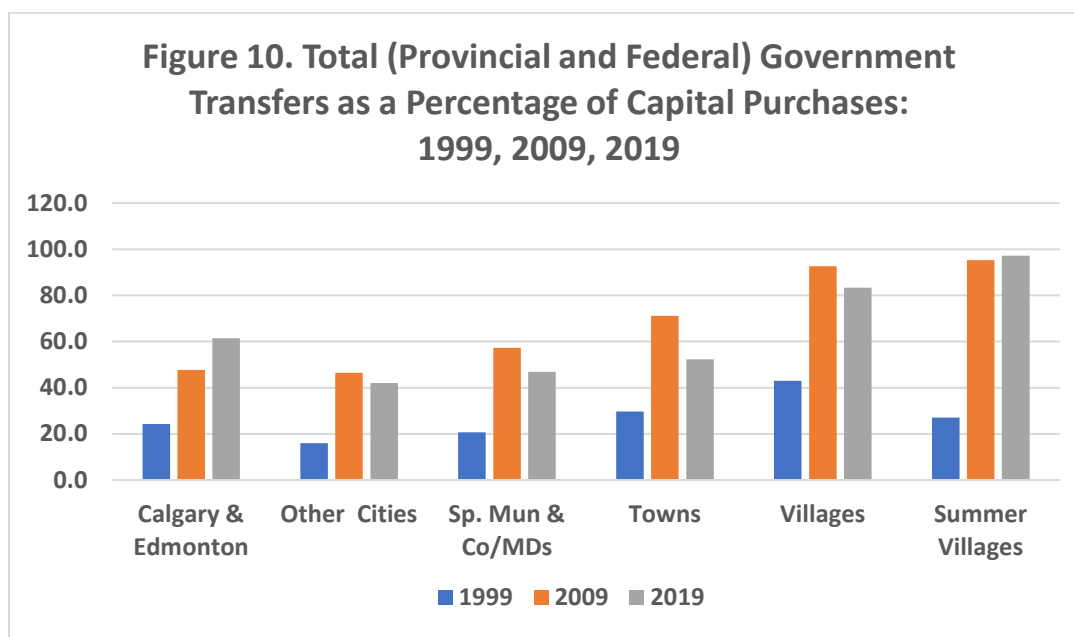


Figure 10 reports the total government transfers as a percentage of capital purchases; that is, the degree to which both provincial and federal governments supported the capital purchases of Alberta municipal governments.¹⁴ Perhaps most notable is that (even with the growth in capital purchases) total transfers more than doubled relative to capital purchases after 1999 – to anywhere from 40 per cent to over 90 per cent across the municipal types. Also notable is that villages and summer villages are the most reliant on transfers to fund capital spending.¹⁵ The final observation here is that the contribution of grants relative to capital purchases has declined

¹⁴ Transfers are total transfers and not simply those designated for capital. As will be documented below (Table 1), however, capital transfers dominate government transfers.

¹⁵ Again, care is warranted in the interpretation of and comparison of data on summer villages because their permanent residents are small relative to their summer populations. In addition, discrepancies in the accounting (both timing and designation) may, in some cases, contribute to peculiar results and, recall, total grants (not just capital grants), are used for these calculations.

from 2009 to 2019 in all types of municipalities but the two largest cities and the summer villages. So government transfers have come to provide greater support relative to municipal capital purchases since 1999 but that role diminished somewhat by 2019.



The amounts of government transfers per capita in constant dollar (2019) dollars are reported in Figure 11. The amounts of the increases post-1999 were huge – with grants growing from well under \$175 per capita across the board to between \$718 and \$1124 in 2009 across the municipal types. The average per capita grants fell by 2019 (to all types but summer villages) and especially to cities other than Calgary and Edmonton, municipal districts and specialized municipalities, and the towns. The 2019 grants averaged between \$409 and \$854 per capita (excluding the summer villages where they increased further to \$1599). By 2019, per capita transfers to municipalities had increased and then declined but were still much larger (and represented a greater share of capital purchases) than in 1999.

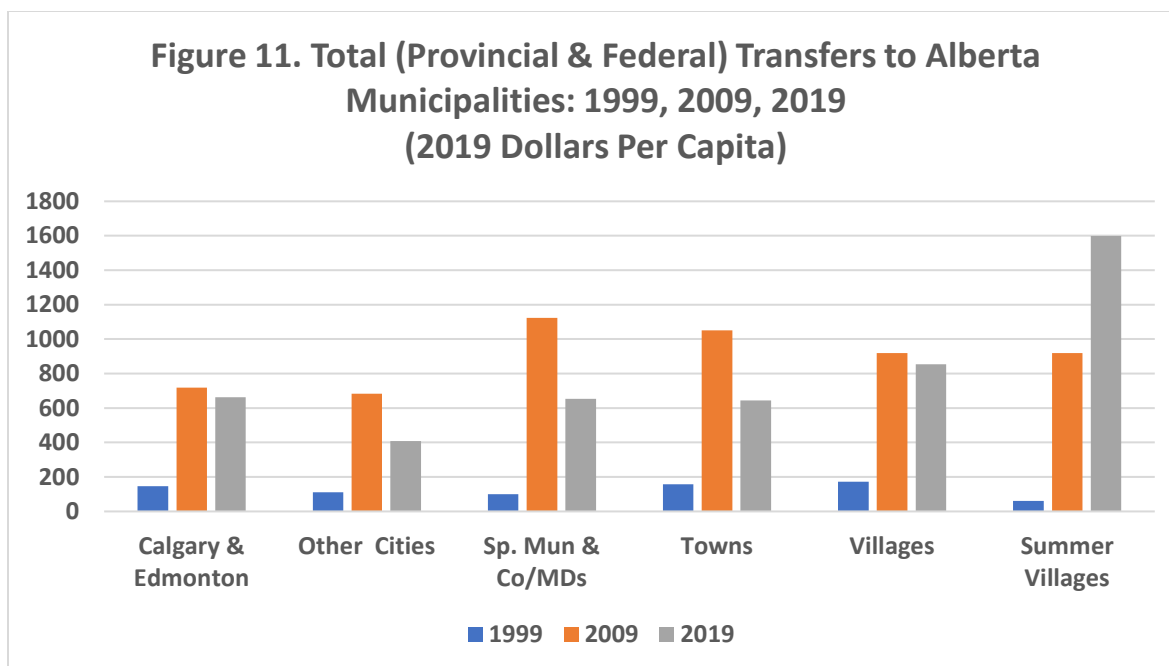


Table 1 provides more detail on transfers to Alberta municipalities and their relative contributions. That will be reviewed in a general way prior to looking at particular features more closely. The four left hand side columns of data show the contributions of federal and provincial unconditional and conditional grants to municipalities by type. In 1999, there were no unconditional grants to Alberta municipalities from either by the provincial or the federal governments. Also, essentially all (about 98 per cent or more) of the transfers to all types of municipalities came from the provincial government. By 2009, both provincial unconditional transfers and federal (essentially all conditional) transfers had expanded somewhat. Provincial unconditional grants amounted to 5.1 to 8.8 per cent of total government transfers while federal conditional transfers ranged from 2.1 to 6.6 per cent. The federal transfers were focused on the larger urban municipalities (versus villages and summer villages) and the municipal districts and the specialized municipalities. The only notable federal unconditional grants were directed to Calgary and Edmonton. The expansion of federal funding and provincial unconditional funding resulted in the contribution of provincial conditional transfers declining to a range of 83.6 to 91.9 per cent of the total. The provincial conditional grant shares declined again by 2019 when it ranged from 72.6 to 75.7 per cent for the cities and about 82 to 85 per cent for the other municipal types. Other than for Calgary and Edmonton, the importance of unconditional

provincial funding approximately doubled to over 10 per cent of total government transfers. Federal conditional transfers to the cities increased considerably but especially so to Calgary and Edmonton to which it rose to 23.7 per cent of total transfers.¹⁶ Thus, over 20 years, federal transfers increased (notably to the, particularly larger, urban areas) in relative importance (though less so than the 2019 data suggests), provincial unconditional transfers also increased as a share of government grants, and, as a result, provincial conditional support (although remaining clearly dominant at about four-fifths of the total) came to play a more modest role in the total government grants package.

	Federal Unconditional	Federal Conditional	Provincial Unconditional	Provincial Conditional	Total Government Transfers	Total Transfers Per Capita in 2019 Dollars	Provincial Transfers for Capital Purposes as a % of Total Gov't Transfers	Total Gov't Transfers as % of Capital Purchases	Contributed/ Donated Assets as % of Total Gov't Transfers plus Contributed/ Donated Assets
2019									
Calgary & Edmonton	0.0	23.7	3.7	72.6	100	663	61.2	61.4	23.9
Other Cities	0.5	13.6	10.2	75.7	100	409	65.3	42.0	33.8
Sp. Mun & Co/MDs	1.0	6.3	11.1	81.6	100	653	54.4	46.9	20.6
Towns	0.2	6.7	10.7	82.4	100	645	50.3	52.3	12.7
Villages	0.6	7.2	10.3	81.9	100	854	66.7	83.4	9.9
Summer Villages	0.3	3.9	11.0	84.8	100	1599 ^a	71.8	97.2	0.3
2009									
Calgary & Edmonton	3.3	6.6	6.5	83.6	100	718	69.1	47.7	21.9
Other Cities	0.1	8.4	5.1	86.4	100	683	70.0	46.5	31.3
Sp. Mun & Co/MDs	0.5	4.4	6.2	88.8	100	1124	70.3	57.3	23.5
Towns	0.4	6.2	7.1	86.3	100	1051	67.8	71.2	8.9
Villages	0.0	2.5	8.8	88.6	100	920	59.3	92.7	2.5
Summer Villages	0.0	2.1	5.9	91.9	100	919 ^a	68.3	95.3	0.5
1999									
Calgary & Edmonton	0.0	0.6	0.0	99.4	100	147	99.0	24.3	b
Other Cities	0.0	2.3	0.0	97.7	100	112	97.7	15.9	b
Sp. Mun & Co/MDs	0.0	2.0	0.0	98.0	100	100	98.0	20.6	b
Towns	0.0	1.7	0.0	98.3	100	157	98.3	29.7	b
Villages	0.0	0.8	0.0	99.2	100	173	99.2	43.0	b
Summer Villages	0.0	0.1	0.0	99.9	100	61 ^a	100.0	27.0	b
Source: Alberta Municipal Financial and Statistical Data									
Notes: a. Per capita values for summer villages are problematic as they are based on permanent residents.									
b. No such category in the 1999 data.									

¹⁶ Note that the 2019 data exaggerate the normal federal role. That is because the Gas Tax Fund allocation to the province increased from \$228.8 million in 2018-19 to \$472.8 million in 2019-20 but declined to \$243.3 million in 2020-21 (Municipal Affairs, Municipal Grant Funding 2010-2020 spreadsheet). If that grant had been \$236 million (typical of the pattern since 2015-16), the federal share of federal and provincial grants in 2019 would have been 10.2 per cent rather than the 17.5 per cent it actually was that year.

Provincial grants have been directed at supporting municipal capital undertakings. However, the provincial transfers for capital purchases fell from about 99 per cent of total government transfers in 1999 to about 70 per cent by 2009 and, for all but villages and summer villages, declined somewhat further by 2019. (See the third column from the right in the table.)¹⁷ While the share of transfers directed to capital outlays has declined, the contribution of all transfers from both federal and provincial governments as a percentage of capital purchases (second column from the right) has increased. In 1999, total government transfers amounted to only about one-quarter of the cost of capital purchases but that increased to almost half or more by 2009 (and over 90 per cent in the case of villages and summer villages). By 2019, transfers as a share of capital purchases declined somewhat for all but Calgary and Edmonton (at 61.4 per cent) and the summer villages but still amounted to 42 to 52 per cent for the other cities, the towns, and the municipal districts and specialized municipalities. Hence, at least since 2009, government transfers are sufficient to fund the bulk of new capital purchases in most types of municipalities.

Government transfers are not the only assistance to municipalities' capital acquisition. Arrangements may also exist by which the private sector makes contributions or donations of assets to municipalities. Such contributions typically come from developers turning over ownership of assets such as streets, utilities, parks, etc. that they have financed in their developments to the municipality to become a municipal responsibility. The magnitude of such contributions/donations are reported in the last column in the table. That shows the percentage that contributed/donated assets make up of total transfers to municipalities. That is, contributed and donated assets as a percentage of value of total government transfers plus that of the contributed/donated assets. These arrangements are particularly important to cities and to the municipal districts and specialized municipalities where they amount to one-fifth to one-third (to other cities) of total (government and private) transfers in 2009 and 2019. Also, contributions

¹⁷ There is a discrepancy between Figure 5 and the column (third from the right) reporting provincial capital transfers as a percentage of total government transfers for the year 1999. Table 1 shows provincial capital transfers in 1999 as being almost 100 per cent of government grants while Figure 5 (and 6) indicate that other grants actually are considerable. Such a discrepancy does not appear for 2009 and 2019. The reason for this 1999 peculiarity is not obvious although note that the pre-2009 data in Figures 5 and 6 come from the Statistics Canada Financial Management Series (FMS) while the 1999 data in Table 1 comes from the Alberta Municipal Affairs' Municipal Financial and Statistical (FIR) Data. Perhaps in 1999 the municipalities were unable to distinguish federal support from provincial support. Also, there is a possibility that unconditional transfers were understated in the FIR data.

and donations increased in importance for the towns and villages between 2009 and 2019. Because no such category was reported in the 1999 financial reports, it is not known how important such sources were at that time. Obviously, however, contributions and donations from the private sector are an important source of transfers to Alberta municipalities.¹⁸

2.4.1 Summary and Conclusions

In the previous sections (2.1 to 2.3), we examined municipal infrastructure and investment from 1990 to 2019 from a province-wide perspective. Because that section was summarized above, only the main points are noted here. A striking feature was that, after a lengthy plateau, the stock of capital per person doubled since 2005. That large increase was the product of a surge of investment that peaked about 2009-12 but has since declined. Current investment is just maintaining the now larger per capita capital stock. Government grants, and especially provincial government grants, support municipal infrastructure investments. Grants supported a greater share of those investments from about 2004 to 2009 but the contribution of transfers has been smaller since then. Also, provincial government transfers which account for about 90 per cent of government transfers, have become progressively more directed toward capital investment (now about 75 per cent) at the expense of transfers for non-capital purposes. In real dollar per person terms, provincial capital transfers have been on a downward trend since 2009.

In section 2.4 we examined some of the main features of municipal capital and investment by type of municipality so as to assess whether the aggregate patterns are paralleled in each type. The nature of the data and time limits the analysis to looking at only three years – 1999, 2009 and 2019. In general, the patterns are similar but there are exceptions. Net capital assets per person (in real dollars) increased across all municipal types between 1999 and 2019 but most substantially for the other cities, municipal districts and specialized municipalities, and summer villages. Similarly, capital assets purchases per capita saw large increases in 2009 across all municipal types but then declined somewhat for the municipalities having the largest populations (being stable for the villages and increasing further for the summer villages). Transfers from federal and provincial governments made larger contributions relative to

¹⁸ A related but separate item is revenue from developer agreements and levies. In 2019, those revenues were 28 per cent of contributions and donations.

municipal capital purchases post-1999 but the percentage contribution decreased by 2019 for all but the two largest cities and the summer villages. In real dollar per capita terms, however, grants declined (often considerably) except for the summer villages. Overall, the importance of provincial grants and especially of provincial conditional and capital grants dominate Alberta's grant system. Finally, it is important point to note the considerable contribution to municipal capital assets that come from contributed and donated assets from developers.

2.5 Inter-Provincial Comparisons

Municipalities in all the provinces in Canada receive transfers. Those come primarily from their provincial governments but also some from the federal government. It is interesting to compare transfers to municipalities across provinces. Table 2 provides an initial comparison. It reports the average per capita amounts of government (both provincial and federal) transfers to each province's municipalities. Those range from \$188 (in British Columbia) to \$809 (in Ontario) with an average of \$450. The importance of transfers in municipal budgets depends also upon the contribution of the grants to total revenues. Grants as a percentage of total revenue is reported in the third column of numbers. Those percentages range from 7 per cent in British Columbia to 41 per cent in Prince Edward Island. Excluding those two observations, the range is relatively narrow – from 14 to 23 per cent. The 10-province average is 19.9 per cent. Total revenue per person averages \$2415 and ranges from \$984 in Prince Edward Island to \$3969 in Alberta. Ontario, at \$3484, also has a comparatively high level of per capita spending. That and its large per capita grants are explained largely by Ontario's (unusual for Canadian provinces) substantial municipal responsibilities for delivering social services.¹⁹ Looking at own-source revenue per person (i.e., total revenues less grants), Alberta municipalities generate the largest per capita amount, \$3180. Own-source revenue averages \$1964. Alberta and Ontario stand out on the above average side while Prince Edward Island (the smallest province) stands out on the low side. Despite the interprovincial variation, transfers are typically a significant source of municipal revenues (e.g., commonly about 20 per cent).²⁰

¹⁹ Other (less notable) differences in municipal-provincial responsibilities among provinces contribute to the differences noted in Table 2. Those differences can be complicated and difficult to summarize. Though somewhat dated, some insight to such differences can be found in Slack et al. (2007).

²⁰ McMillan (2019, p 10) provides estimates of the 2012 to 2016 average municipal capital assets per capita for the provinces other than those in Atlantic Canada. In 2007 dollars, those ranged from \$4216 to \$5062 aside from Alberta where it was \$9181. Thus, Alberta municipalities have both comparatively high revenues and capital assets.

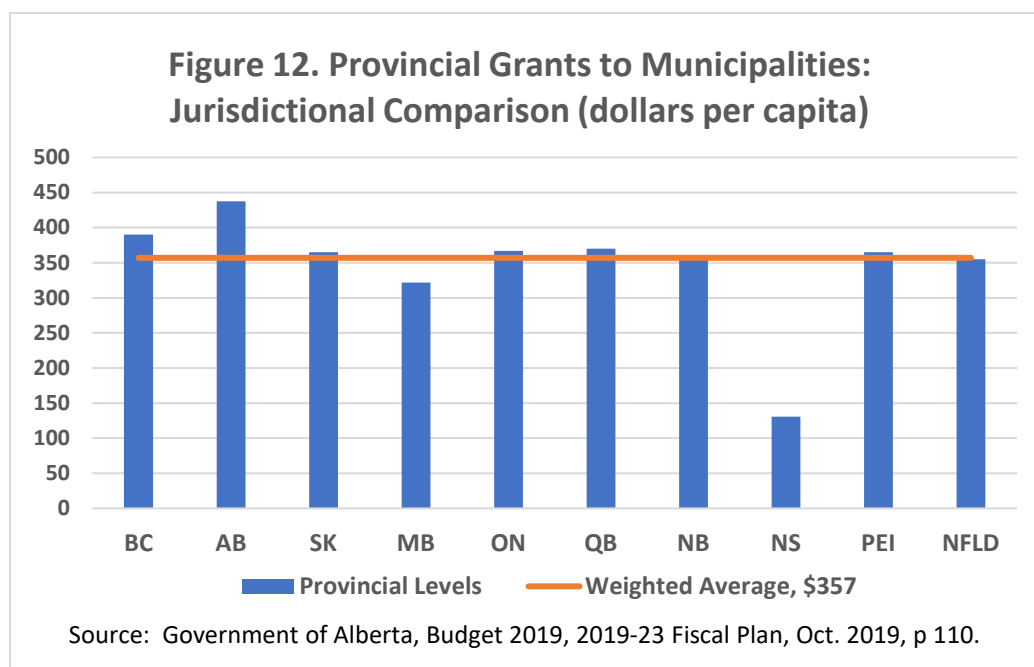
Table 2. Provincial Comparison of Government Grants to Municipalities, 2015 to 2019 Average				
	Grants Per Capita	Revenue Per Capita	Grants as % of Revenue	Own Revenue Per Capita
NFLD	387	1810	21	1423
PEI	400	984	41	585
NS	315	2302	14	1987
NB	381	1741	22	1359
QB	371	2528	15	2157
ON	809	3484	23	2675
MB	357	2016	18	1659
SK	506	2660	19	2154
AB	789	3969	20	3180
BC	188	2651	7	2463
Source: Statistics Canada Table 10-10-0021-01				

Because the Statistics Canada data does not separate them, Table 2 reports provincial and federal government grants combined.²¹ However, some insight into provincial grants to municipalities is found in Alberta's October 2019 Fiscal Plan. The figure that appears there is reproduced below as Figure 12. Comparing the per capita total government transfers shown in Table 2 and those presented in Figure 12, reveals large differences. For example, Figure 12 data reports Alberta (not Ontario which is only slightly above average in Figure 12) providing the largest per capita grants, Nova Scotia (not Prince Edward Island) the lowest, and British Columbia as above average (rather than well below average).²² Naturally, we expect some differences because, with federal transfers, total per capita grants should be greater than those from the provinces alone. However, the values are quite similar for Manitoba, Quebec, New Brunswick, Prince Edward Island, and Newfoundland and Labrador (although typically the Statistics Canada numbers are slightly larger as is expected). The total grants numbers for

²¹ One has to go back to the Statistics Canada Financial Management System (FMS) data of pre-2009 to obtain details on grants to municipalities.

²² The Alberta Fiscal Plan reports that the data comes largely from the Provincial Territorial (Municipal) Officials Committee but it does not say what year or years are covered. We do not have that data at hand in order to attempt to understand the differences.

Alberta and Ontario (and possibly Saskatchewan) are much larger than the reported provincial grants and larger than federal transfers can be expected to account.²³ Thus, while both sources indicate the importance of government transfers to municipalities, their suggested roles across the provinces is confusing.



The purpose of transfers, and possible inter-provincial differences, is also of interest. As noted, Statistics Canada data no longer provides that kind of information. Bird and Slack (2021) do provide some additional information.²⁴ For example, they point out (in their Table 2) that capital grants (in contrast to operating grants) in Alberta represent 74.2 per cent of total grants to Alberta municipalities – the only province having capital grants amount to more than one-half of total transfers. For further information on the specific purposes of grants, one must go back to the Statistics Canada FMS data. Slack et al. (2007) provide a breakdown of provincial conditional grants by purpose over 12 functional categories. Typically, the major transfers were for transportation, environment and recreation/culture and, on average, those represented 34, 15 and

²³ In 2019, federal transfers to Alberta municipalities amounted to just under 20 per cent of total transfers.

²⁴ Bird and Slack obtained their data from the Provincial Territorial Officials Committee.

15 per cent of total conditional grants (i.e., 64 per cent of the total).²⁵ Information on the purposes of operating grants are not available in the FIR data²⁶ but, for 2019, Alberta's capital grants (about 72 per cent of total provincial grants) were directed towards transportation (66.5 per cent), environment (6.9 per cent), recreation/culture (8.0 per cent) and housing/buildings 8.6 (per cent). This distribution is much like that of Alberta's total grants in 2005 except that the housing related component is now larger.

Another interesting feature of grants is the split between conditional grants and unconditional grants. That is, what portion of grants are available for municipalities to use as they see fit (i.e., are unconditional) as opposed to having the transfers directed by the province (or the federal government) to particular uses? Bird and Slack (2021, Table 3) provide a breakdown by province for 2019-20. They report that across the provinces, unconditional grants range from zero to 65 per cent of total federal and provincial grants with a simple average across the ten provinces of 36 per cent unconditional. Alberta stands out in their table as having no (i.e., zero) unconditional grants and 100 per cent conditional grants. Interestingly, in our neighbouring provinces of British Columbia and Saskatchewan, the unconditional shares are 55.8 and 65 per cent respectively. The numbers in the Bird and Slack table are somewhat at odds with what Alberta's municipal statistics show. Those data indicates that 1.5 per cent of federal transfers and 8.1 per cent of provincial transfers (for 7.0 per cent overall) to Alberta municipalities are unconditional. Even so, Alberta is unique in having a very low percentage of transfers to its municipalities being unconditional.

Bird and Slack (2021) examine unconditional transfers in the context of provincial-municipal grants in total. They find that in most provinces the provincial-municipal transfer system is a "hodgepodge" and that the systems could be made simpler, be more carefully targeted, and be better monitored. They recommend replacing many of the grants with an unconditional grant that would better equalize municipal fiscal capacities – that is, transfers that would improve the ability of municipalities to provide their residents with reasonably comparable services at reasonably comparable tax rates. In their grant programs, provinces typically do pursue measures that moderate differences in tax bases and the needs for and costs

²⁵ This calculation overlooks grants for social services. Ontario was the only province (and still is) that assigns municipalities a major role in delivering social services. Ontario supports those programs with relatively large conditional transfers.

²⁶ Information on operating and capital grants is presented in Figure 6 below.

of providing services but the mechanisms are complex, have unclear objectives, are not transparent and are confusing. They argue that there is a need to do better throughout and that a well-designed and implemented unconditional equalization oriented program would be a major improvement.²⁷

2.5.1 Summary and Conclusions

All provinces make transfers to their municipalities and, to a much smaller extent, the federal government also makes contributions. Total grants average about 20 per cent of municipal revenues across the provinces. Discrepancies in the levels of per capita grants between two data sources raises questions about the relative importance of transfers among the provinces but does not dispute the importance of total transfers to municipalities. Transfers may be made for operating or capital purposes. Alberta is unusual in that almost three-quarters of the transfers are for strictly capital purposes. In no other province does that exceed 50 per cent. Transfers are typically conditional; that is, are to be used for a purpose designated by the grantor. Grants to support transportation (especially), environment and recreation/cultural programs dominate transfers to the municipalities. Also, some transfers are unconditional. Alberta is unique in having a very small portion of unconditional transfers. In contrast, in British Columbia, Saskatchewan and New Brunswick unconditional transfers make up well over half of total transfers and in Manitoba and Nova Scotia, they are almost one-half. Bird and Slack (2021) see the provincial grant systems as a “hodgepodge” and in need of reform. They argue that many grants could be replaced by a well-designed and transparent unconditional transfer program.

2.6 The Determinants of Municipal Infrastructure Investments

A municipality’s capital stock is equal the depreciated capital stock from the previous year plus investment that occurs during the year. We used this relationship to investigate how some fiscal and demographic variables may influence the annual change in a municipality’s capital stock; that is, its annual infrastructure investment. The panel regression results for cities, municipal districts and specialized municipalities, towns, and villages based on data for the years 2009 to 2019 are shown in Table 3.

²⁷ Bird and Slack (2021) review grant, and especially unconditional grant programs and recommend allocation formulae. Further information on the characteristics of provincial unconditional transfers is provided in Slack et al. (2007). McMillan (1981) discusses issues with the Alberta unconditional grants of the time and reviews selected alternative distribution methods.

Table 3. Panel Regression Results by Type of Municipality

	Cities	Sp.Mun & Co/MDs	Towns	Villages
kbypcr	0.9551377 <i>35.4</i>	0.8869143 <i>60.4</i>	0.910272 <i>72.1</i>	0.939023 <i>82.0</i>
pop	-0.0033185 <i>-2.69</i>	0.1071903 <i>1.5</i>	-0.00145 <i>-0.05</i>	0.635233 <i>0.26</i>
popch	1695.902 <i>1.37</i>	5117.954 <i>3.03</i>	-1086.43 <i>-1.86</i>	-264.238 <i>-0.21</i>
pktpcr	0.7555888 <i>4.68</i>	1.027349 <i>13.13</i>	1.134456 <i>28.26</i>	1.066116 <i>40.05</i>
cdapcr	1.02293 <i>9.72</i>	1.103793 <i>8.45</i>	0.88983 <i>14.47</i>	0.992626 <i>9.98</i>
tapcr	0.0087981 <i>2.44</i>	0.0048951 <i>4.12</i>	0.003803 <i>1.95</i>	0.00103 <i>0.15</i>
mfir	0.0135881 <i>1.41</i>	0.0119902 <i>1.46</i>	-0.00635 <i>-1.38</i>	0.010952 <i>1.07</i>
cons	-1575.969 <i>-1.13</i>	-1713.173 <i>-1.62</i>	1154.61 <i>2.15</i>	-665.416 <i>-0.45</i>
Number of observations/Municipalities	176/16	715/65	1078/98	880/80
R Squared Statistics	0.931	0.967	0.982	0.9565
t statistics in italics				

The dependent variable in these regressions is the end of year real per capita capital stock. The acronyms for the dependent variables are shown below:

kbypcr is the beginning of year real per capita capital stock

pop is population

popch is the rate of change in the population of the municipality over the previous three years

pktpcr is the real per capita provincial capital transfer

cdapcr is real per capita contributed or donated assets

tapcr is real per capita equalized property assessment

mfir is real median family income

Population and population changes were included in the regression equations because they may reflect the impact of demographics on the need for infrastructure investments.

Provincial transfers and donated assets are the major sources of funding for infrastructure.

Equalized assessment and family income are measures of fiscal capacity.

The coefficient on the real per capita beginning of the year capital stock should be equal to one minus rate of depreciation of the infrastructure stock. As expected, these coefficient estimates are positive, less than one, highly significant in all of the regressions. The coefficient estimates of other variables can be interpreted as showing their impact on annual real per capita

investment. Population has a negative and statistically significant coefficient estimate for cities but is not statistically significant for the other types of municipalities at the 95 per cent confidence level. The rate of population change over the previous three years has a positive and statistically significant coefficient estimate for the rural municipalities. Real per capita provincial capital transfer and real per capita contributed and donated assets have positive and statistically significant coefficient estimates in all regressions. Except for cities, these coefficient estimates are close to 1.00. Real per capita equalized property assessment has a positive coefficient estimate in all regression. The coefficient estimates for cities and rural municipalities are statistically significant at the 95 per cent confidence level per cent and the estimate for towns is borderline significant. The coefficient estimates indicate that, given the other demographic and fiscal variables, an additional \$1000 per capita of equalized property assessment increases real per capita investment by \$8.80 in cities, by \$4.89 in rural municipalities, \$3.80 in towns and \$1.03 in villages, although the latter is not statistically significant. The coefficient estimates for real median family income are positive in all regressions, except for towns, but are not statistically significant in any regression.

In summary, the regression models indicate that a municipality's population only seems to affect investment levels in cities, while the rate of population change has a positive effect on infrastructure investment in rural municipalities. As expected, increases in provincial capital transfers and contributed and donated assets are associated with higher levels of municipal infrastructure spending. Most notably from a public policy perspective, municipalities with higher equalized property assessments, and a greater capacity to raise revenues through the property tax, tend to spend more on infrastructure.

3. Financing Municipal Infrastructure

Municipalities can finance their purchases of capital assets from three main sources. They can borrow, draw upon their financial assets, or use current year revenues, which include transfers and developer agreements and levies.²⁸ In this section we consider the degree to which municipalities use these three sources of funds to finance the expenditures on infrastructure.

²⁸ In 2019, developer agreements and levies represented 1.7 percent of cities' revenues. They were a negligible source of funds for the other types of municipalities.

Table 4 shows the ratios of debt, financial assets from restricted funds, and current revenues to municipalities' purchases of tangible capital assets in 2015, 2017 and 2019.

Table 4. Sources of Funds for Capital Purchases

	Capital Debt	Restrict ed Funds	Current Year Revenues	Capital Debt	Restrict ed Funds	Current Year Revenues	Capital Debt	Restrict ed Funds	Current Year Revenues
	2015			2017			2019		
Cities	0.135	0.347	0.422	0.246	0.301	0.436	0.220	0.353	0.386
Sp. Mun & Co/MDs	0.013	0.411	0.516	0.031	0.333	0.620	0.013	0.369	0.592
Towns	0.020	0.215	0.638	0.014	0.259	0.547	0.093	0.208	0.464
Villages	0.067	0.055	0.934	0.007	0.038	0.966	0.071	0.021	0.900
Summer Villages	0.000	0.027	0.971	0.000	0.006	0.994	0.000	0.136	0.864

The table indicates that current year funds, which include transfers from the federal and provincial government and contributed and donated assets, are the most important source of funds for financing capital and debt is the least important. Cities are the most reliant on debt but in these years capital debt was less than 25 per cent of tangible capital asset purchases. The table also indicates that debt was not an important source of funds for the other types of municipalities and more than 50 per cent of their capital funding was from current year revenues. Drawing on financial assets is an important source of capital financing for rural municipalities and cities. Villages and summer villages rely almost entirely on current revenues to finance their capital expenditures.

3.1 Debt Financing

As noted above, municipalities can borrow to finance infrastructure investments but they are constrained by limits established by Alberta Regulation 255/00 under the Municipal Government Act. The debt limit 1.5 times and the debt service limit is 0.25 times a municipality's adjusted revenue, which is defined as total revenue less capital transfers from the federal and provincial governments and contributed or donated tangible capital assets if included in total revenues.²⁹

²⁹ The debt limits for Calgary, Edmonton, Medicine Hat and the Regional Municipality of Wood Buffalo are two times the revenue of the municipality and their debt service limits are 0.35 times their revenue.

Table 5 shows the median ratios of debt levels to the debt limits and debt service levels to the debt service limits in 2019. Most municipalities' debt and debt service levels are well below the limits established by the provincial government. For cities, the median debt limit ratio was 0.372 and only five cities had ratios over 0.500, with Cold Lake having the highest ratio of 0.585. The median debt service limit ratio was 0.266, with only Beaumont having a relative high debt service limit ratio of 0.748. The median debt limit ratio was 0.255 for towns. Twenty one of the 106 towns had debt limit ratios above 0.5. The Town of Raymond had the highest debt limit ratio of 0.865. The towns' debt service limit ratios were also generally low with only six towns with ratios above 0.5. Slave Lake was the only municipality with a debt service ratio in excess of the limit. (This may be due to the debt incurred by rebuilding the town's infrastructure after 2011 fire.) Table 5 also indicates that the debt levels of the rural municipalities and villages are generally very low which is consistent with the data in Table 4 which indicated that debt plays a very limited role in financing their spending on infrastructure. In fact, 18 rural municipalities and 36 villages report zero debt. Only the village of Consort had a debt ratio in excess of the limit. Overall, the data in Table 5 indicate that municipal debt and debt service levels are well below the limits established by the provincial government except in a very few isolated cases.

Table 5. Median Ratios of Debt and Debt Service Levels to Limits in 2019

	Cities	MDs and SMs	Towns	Villages
Median Ratio of Debt Level to Debt Limit	0.372	0.090	0.255	0.022
Median Ratio of Debt Service Level to Debt Service Limit	0.266	0.090	0.204	0.037

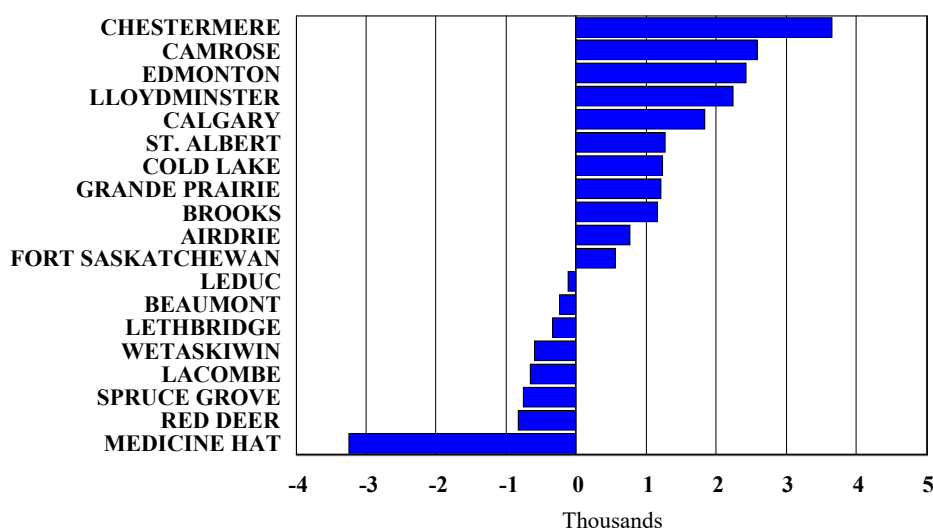
While Table 5 provides a snapshot of municipalities' relative indebtedness in 2019, the municipal finance data indicate that there has been relatively little change in the debt limit ratios since 2009, with about half of the cities, rural municipalities, and towns and only a quarter of the villages reporting increases in their debt limit ratios. The overall impression is that debt burdens

of municipalities relative to their revenues have remained relatively constant over the last decade.

3.2 Financial Assets

Municipalities hold short term financial assets to manage cash flow differences between the timing of the revenues and current operating expenditures. Some municipalities also hold long-term term financial assets to be used to finance future capital expenditures (such as roadways and water systems) and contingencies such as a dramatic downturn in revenues or unanticipated current and capital expenditures. Figure 13 shows that there are large differences in the per capita net financial assets among the cities in 2019, with Chestermere having \$3,657 per capita while Medicine Hat has a per capita net debt of \$3,244.³⁰

Figure 13. Cities' Per Capita Net Financial Assets (Net Debt) in 2019

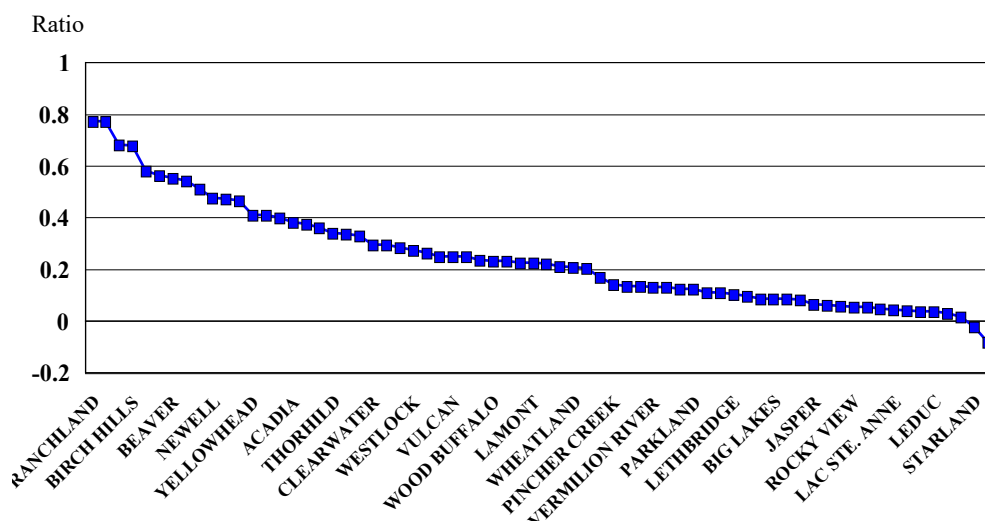


The situation is quite different for the municipal districts and specialized municipalities with half of these municipalities recording net financial assets of more than \$4,000 per capita and 14 having more than \$10,000 per capita. Only two, Starland County and Woodland County, have net debt. Many municipal districts and specialized municipalities have financial reserves that are large relative their needs for financing new and replacement capital assets. Figure 14 shows the ratio of net financial assets to tangible capital assets for 68 rural municipalities in

³⁰ The exceptional net debt results from a large debt supported by its utility (electricity and gas) operations.

2019. (Space permits only about one-third of the names to appear but 68 municipalities are included in the data presented.) Thirty-eight municipal districts and specialized municipalities have net financial assets that are more than 20 per cent of their tangible capital assets. Almost three quarters of towns have positive net financial assets, with the Town of Spirit River having \$6250 per capita. On the other side of spectrum, Slave Lake has a net debt of \$2,650.

Figure 14. Ratio of Net Financial Assets to Tangible Capital Assets for Municipal Districts and Specialized Municipalities in 2019



In the next section, we analyze in more detail the most important source of funding for municipal capital expenditures—provincial and federal capital transfers.

3.3 Transfers to Municipalities

In this section, we provide a more detailed look at federal and provincial transfers to Alberta's municipalities. Table 6 presents data on 20 municipal transfer programs in 2019-20. The MSI-Capital Funding program was the largest transfer at \$639.2 million and represented 40.3 per cent of total transfers to municipalities. Other provincial capital transfers included the Green Transit Incentives, Water for Life, and Albert Community Resiliency program. The Federal Gas Tax Fund, which is now called the Canada Community Building Fund, also funded capital spending by municipalities and was the second largest program at \$471.9 million.³¹ It is

³¹ As noted in section 2.4, federal Gas Tax Fund transfers to Alberta municipalities were exceptionally large in 2019 (about twice the typical annual amount). Also note (as reported by Municipal Affairs, Municipal Grant Funding 2010-2020 spreadsheet) that for economic stability reasons the MSI transfers have varied greatly from year to year with 2019 being almost the lowest. Thus, the 2019 data overstates the federal contribution and understates the

allocated among the municipalities on a per capita basis, with a minimum allocation of \$50,000 per year except for summer villages which receive \$5,000 per year plus the per capita amount.³² Total municipal capital transfers by the federal and provincial governments amounted to \$1.282 billion in 2019-20 and represented 80.8 per cent of total capital and operating transfers to municipalities.³³

Table 6. Transfers to Municipalities in 2019-20

Program	Type	Total Transfers	Percentage
Municipal Sustainability Initiative - Capital Funding	Provincial Capital Grant	639,191,126	40.29%
Federal Gas Tax Fund	Federal Capital Grant	471,873,741	29.74%
Family and Community Support Services Program	Provincial Operating Grant	99,533,654	6.27%
Green Transit Incentives Program	Provincial Capital Grant	80,495,915	5.07%
Municipal Policing Assistance Grant	Provincial Operating Grant	58,207,926	3.67%
Grants in Place of Taxes	Provincial Operating Grant	41,668,946	2.63%
Disaster Recovery Program	Federal Capital and Operating Grant	32,250,936	2.03%
Police Officers Grant Program	Provincial Operating Grant	30,000,000	1.89%
Municipal Sustainability Initiative - Conditional Operating Funding	Provincial Operating Grant	28,909,112	1.82%
Water for Life	Provincial Capital Grant	28,804,499	1.82%
Alberta Community Resiliency Program	Provincial Capital Grant	21,467,762	1.35%
911 Grant Program	Provincial Operating Grant	15,637,751	0.99%
Agricultural Service Board Grant Program	Provincial Operating Grant	12,588,635	0.79%
Alberta Community Partnership	Provincial Operating Grant	11,411,524	0.72%
Small Communities Fund	Federal-Provincial Capital Grant	8,520,645	0.54%
Summer Temporary Employment Program	Provincial Operating Grant	1,999,458	0.13%
Community and Regional Economic Support	Provincial Operating Grant	1,588,319	0.10%
Watershed Resiliency and Restoration Program	Provincial Operating Grant	1,354,000	0.09%
All Hazards Incident Management Team Program	Provincial Operating Grant	650,000	0.04%
Fire Services Training Program	Provincial Operating Grant	458,607	0.03%
Transfers to 341 municipalities in 2019-20			
	Total Provincial	1,073,967,234	67.69%
	Total Federal	504,124,677	31.77%
	Total Federal-Provincial	8,520,645	0.54%
	Total	1,586,612,556	100.00%

As noted above, the Municipal Sustainability Initiative (MSI) is the largest capital transfer program.³⁴ It was introduced in 2007 and is intended to provide support for

provincial transfers. However, the 2019 data were the only data available when the paper was drafted and any other recent year's data would reflect the substantial variation in the provincial numbers. The changes in provincial capital funding between 2015 and 2020 are discussed later in this section. In addition, the Municipal Affairs spreadsheet reported 30 different transfer programs to municipalities totalling \$1675.6 million while Table 6 reports 16 totalling \$1586.6 million.

³² <https://www.alberta.ca/federal-gas-tax-fund-funding-allocations-and-eligibility.aspx>

³³ Table 16 shows 13 typically small operating grants.

³⁴ This section is based on information provided by Alberta Municipal Affairs.

infrastructure investment in roads, water and wastewater infrastructure, public transportation, recreational facilities, firehalls, and libraries. Municipalities have significant flexibility in using these funds for capital projects. The current program is due to be replaced in 2024-25 with a revised program based on the *Local Government Fiscal Framework Act* of 2019. Except for Calgary and Edmonton, the criteria for allocating grants among municipalities under the new program have not yet been released by the Alberta government.

Table 7 provides additional insight into the Alberta government's grants to its municipalities. It summarizes provincial grants, with a focus on capital grants, over the province's fiscal years 2015-16 to 2020-21 that were made to approximately 365 municipalities or local authorities.³⁵ Although the 2020-21 data are not finalized, the information is sufficiently complete and worthy of note.

³⁵ In addition to cities, special municipalities, municipal districts, towns, villages and summer villages, these data includes improvement districts, one special area, Metis settlements and regional service commissions. The latter group of authorities account for only small percentages of the total transfers (e.g., 3 to 5 per cent).

Table 7. An Analysis of Provincial Grants to Alberta Municipalities, 2015-16 to 2020-21									
Panel A									
		Alberta Community Resiliency Program	Alberta Municipal Water/Wastewater Program	Water for Life	Green Transit Incentives Program	Municipal Sustainability Initiative - Capital Funding	Strategic Transportation Infrastructure Fund	Total Capital Grants	% of the 6 year total
2020-21 (not final)		65,474,330	61,196,584	779517a	17,157,282	970,914,819	42640787 b	1,158,163,319	13.9
2019-20		21,467,762	16,983,585	39,255,061	86,598,859	641,632,322	32,265,311	838,202,900	10.1
2018-19		-	32,588,790	40,034,578	209,471,293	634,762,645	22,473,005	939,330,311	11.3
2017-18		85,060,362	52,926,925	37,680,993	509,782,880	1,978,789,434	78,950,240	2,743,190,834	33.0
2016-17		60,255,703	52,267,090	99,144,718	90,463,424	1,188,419,819	587,000	1,491,137,754	17.9
2015-16		50,000,000	61,196,082		185,063,735	848,676,587	5,408,189	1,150,344,593	13.8
Six year sum		282,258,157	277,159,056	216,894,867	1,098,537,473	6,263,195,626	182,324,532	8,320,369,711	100
Percentage of grants by type		3.4	3.3	2.6	13.2	75.3	2.2	100	
Average annual capital grants		47,043,026	46,193,176	36,149,145	183,089,579	1,043,865,938	30,387,422	1,386,728,285	
Number of grants awarded in 2019-20		12	21	16	18	349	53	365	
Panel B									
		Total Capital Grants	Total Provincial Grants	Provincial Operating (non-capital) Grants	Percentage Capital Grants				
2020-21 (not final)		1,158,163,319	2,636,383,987	1,478,220,668	43.9				
2019-20		838,202,900	1,161,379,143	323,176,243	72.2				
2018-19		939,330,311	1,396,648,655	457,318,344	67.3				
2017-18		2,743,190,834	3,221,318,641	478,127,807	85.2				
2016-17		1,491,137,754	1,820,056,165	328,918,411	81.9				
2015-16		1,150,344,593	1,525,485,227	375,140,634	75.4				
Six year total		8,320,369,711	11,761,271,818	3,440,902,107	70.7				
Source: Alberta Municipal Affairs, Municipal Grant Funding 2010-2020.									
Notes: a) sum of two Water for Life programs, b) includes a stimulus transportation grant and a Terwillegar Drive grant.									

Panel A of Table 7 reports the funding under the provincial capital grant programs. The total funding has fluctuated substantially over the years – from a low of \$0.838 to \$2.743 billion (10 and 33 per cent of the six year total respectively) – largely due to economic stabilization efforts of the provincial government. The Municipal Sustainability Initiative program has consistently dominated the provincial capital transfers. It has averaged \$1.044 billion annually (with considerable fluctuation) and has provided 75.3 per cent of the capital transfers. MSI grants go to almost all municipalities – 349 of 365 in 2019-20 – while the other programs typically fund a relatively small number of municipalities in any year (e.g., between 12 and 53 in 2019-20).

Panel B reports the total provincial grants to municipalities and the operating (or non-capital) grants. Capital grants have averaged 70.7 per cent of the total grants over the six years

and have been notably lower (at 43.9 per cent) only in 2020-21.³⁶ The relative decline in the importance of capital grants was primarily due to the introduction of two large operating grants – the Municipal Stimulus Initiative of \$500 million and the Municipal Operating Support Transfer of \$576.5 million – to help stabilize municipal governments and their economies.

3.3.1 Review of Municipal Expenditures and Revenues

Before proceeding to examine further provincial transfers, it is useful to provide context by reviewing total municipal expenditures and revenues.³⁷ Expenses are considered first.

The levels of per capita expenses differ among the municipal classes. Total expenses and amortization expenses per person are reported in Table 8. Note, total expense includes amortization. The most notable features of total expense per capita is that the urban municipalities, be they cities, towns or villages, report very similar average per capita expenses. Looking at the first column of numbers, the total expenses for that group range from \$2889 to \$3187 (i.e., about \$3000 per person). The special municipalities and municipal districts, however, report per capita expenses of \$4521; that is, about 50 per cent greater. While the preceding numbers report the weighted average, the second column reports the simple average of spending in each of the municipalities. For the urban municipalities, there is little difference between the two averages. For the special municipalities and municipal districts, the simple average is \$5727 which indicates a distribution skewed upwards by higher spending municipalities. A signal of that distribution appears in the reported maximum and minimum where the maximum per capita expense is \$23,506 versus a minimum of \$1929. The urban municipalities also report wide ranges but relatively narrower than for the special municipalities and municipal districts (e.g., about 7 times for the towns and villages in contrast to 12 times for the special and rural MD group).

³⁶ Over the five years 2015-16 to 2019-20, capital grants averaged 78.5 per cent of total provincial grants to municipalities.

³⁷ This section draws from and extends the analysis in Dahlby and McMillan (2021, pp 2-9).

Table 8. Total Expense and Amortization Per Capita by Municipal Class, 2019				
	Total Expense PC (weighted av)	Total Expense PC (simple av)	Maximum	Minimum
Total Expense				
Cities	3187	3007	6243	1777
Sp Mun & MDs	4521	5727	23506	1929
Towns	2902	2997	9301	1343
Villages	2889	3164	8975	1259
ALL	3380	3726	23506	1259
Amortization				
Cities	563	566	1254	343
Sp Mun & MDs	1009	1264	4883	234
Towns	526	550	1549	296
Villages	619	709	2880	253
ALL	636	777	4883	234
Amortization as Percentage of Total Expense				
Cities	17.7	18.9	26.0	14.6
Sp Mun & MDs	22.3	22.3	45.8	9.7
Towns	18.1	18.5	31.4	8.1
Villages	21.4	21.9	46.6	11.5
ALL	18.8	20.5	46.6	8.1

Source: Alberta Municipal Affairs, FIR.

The data on amortization indicates the importance of municipal capital costs in the municipal budgets. Across the board, average amortization is a relatively consistent share of total expenses; that is, about 20 per cent. The percentage share is somewhat greater (at about 22 per cent) for the villages and for the special municipalities and municipal districts. The per capita dollar amounts of amortization are consistent with expenses – that is, also somewhat larger for the villages and much larger (approaching twice) for the special municipalities and municipal districts. Within the municipal groups, however, the ranges of the percentages are broad.

The allocation of expenses by function is also important to recognize. Table 9 shows the 2019 per capita expenses by eight broad functions for each of the four major municipal classes. The costly programs are not the same across municipal types. The higher level of expenses in the special municipalities and municipal districts can be attributed to high expenses for transportation and for general government. Transportation is also the major expense in the cities

where it is followed by protective services. Environmental services are dominant in the towns and villages with transportation also important. The towns also report relatively large recreation and cultural expenditures while the villages have (for the urban municipalities) comparatively high general government outlays.

	General Government	Protective Services	Transportation	Environment	Public Health & Welfare	Planning & Development	Recreation & Culture	Other	Total Expense	Amortization (included in total)
Cities	381	671	905	399	67	235	422	106	3187	563
Sp Mun & MDs	934	445	1712	542	86	282	453	68	4521	1009
Towns	402	347	562	672	92	179	592	56	2902	526
Villages	652	149	683	830	50	63	340	122	2889	619

Capital expenses, as reflected in amortization expense, are also not uniformly distributed among functions across the municipal classes. Table 10 reports the distribution of amortization cost across functions for each type of municipality. At over 70 per cent, transportation in the special municipalities and municipal districts stands out as the largest share of any in the table. On the other hand, with 7.3 per cent for recreation and cultural services and 12.0 per cent for environmental services, those are clearly low percentages for those categories compared to the other municipal classes. Next to transportation, the amortization of environmental related capital is a large item for towns and villages (possibly reflecting a lack of economies of scale among those urban communities). Recreation and culture is, at 19.3 per cent, the third largest item for the towns and it is the largest across the municipal types. For the cities, the amortization of transportation capital at 53.9 per cent of the cities' total is the largest component of amortization costs. Planning and development at 9.8 per cent for the cities is large compared to the other municipalities. Overall, transportation, although varying considerably, is the dominant component of amortization for all municipal classes.

	General Government	Protective Services	Transportation	Environment	Public Health & Welfare	Planning & Development	Recreation & Culture	Other	Total Expense
Cities	4.5	4.1	53.9	12.1	0.13	9.8	11.6	3.7	100.0
Sp Mun & MDs	3.9	3.6	70.7	12.0	0.15	1.8	7.3	0.5	100.0
Towns	3.8	4.4	42.9	27.8	0.47	1.0	19.3	0.31	100.0
Villages	4	4.4	42.8	36.7	0.18	0.09	11.6	0.25	100.0

The wide range of per capita expenditures found within each class of municipalities warrants further examination. Table 11 reports on the per capita expenditures by function for those municipalities within each class that spend over 1.5 times the class average. That is, it reports on the spending by the large spending municipalities. The spending of those municipalities can be compared with the averages by municipal class as reported in Table 9. First, none of the 19 cities had per capita expenses in 2019 that exceeded 1.5 times the average so no numbers are reported for the cities. Eight of the municipal districts (but none of the specialized municipalities) qualified as high spenders. Their per capita total expenses averaged \$12,269 in contrast to the class average of \$4521. Transportation was the largest item at \$5274 per person which was 3.1 times the average. Spending exceeded the average in all categories of outlay. The uniform above average expenditure across categories also holds true for the five high expense towns. For the villages, where the six with large expenses per capita averaging \$6501 compared to the class average of \$2889, in several categories, the spending of the large spenders is not that unusual. Rather, the high spending is concentrated in the environment category (\$3406 versus the \$830 average) and is rather greater for general government (\$1093 versus \$652). The high expense municipalities are, for the municipal districts, concentrated in those having large per capita equalized assessments, but that is not necessarily the case for the villages, towns and cities.

	General Government	Protective Services	Transportation	Environment	Public Health & Welfare	Planning & Development	Recreation & Culture	Other	Total Expense	Amortization (included in total)
Cities (0)										
Sp Mun & MDs (8)	1865	853	5274	1471	414	762	1533	95	12269	2834
Towns (5)	627	456	802	1040	162	992	1114	83	5277	748
Villages (6)	1093	160	811	3406	24	216	269	522	6501	2232

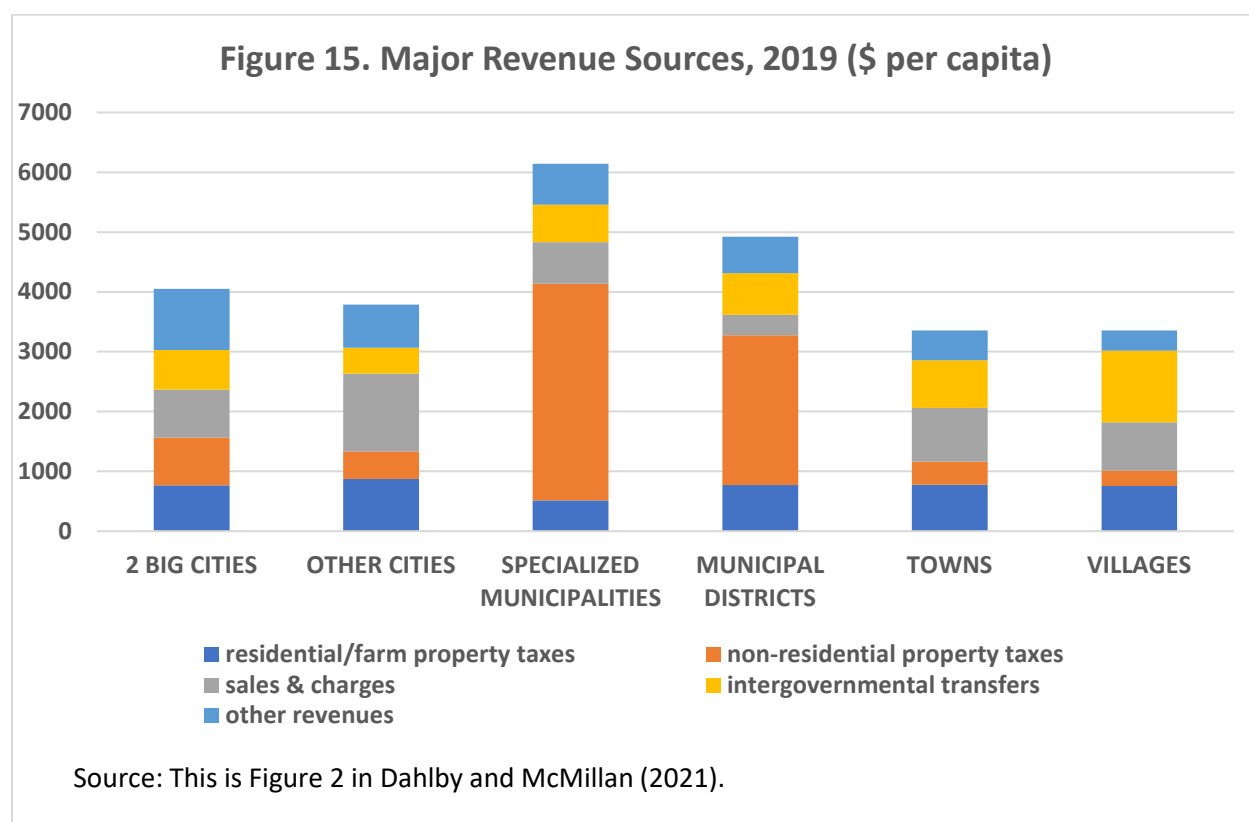
Notes: numbers in brackets indicate the number of municipalities

To close this discussion of expenses, the role of government grants in the financing of total expenses of the 2015 to 2019 years is reported in Table 12. Grants as a percentage of total expenses are reported for each of the four main classes of municipalities and for the group as a whole. The data for all four classes together shows considerable variation in the contribution of grants across the five years – from 11.4 to 25.4 per cent with an overall average of 15.9 per cent. The significance of transfers is different also across the four classes with the cities and the special municipalities and municipal districts averaging about 15 per cent while the towns averaged 20.8 per cent and the villages 36.6 per cent. In terms of dollars of provincial grants per person, the cities receive the least at \$474 per capita while the villages receive the most at \$981. The towns and the special municipalities and municipal districts are intermediate at \$560 and \$646 per capita respectively.

	2019	2018	2017	2016	2015	5 year average percentage	5 year average grant (dollars per capita)
Cities	10.8	10.4	26.2	15.2	14.0	15.2	474
Sp Mun & MDs	11.0	12.3	21.9	18.4	11.9	15.1	646
Towns	15.7	15.4	26.5	24.9	22.3	20.8	560
Villages	31.5	29.8	44.5	41.4	36.1	36.6	981
All four classes	11.4	11.4	25.4	17.1	14.5	15.9	519

Notes: The grants are the total of federal and provincial (operating and capital) transfers to Alberta municipalities. Grants are for the Alberta government's fiscal year and from Municipal Affairs' Municipal Grant Funding 2010-20 file but total expenses are from the FIR data which follow the calendar year.

We conclude this section with a brief note on the major revenue sources of Alberta's municipal governments. There is no need to dwell on the topic since it has been addressed adequately in Dahlby and McMillan (2021) and the information is summarized in Figure 15 which appears (as Figure 2) in that paper. The striking feature in the figure is the large contributions of non-residential (i.e., the not residential or farm) property taxes to the specialized municipalities and the municipal districts. Their contribution to municipal finance and the unevenness of the contributions is a feature that receives further attention below.



A number of important features have emerged from this discussion of municipal expenses and revenues. The most important are highlighted in this summary. Total per capita expenses are highest in the special municipalities and municipal districts and they average about 50 per cent above those in the urban municipalities. Amortization averages about 20 per cent of total expenses but are somewhat larger for the villages and the special municipalities and municipal

districts classes. Transportation is a major expenditure across all municipality types but environmental services are also substantial (especially in the villages). Transportation is the dominant element in amortization for all municipal classes; that is, reflecting its importance in capital expenditures. Environment follows especially in the towns and villages. There is a wide range in per capita expenditures in all municipal classes. A number of municipalities spend more than 1.5 times their class average and an examination of 2019 spending shows the patterns and levels. Only the cities did not have any city in the over 1.5 times category. Total (federal and provincial) grants met an average of 15.9 per cent of municipal expenses over the 2015 to 2019 period but with considerable year-to-year variation. Those transfers covered about 37 per cent of expenses of villages, 21 per cent of town's and about 15 per cent of the special municipalities and municipal districts and of the cities. Other major sources of revenues are property taxes and sales and charges. In contrast to other municipal classes, non-residential property taxes are the dominant revenue source for the special municipalities and the municipal districts.

3.3.2 The Allocation of Provincial Transfers

The Municipal Sustainability Initiative (MSI program) has been (at over 75 per cent) the major capital grant and also the dominant grant in the Alberta municipal grants system (at almost 69 per cent of the total grants). While the MSI has a small operating grant component (e.g., about 4 per cent in 2019-20), it is essentially a capital grant. The current allocation formula, which is described in Box 1, is complex in part because the Basic Municipal Transportation Grant (BMTG) and several other programs were consolidated with their existing allocation formulas into the MSI program. The current formula clearly reflects a desire to provide more per capita funding to smaller municipalities, and there are special provisions for Calgary and Edmonton and other types of municipalities. An important and controversial aspect of the formula is the provision that allocates grants based on the municipalities' shares of the total education property tax requisitions. Since the share of provincial education tax revenues collected in a municipality is directly related to its share of total property tax assessments, this provision tends to provide larger grants to municipalities with larger property tax bases. In other words, municipalities with greater fiscal capacity, as measured by their property tax bases, tend to receive larger capital transfers. Another feature of the formula is an allocation based on a municipality's share of the overall length of roads in the province. However, this component of the allocation formula seems small relative to municipalities' annual expenditures on Roads, Streets, Walks and

Lighting, which is the largest category of municipal government capital expenditures, representing 30 per cent of total capital expenditures in 2019.

Given the complexity and opacity of the MSI allocation formula, it is important to consider the effective distribution of capital transfers among the municipalities.³⁸ Figure 16 shows that in 2019-20 Calgary and Edmonton's shares of total provincial capital transfers were less than their shares of the population. Conversely, the shares of the other of types of municipalities exceeded their population shares. The relatively large gaps between the villages, summer villages and improvement districts' shares of the capital transfers and population shares are an intended consequence of the MSI allocation formula. However, the large gap between the municipal districts' shares of the transfers, 15.6 per cent and their population share, 11.2 percent, is a less obvious outcome of the MSI distribution formula.³⁹

³⁸ Provincial capital transfers include MSI Capital Funding, Alberta Community Resiliency, Green Transit Incentives, and Water for Life programs. The MSI Capital Funding represented 81 per cent of these grants. Note also, although not included in Table 6, there were two other provincial capital transfer programs – that is, the Alberta Water/Wastewater Program and the Strategic Transportation Infrastructure Fund (see the updated information in Table 7).

³⁹ Also note in Table 1 the total transfers per capita (i.e., the MSI and other transfers) in 2019.

Box 1

The MSI Allocation Formula

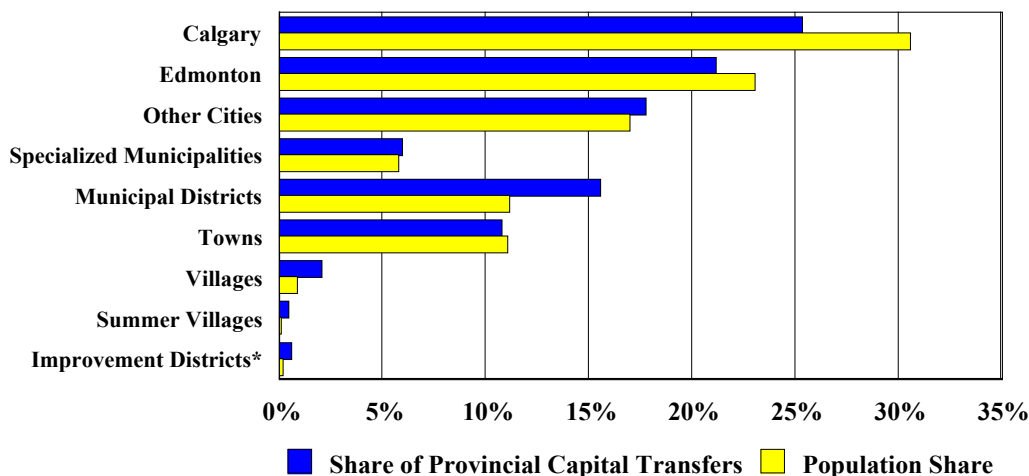
1. Calculate total MSI allocations (capital plus operating).
 - a. Set aside \$9 million for Sustainable Investment. This is allocated later as part of MSI Operating.
 - b. Allocate base funding to all municipalities (\$120,000 for most municipalities, \$60,000 for summer villages).
 - c. The remaining funding is dividing into three components:
 - i. 48 per cent of the funding is allocated to each municipality according to their share of the overall population.
 - ii. 48 per cent of the funding is allocated to each municipality according to their share of the overall education tax requisition.
 - iii. 4 per cent of the funding allocated to each municipality according to their share of the overall length of roads in the province.

2. Calculate MSI Operating allocations for municipalities other than Calgary and Edmonton.
 - a. Allocate base operating funding (\$10,000 for most municipalities, \$5,000 for most summer villages. Municipalities with fewer than 100 people get a prorated amount based on their population).
 - b. Allocate the remaining operating funding based on shares of total MSI funding.
 - c. Allocate the \$9 million for Sustainable Investment.
 - i. \$6.3 million is allocated to urban municipalities with fewer than 10,000 people and less than 60% of the average equalized assessment per capita among urban municipalities.
 - ii. \$2.7 million is allocated to rural municipalities with fewer than 10,000 people and less than 60% of the average equalized assessment per kilometre of road among rural municipalities.
 - d. Subtract \$91 million from Calgary's allocation, and \$61 million from Edmonton's allocation.

3. Calculate BMTG allocations.
 - a. Calgary and Edmonton receive allocations based on provincial sales of taxable road-use gasoline and diesel (\$0.011825 and \$0.009675 per litre, respectively).
 - b. Other cities¹ receive \$60 per capita, plus \$1,959 per kilometre of primary highway under the city's jurisdiction and within the city's boundaries.
 - c. Other urban municipalities with more than 300 people receive \$60 per capita, and smaller urban municipalities receive an \$8,000 base amount plus \$33.33 per capita.
 - d. Rural municipalities receive a fixed amount based on the former Rural Transportation Grant, plus \$60 per capita for eligible hamlets.
 - e. Metis Settlements receive \$60 per capita, plus a fixed amount based on the former Rural Transportation Grant.

4. For each municipality, subtract the operating allocation from the total allocation, then add the BMTG allocation. The result is the MSI capital allocation.

Figure 16. Distribution of Provincial Capital Transfers and Population Shares in 2019-20



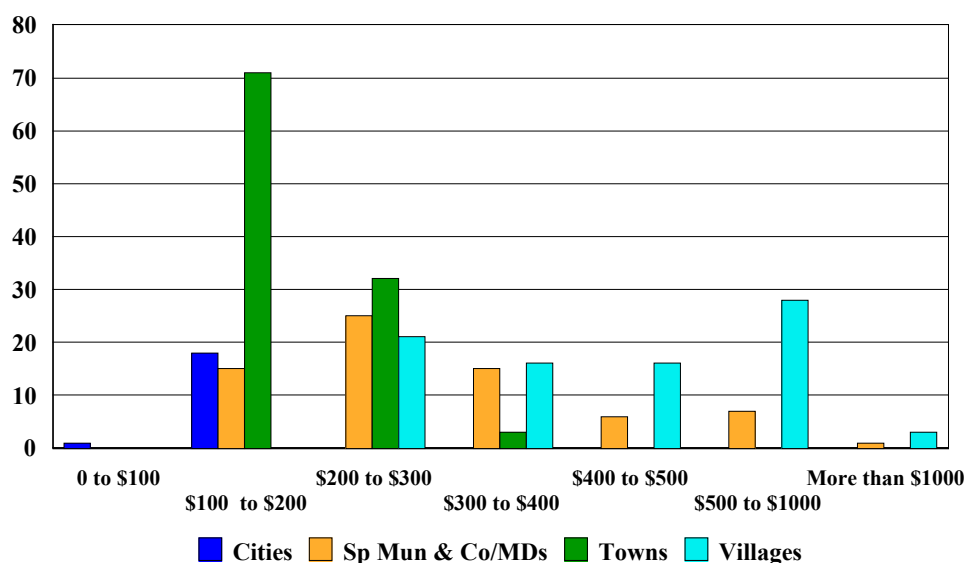
Notes: Provincial Capital Transfers includes MSI Capital Transfers, Alberta Community Resiliency, Green Transit Incentives and Water For Life Programs

*Includes Special Areas Boards

Some summer villages have very small permanent populations and consequently received very large per capita MSI capital grants. Twenty two summer villages received over \$1000 per capita and three received over \$6000 per capita. Therefore, the distribution of MSI grants among the municipalities reflects the relatively small number of very large per capita grants to the summer villages. To avoid having these small number of very large per capita grants from dominating the portrayal of the distribution of grants, Figure 17 only shows the distribution of the per capita MSI capital transfers for the other four types of municipalities.

As Figure 17 indicates, the distribution of the transfer among the cities was relatively narrow. All the cities, except Lloydminster, received between \$100 and \$200 per capita. The distribution of grants among the towns was wider but still relatively concentrated with 67 per cent of the towns receiving between \$100 and \$200 per capita. In contrast, there was a wide range of values for the per capita grants among the rural municipalities and the villages, with 12 per cent of the former and 37 per cent of the latter receiving more than \$500 per capita.

**Figure 17. The Distribution of Per Capita MSI Capital Transfers
By Types of Municipalities in 2019-20**



To obtain more insights into the effective allocation of the MSI capital transfers, we estimated econometric models of the per capita MSI capital transfer in 2019-20 for each of the four types of municipalities. Population, per capita equalized assessment and kilometres of roads are variables in the allocation formula for MSI transfers.

Table 13. Regression Results for MSI Capital Funding Per Capita in 2019-20

	Cities	Sp Mun & Co/MDs	Towns	Villages
Population	-2E-05 <i>-4.13</i>	0.0000282 <i>0.04</i>	-0.0033 <i>-3.07</i>	-0.6295 <i>-6.76</i>
Per Capita Equalized Assessment	0.0002 <i>1.63</i>	0.0003567 <i>3.06</i>	0.00013 <i>1.62</i>	0.00011 <i>0.89</i>
Km of Roads Per Capita	1012.8 <i>1.03</i>	636.232 <i>5.27</i>	2617.61 <i>5.86</i>	687.989 <i>0.32</i>
Dummy variable for Specialized Municipalities		121.615 <i>2.21</i>		
Constant	104.508 <i>4.49</i>	-94.64518 <i>-1.04</i>	145.358 <i>11.97</i>	712.697 <i>0</i>
Number of Observations	19	69	106	84
R Squared Statistics	0.407	0.8433	0.5258	0.6436
Robust t statistics are shown in italics.				

As expected, the econometric models indicates that urban municipalities with small populations received higher per capita transfers. Per capita transfers were significantly higher in rural municipalities with higher per capita equalized property tax assessments.⁴⁰ This is not surprising given that a large share of the transfer is based on municipalities' shares of the education property tax requisition.

The impact of higher per capita assessment on the per capita transfer at first sight seems quite modest. The regression model indicates that an additional \$1000 per capita in a rural municipality's property tax assessment is associated with an additional \$0.35 in per capita MSI capital grants. However, there are large variations in the per capita property tax assessments among the rural municipalities. While the median per capita equalized property assessment was close to \$350,000, five rural municipalities had per capita assessments of over \$1 million. The regression model indicates that an additional \$650,000 in per capita property assessment would increase the per capita MSI grant by \$232. High per capita assessments may be one of the reasons why a small number of rural municipalities and villages received relatively large per capita transfers in 2019-20. Finally, the econometric models indicated that per capita transfers were higher in municipalities with more kilometres of roads, but the coefficient was only statistically significant for rural municipalities and towns.

3.3.3 Capital Transfers and Capital Purchases

Capital purchases by the 332 municipalities averaged \$4.787 billion annually over the five years 2015 to 2019.⁴¹ Provincial capital transfers averaged \$1.396 billion annually to those municipalities.⁴² Hence, capital transfers funded 29.2 per cent of municipal capital outlays. In per capita terms, the purchases averaged \$1 141 per person and the transfers \$332.83. Table 14 below reports average per person transfers and capital purchases by type of municipality.

⁴⁰ In the regressions for cities, towns and villages, the estimated coefficients on per capita equalized property tax assessments were positive but not significantly different from zero. Simple correlations between the per capita total provincial capital transfers and per capita equalized total assessments show the specialized municipalities and municipal districts having the highest correlation at 0.64 with the cities at 0.43. Those for the towns and villages were essentially zero. Interestingly, the correlation for the summer villages was a 0.77.

⁴¹ The grant data studied in this section come from the Municipal Grant Funding 2010-2020 file of Alberta Municipal Affairs and the capital purchase data are from Municipal Financial Statistics collected by Alberta Municipal Affairs and accessed in February 2022. The latter report covers Financial Information Reports from 332 municipalities. Subsequent analysis in the paper (notably that in Section 4) is based on an early version of the FIR reports which covered 327 municipalities (i.e., less one town, two villages and two summer villages).

⁴² Note that here we discuss total provincial government capital transfers (not just the MSI funding). See Table 7 for information on these capital transfers.

Average capital purchases range between \$972 and \$2127 with the largest being in the special municipalities and municipal districts group and the summer villages and the lowest being those in the cities and towns.⁴³ Equally interesting is the range in the capital purchases among the municipalities of each group and, in turn among those across the province for which the range is from \$38 to over \$20,000 per person. Capital transfers show similar differences. Across the groups, they range \$248 (the cities) to \$1697 (summer-villages) with the next largest being a considerably lower \$742 for the villages. Again, the range observed among the individual municipalities is huge – from \$191 to \$9927.⁴⁴

	Cities	Special Municipalities & Counties/MDs	Towns	Villages	Summer Villages ^a	All Municipalities
Capital Transfers	248	641	346	742	1697	333
(min/max)	196/339	229/3394	191/1491	250/9927	381/7890	191/9927
Capital Purchases	972	1839	1026	1367	2127	1141
	387/2675	465/7985	191/5632	245/20645	38/11724	38/20645
Capital Transfers as % of Capital Purchases						
a) based on per capita averages (above)	25.5	34.9	33.7	54.3	79.8	49.1 ^a
	9.5/58.4	10.9/226	8.5/223	10.7/303	14.9/694 ^b	8.5/694 ^b
b) based on total transfers as % of total purchases by class	29.3	28.0	28.8	46.9	65.6	29.2
Note: a) This figure is not based on the above two averages but are based on the average of the per capita share of transfers to purchases over the 332 municipalities which is \$712 to \$1450 and demonstrates the impact of larger per capita grants to small population municipalities. b) Maximum with three observations exceeding 1000% excluded.						
Sources: Capital transfers from the Municipal Grant Funding 2010-2020 file provided by Alberta Municipal Affairs. Capital purchases are from those reported by the municipalities in column 03120 of Schedule F of the Municipal Statistics. Calculations are the authors'.						

⁴³ Caution is warranted in considering the summer village numbers since the numbers may represent revenues and expenditures made on behalf of those who are not permanent residents.

⁴⁴ A previous analysis based on FIR data found that a number of municipalities reported zero transfers over the five year period. Most of those were in the villages and summer villages but at least one appeared in all classes but the cities. The more complete provincial data shows that there were no zero grants.

The lower portion of Table 14 reports the capital transfers as a percentage of capital purchases by class. The first row shows the percentages based on the class averages. Those range from 25.5 per cent in the cities to 79.8 per cent for the summer villages. That is, capital transfers to smaller municipalities tend to cover a larger portion of capital purchases. That is also valid when looking at the percentages calculated from total transfers to total purchases by class; that is row b (rather than the average of the individual municipality amounts). Thus, while overall, capital transfers amount to 29.2 per cent of capital purchases, the average municipality receives a transfer amounting to essentially one-half (i.e., 49.1 per cent) of its capital purchases.⁴⁵ Even over the five year period, the contribution of transfers differs substantially among individual municipalities – from less than 10 per cent in some municipalities in each class to over 100 per cent (specifically to over 200 per cent in special municipalities and municipal districts and in towns, to over 300 per cent in villages, and even to over 1000 per cent in some summer villages).⁴⁶

The analysis in this section focuses on the capital transfers and capital purchases of Alberta municipalities over the 2015-2019 period. The averages over the five-year period are examined because capital purchases and grants may be irregular, especially in smaller municipalities. Looking over a five-year period reduces the effect of year-to-year irregularities. We show that capital transfers as a percentage of capital purchases are very uneven across Alberta municipalities. This situation leads one to question whether Alberta's municipal capital grants programs are actually directed at assisting capital undertakings and whether those programs are treating municipalities in a logical and consistent fashion.

Table 15 reports provincial government capital transfers as a percentage of municipal capital purchases by municipal class and for aggregates across classes. The striking feature throughout is the wide differences among municipalities in the contribution of provincial

⁴⁵ This difference in percentages arises because while total transfers to all municipalities amount to 29.2 per cent of the capital purchases of all municipalities, the transfers to individual municipalities range from 8.5 per cent to 303.3 per cent of capital purchases (ignoring the summer villages) and the distribution is skewed towards municipalities receiving transfers amounting to more than 29.2 per cent of purchases. Specifically, 81 municipalities received transfers amounting to less than 29.2 per cent of their capital purchases while 251 received transfers in excess of 29.2 per cent. The municipalities for which transfers represent a larger share of purchases tend to have smaller populations and receive smaller (total) amounts.

⁴⁶ It was thought that the large per capita and percentage disparities might be due to large but infrequent capital grants to low population municipalities. An examination of grants to municipalities receiving average capital transfers exceeding 100 per cent of capital purchases indicated that this was not the reason. It appears that the large variations are embedded in the MSI funding formula.

transfers. Looking at all municipalities together (the bottom line of Table 15), provincial capital transfers amounted to 59.1 per cent of capital purchases.⁴⁷ However, some municipalities received transfers as little as 8.5 per cent of purchases while one received provincial capital transfers that were three times (303.3 per cent of) its capital purchases. A possible better indication of the distribution of the contributions provided by provincial capital transfers comes from the four columns on the right-hand side of the table. Those report the average contribution of transfers to four subgroups of municipalities. Those subgroups are structured by dividing the municipalities into those having above and below average contributions and then dividing each of those two groups into half. For the 43 municipalities in the subgroup receiving the largest percentage contributions, transfers averaged 161.2 per cent of (over 1.5 times) capital purchases. The 121 municipalities that received the lowest percentage contributions from transfers received on average capital transfers amounting to only 24.9 per cent of capital purchases. Even in the subgroups just above and just below the overall average, their averages are quite different – 85.7 per cent for the mid-high subgroup and 48.4 per cent for the mid-low subgroup. The data demonstrate quite clearly that while provincial capital transfers funded about half of the capital purchases of a typical Alberta municipality between 2015 and 2019, the contributions among the municipalities were most uneven.⁴⁸

⁴⁷ Note that the percentages reported here are the averages of the percentages calculated for each municipality – hence the differences from the values appearing in Table 14. Also, the difference compared to the 50.9 per cent average for all municipalities but the summer villages exists because the majority of summer villages receive capital transfers exceeding capital purchases (often by a large percentage) although the amounts per summer village are typically comparatively small.

⁴⁸ In overall dollars, the total provincial transfers amounted to about 30 per cent of total municipal capital purchases. However, the average of the per capita dollar contributions to each municipality (which is reported in Table 14) is about one-half and the average of the percentage contributions to each municipality as reported in Table 15 is 59.1 because the provincial contributions and particularly the percentage contributions are relatively (i.e., to capital purchases) larger to the smaller municipalities even though those municipalities receive smaller dollar amounts of transfers.

Table 15. Provincial Capital Transfers as a Percentage of Capital Purchases by Municipal Type, Average of 2015 to 2019 ^a							
	Average	Maximum	Minimum	Subgroup Relative to the Average ^b			
				highest	mid-high	mid-low	lowest
Cities	30.8	58.4	9.5	46.5/4	34.5/4	28.6/6	17.2/5
Sp M & MDs	43.4	226.5	10.9	86.2/13	50.4/13	36.2/22	20.2/21
Towns	43.3	223.3	8.5	97.2/17	49.7/17	36.6/36	22.0/37
Villages	70.8	303.3	10.7	153.2/16	84.3/16	53.7/27	31.1/27
All but SV	50.9	303.3	8.5	137.4/33	69.6/33	45.0/108	24.5/107
Sum. Vill. ^c	108.0	270.9	14.9	192.1/10	132.2/10	93.3/10	40.4/10
All ^c	59.1	303.3	8.5	161.2/43	85.7/44	48.4/122	24.9/121

Notes: a) Sources are the same as for Table 14.

b) The municipalities in each class are divided into four groups. First the municipalities are divided into those above and below the average. Those two groups need not be of equal size. Then, those in the above and below average groups are split in half (if an even number, or approximately half if odd). The numbers reported in each cell are the average percentage value for the subgroup (preceding the /) and the number of municipalities in the subgroup (following the /).

c) Four observations with percentages exceeding 500 are excluded in an effort to minimize distortion.

Looking across the classes of municipalities, a pattern is observed. The average contribution of capital transfers to a municipality increases as one moves from cities (30.8 per cent) to special municipalities and municipal districts (43.4), towns (43.3), villages (70.8) and summer villages (108.0). The disparities, however, are large in each class. It is lowest across the cities where the transfers ranged from 9.5 per cent to 58.4 per cent of capital purchases. In all the other classes, the range goes from less than 10.9 (but 14.9 per cent in the case of summer villages) to over 200, or even 300, per cent.⁴⁹ If one calculates the ratio of the average of the highest subgroup to that of the lowest subgroup, those ratios are considerable across the municipal classes – a relatively modest 2.7 for the cities but are in the 4 to 5 times range across

⁴⁹ In many cases, there are notable differences between the provincial transfers reported by the municipalities in the FIR data and that reported in the Municipal Affairs grant data. Most obvious was that a number of zero observations are reported in the FIR data when they are positive in the provincial government data. Part of the reason for that may be because municipalities can “bank” capital transfers for up to five years and, in their accounting, they may not recognize grant revenue until the associated conditions have been met (e.g., construction completed). Also, some capital purchases may not qualify for grant support. Nonetheless, given the five year period examined and the provincial grant data are employed, the extremes observed are noteworthy.

the other municipality types. Over the four main municipal classes, that ratio is 5.6 and it is 6.5 across all municipalities (i.e., when summer villages are included). That is, the average contribution of capital transfers to capital purchases for the highest subgroup is 6.5 times the average contribution to the lowest subgroup. Overall, the disparities in the relative contributions of the provincial capital grants are ubiquitous – they exist in each municipal class and they are large in each as well as overall.

To provide a further perspective on provincial capital transfers, Table 16 reports on the average annual per capita dollar amount of provincial transfers over the five-year period.⁵⁰ Here one can see that there are substantial differences in the amount of average per capita capital transfers both across and within municipal classes. Cities received the lowest amounts, \$248 per capita, while villages received the largest amounts at \$741. In all classes, but especially in the case of the villages, there was a wide range between the minimum and maximum. The large (\$9927) maximum in the village case arises from one small village (population of about 300) receiving large grants (mostly related to water and wastewater infrastructure purposes) in three of the five years. Nonetheless, the nine villages receiving the largest per capita grants received an average of \$2605 while the next highest (the mid-high) group received an average of \$829 per person and the lowest received \$363. The unevenness across municipalities is more modest for the other municipal classes but still the ratio of the highest to the lowest subgroups is still 1.6 for the cities, 3.2 for the towns and 4.7 for the special municipalities and municipal districts (versus 7.2 for the villages and 5.6 overall).

⁵⁰ Summer villages are not included because per capita values are not comparable since the permanent population is much smaller than the number of summer residents. This difference is reflected in the difference between the number of dwellings (i.e., permanent residences) versus the number of residences. In 2019, the average summer village had 48 dwellings but included 157 residences.

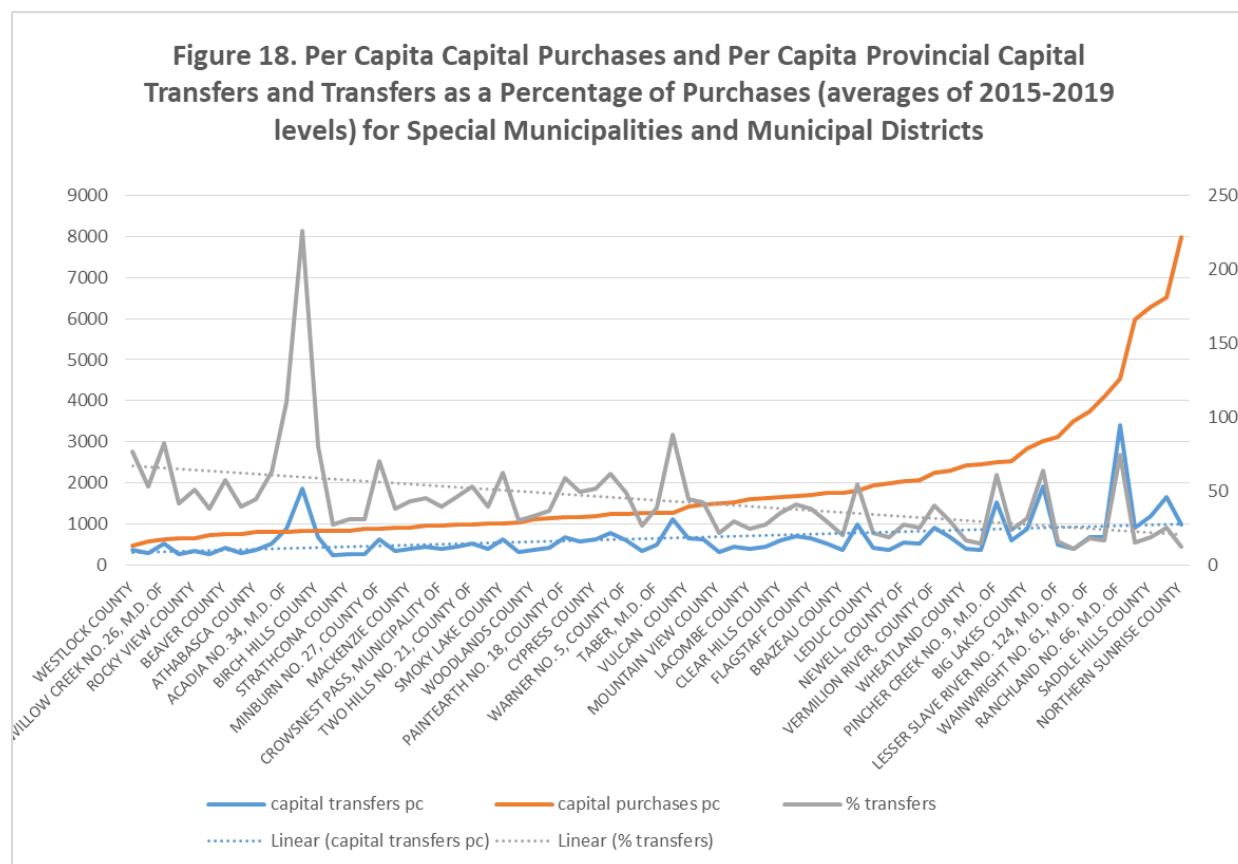
Table 16. Alberta Government Capital Transfers (annual average of 2015 to 2019), Dollars Per Capita ^a							
	Average	Maximum	Minimum	Subgroup Relative to the Average ^b			
				highest	mid-high	mid-low	lowest
Cities	248	339	196	316/4	269/4	229/6	200/5
Sp Mun & MDs	641	3393	229	1552/10	741/11	525/24	333/24
Towns	346	1491	191	749/14	399/14	299/39	233/40
Villages	741	9927	251	2605/9	829/10	597/33	363/34
All but SV	533	9927	191	1443/40	632/41	405/100	256/100
Notes: a) Summer villages are excluded as per capita numbers are not comparable.							
b) See note b of Table 15.							
Source: Municipal Grant Funding 2010-2020 file from Alberta Municipal Affairs.							

The patterns noted are illustrated for the specialized municipalities and municipal districts in Figure 18. Plotted there are the per capita average annual municipal capital purchases, per capita Alberta government capital grants and (on the right-hand scale) transfers as a percentage of purchases. The observations are arranged according to per capita capital purchases (from low to high) as depicted by the steadily increasing line. (Due to space, only about one-half of the names of the 69 observations appear.) Obviously, there is the wide range in per capita purchases -- from \$465 to \$7985. The corresponding per capita dollar transfers are plotted in the irregular lower line of the figure. As shown by the trend line, the dollar amount of capital transfers increases with the amount of capital purchases but, as the irregularities indicate, there is considerable variation in transfers from one municipality to the next. That irregularity is reflected most clearly by the upper irregular line reporting transfers as a percentage of purchases. Note that there is a downward trend in the percentage transfers plot – that is, municipalities spending lower per capita amounts on capital purchases tend to have transfers covering a larger share of purchases than municipalities spending large amounts per capita.⁵¹ The variation around that trend, however, is extreme. For example, of two municipalities spending similar amounts, one may have received transfers that are one-half those received by the other.

These patterns are observed also across the cities, towns and villages. That is, per capita dollar transfers tend to increase with the per capita dollar amount of capital purchases across municipalities, transfers as a percentage of purchases tends to decline with the amount of per

⁵¹ The correlation between the levels of transfers and purchases is only 0.49 and that between the transfer percentage and the level of purchases is -0.35.

capita purchases, but (and as demonstrated in Table 15) there are large differences in the portion of purchases covered by transfers among municipalities and (as demonstrated in Figure 18) sharp differences in that percentage among municipalities having similar levels of per capita purchases.



The preceding analysis raises some doubts about the merits of Alberta's program of capital transfers to its municipalities. While some variation in the contribution rates might be expected (perhaps due to the type of project), one might reasonably expect that a program to assist municipalities in funding capital projects would tend to provide more even percentage levels of assistance to capital projects in all municipalities or, at least, to those in municipalities of a given class. That is certainly not the case observed.⁵² Even when averaging over a five-year period, among similar municipalities (and certainly in the amount of per capita capital spending),

⁵² The MSI grant (the largest provincial capital transfer program) formula is outlined in Box 1. Review of that reveals a large number of criteria but none specific to actual outlays for capital. Also, an examination of the MSI grants relative to capital purchases shows very wide variations in the contributions of those grants across the municipalities in each municipal class.

the support some receive is a multiple of that of that others receive.⁵³ Furthermore, when some municipalities receive transfers exceeding the level of capital purchases, one questions the logic of transfers to “support” capital projects. Finally, the fact that capital transfers amount about one-half the cost of capital purchases to a typical municipality while non-capital or operating expenditures receive little or no support from the province poses the question of a distorting influence. When capital outlays cost municipalities, on average, 50 cents on the dollar but non-capital outlays cost dollar per dollar, one expects that there is a bias towards capital undertakings (and/or capital biased means of production).⁵⁴ This imbalance between transfers for capital and for operating outlays, especially if each involves spillovers (as can be expected especially in the case of roads, policing, and environment), can lead to less than ideal and efficient choice of production methods and distribution of expenditures and services.

4. The Fiscal Capacity of Municipalities

In light of the irregular distribution of capital grants among Alberta municipalities, it is valuable to examine the fiscal capacities of municipalities and the relationships between fiscal capacities and other common fiscal indicators, namely the effective property tax rates, per capita property taxes paid by residents, and the property tax burden relative to incomes. The per capita non-residential property tax base is a primary determinant of fiscal capacity and it is found to be related to fiscal indicators.

4.1 The Property Tax Base: Total and Non-Residential

The amounts of taxable property per person differ substantially among Alberta municipalities. Table 17 shows the amount of total equalized assessment (i.e., equalized to ensure comparability across municipalities) per capita for the four major municipal classes (i.e., excluding summer villages) and the overall for those four. The averages across those classes differ considerably. The municipal districts and specialized municipalities stand out at the high

⁵³ This analysis looked at capital transfers as a percentage of capital purchases by municipality. Another way of looking at the unevenness of transfers to purchases, is to calculate for each municipality its share of total capital transfers relative to its share of total municipal capital transfers. The ratio would equal 1.0 for a municipality receiving a share of capital transfers equal to its share of capital purchases. (In the context of the preceding analysis, the ratio equals 1.0 when transfers amount to 29.16 per cent of capital purchases over the aggregate of the four major municipal classes.) Across the municipalities, those ratios range from 0.29 to 10.40 and the ranges by class are 0.32 to 1.99 for the cities, 0.36 to 7.86 for the special/rural municipalities, 0.29 to 7.74 for the towns, and 0.23 to 6.46 for the villages.

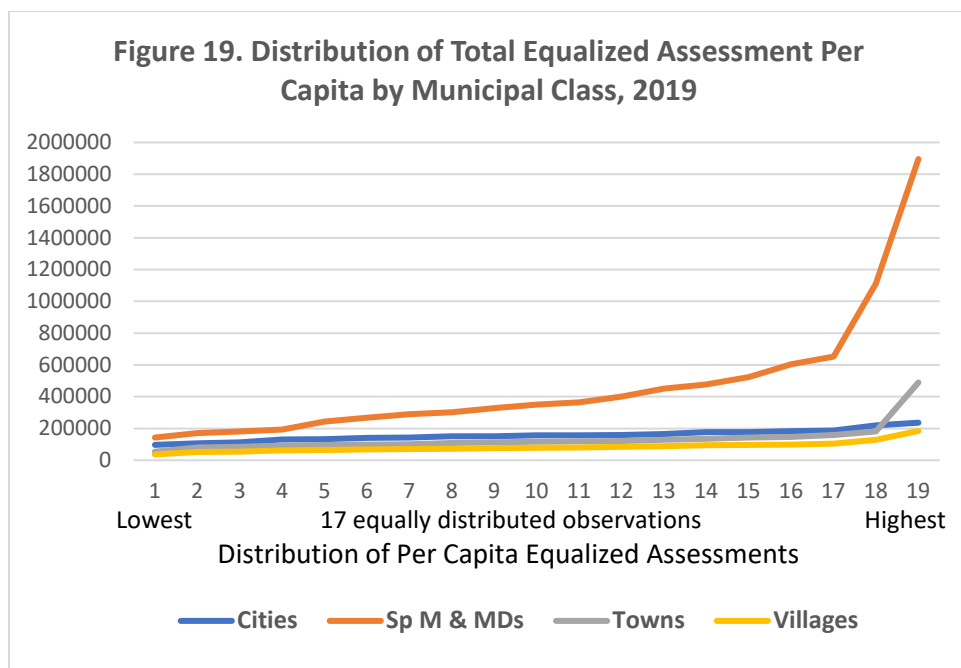
⁵⁴ For example, see the discussion in Martinez-Vazquez and Timofeev (2012).

end at \$436,149 per capita. The urban classes are much lower and especially the villages with a total of \$82,939 per person. Even the level in the cities is only 36 per cent of that in the special/rural municipalities.

Table 17. Total Equalized Assessment Per Capita, 2019 (dollars) ^a								
	Average	Maximum	Minimum	Std. Dev.	Subgroup Relative to Average ^b			
					highest	mid-high	mid-low	lowest
Cities	156,998	236,372	96,843	35,443	200,685/5	163,076/5	146,090/4	115,963/5
Sp Mun & MDs	436,149	1,895,835	142,795	307,212	970,802/12	496,377/13	339,937/22	205,141/22
Towns	123,084	489,650	53,909	49,830	191,349/19	135,227/19	113,539/34	87,694/34
Villages	82,939	184,334	36,608	27,467	126,072/16	91,593/17	75,213/26	57,491/25
All (but Sum. Vill.)	190,975	1,895,835	36,608	211,257	662,071/31	286,049/32	138,995/107	78,966/108
Note: a) Equalized assessments are from Schedule EA of Municipal Statistics.								
b) See note b in Table 15.								

The disparities within each municipal class are strikingly large as reflected in the ranges between the minimum and the maximum amounts. The differences between the minimum and the maximum is greatest in the case of the municipal districts and specialized municipalities where the largest is more than 13 times the lowest. Across all four classes, the maximum per capita total assessment is 51 times the minimum. The averages for the above and below average subgroups are less extreme but they are still large. Again, the disparity between the lowest and highest subgroups is greatest for the municipal districts and specialized municipalities and where the ratio of the highest to lowest is 4.7. Across the urban municipalities, the ratios are closer to 2. Across all the municipalities in the four classes together, the highest subgroup has a per capita equalized assessment of \$662,071 while the lowest subgroup in the range averaged \$78,966 per person (a ratio of 8.4). Other than for the cities, the number of municipalities with above average assessments is smaller than the number with below average assessments. Figure 19 illustrates the distribution and levels of the total assessment per capita.⁵⁵

⁵⁵ Observations are arranged by total equalized assessment per capita from lowest to highest. All the observations are reported for the 19 cities. To illustrate the distribution for the larger numbers in the other three classes, 19 observations are also reported – the lowest and the highest values and 17 equally spaced (or as close to equally spaced as possible) observations.



Non-residential property is the primary determinant of the differences in total per capita assessments. Table 19 reports on the per capita non-residential/non-farm equalized assessments among the municipalities and municipal classes.⁵⁶ Across the four classes, the per capita non-residential/farm property tax base is, at \$289,300, by far the greatest in the municipal districts and specialized municipalities group. Among the urban municipalities, the cities have the highest at \$36,352 and the villages the lowest at \$14,356 per person. Again, the disparities within each class are also large. Even within the cities where the ratio of maximum to minimum is lowest, the maximum is 12.4 times the lowest. In the case of the municipal districts and specialized municipalities, that ratio is 65.5. The differences among the relative to average subgroups are, of course, less extreme but are still large and the same pattern prevails. The ratio of the highest to lowest for the municipal districts and specialized municipalities is still 10.4. That ratio for the urban classes ranges from 3.4 (for the cities) to 5.9 (for the villages). Like Figure 19, Figure 20 provides a comparison of the distributions and levels of non-residential/non-farm per capita

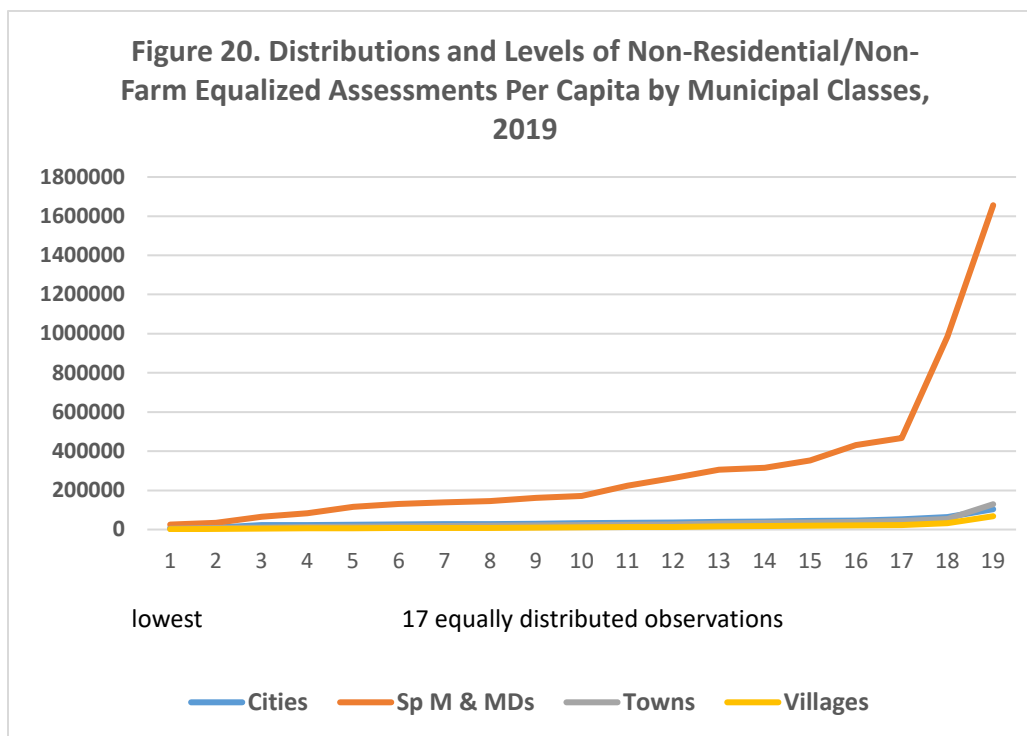
⁵⁶ Non-residential assessment/non-farm assessment is calculated as total equalized assessment less residential and farm equalized assessment. That includes linear, machinery and equipment, other non-residential, railway, and cogeneration. Farmland is not included in the non-residential because it is assessed at a regulated rate that is much below market values. Farmland assessment is only material in the special and municipal districts class where it averages 14.5 per cent of the residential plus farm assessment (with a range from zero to 54.7 per cent). In the urban classes, farm assessments average less than 0.1 per cent of the residential plus farm and, in only one municipality, did it (at 1.09) exceed one per cent.

assessments. Those of the urban classes are barely distinguishable from one another given the scale imposed by the levels for the highest per capita assessments in the specialized municipalities and municipal districts group.

An appreciation of the non-residential/non-farm tax base is important as that base impacts the municipal property taxes paid by municipal residents. That aspect is part of the analysis in the next section.

	Average	Maximum	Minimum	Std. Dev.	Subgroup Relative to Average ^b			
					highest	mid-high	mid-low	lowest
Cities	36,352	103,870	8,382	20,987	72,767/3	41,068/4	31,346/6	19,239/6
Sp Mun & MDs	289,300	1,655,913	25,251	301,245	809,154/12	349,085/13	181,967/22	77,747/22
Towns	27,418	129,265	3,943	18,709	56,994/20	33,114/20	22,270/33	11,667/34
Villages	14,356	68,077	1,685	11,292	32,490/16	17,406/16	10,683/27	5,475/27
All (but Sum. Vill.)	88,330	1,655,913	1,685	188,343	527,966/29	147,342/28	37,027/112	11,045/112

Note: a) Equalized assessments are from Schedule EA of Municipal Statistics. Non-residential is calculated as total less residential and farm assessments.
b) See note b of Table 15.



4.2 Municipal Property Taxes and Tax Burdens

There are various ways to look at the levels of property taxes and the burdens that they impose upon property taxpayers. Three measures will be considered here – the effective property tax rates on residential property, the dollar amounts that residential taxpayers pay, and the burden of the property taxes relative to income.⁵⁷ The effective rates are considered first.

4.2.1 Effective Tax Rates

Effective municipal residential (or residential and farm which will be referred to as residential) tax rates are reported in Table 19 for the municipal classes. The effective rates are calculated as the municipal residential (or residential and farm) property taxes as a percentage of the residential (or residential and farm) equalized assessments. On average, the effective rate is lowest for the specialized municipalities and municipal districts at 0.568 per cent. The average rates in the urban municipalities range from 0.732 in the cities to 1.206 in the villages.

	Average	Maximum	Minimum	Std. Dev.	Subgroup Relative to Average ^b			
					highest	mid-high	mid-low	lowest
Cities	0.732	1.132	0.394	0.392	0.986/4	0.796/5	0.681/5	0.517/5
Sp Mun & MDs	0.568	1.511	0.101	0.277	0.987/14	0.687/14	0.477/20	0.284/20
Towns	0.883	1.752	0.114	0.314	1.330/24	0.963/24	0.793/28	0.532/29
Villages	1.206	2.715	0.283	0.443	1.862/18	1.360/19	1.031/23	0.734/23
All (but Sum. Vill.)	0.893	2.715	0.101	0.418	1.523/59	1.011/59	0.782/80	0.447/79

Notes: a) Residential plus farm taxes and equalized assessments are used to calculate the effective rates for the special municipalities and MDs class (residential only otherwise). The rate reported is the property tax divided by the assessment times 100; that is, property taxes as a percentage of assessed value.

b) See note b of Table 15.

The distribution of the effective rates is large. The ratio of the maximum to the minimum is relatively modest at 2.9 for the cities but is about 15 for the municipal districts and specialized municipalities and the towns and 9.6 for the villages. Across all the municipalities in the four

⁵⁷ For the specialized municipalities and municipal districts, residential and farm property taxes are used in the calculation of effective rates. The reason for this is that we ultimately wish to compare tax rates paid by municipal residents to the level of non-residential assessments and efforts to calculate a residential only rate for the municipal districts and specialized municipalities led to a number of peculiar results. Despite using residential and farm taxes and assessments for the specialized municipalities and municipal districts, two of those still had to be omitted due to anomalies.

classes, the maximum is 26.9 times the minimum rate. The four relative to the average subgroups provide more information on the distribution of rates. Across the four subgroups, the municipal districts and specialized municipalities have (despite being calculated as the rate for residential and farm property taxes rather than residential only) the lowest effective rates for all but the highest tax rate subgroup (for which theirs' equals the cities' rate). The municipal districts and specialized municipalities subgroup also has the greatest disparity between the lowest and highest rate subgroups with the highest average tax rate subgroup's rate being 3.5 times as large as the average rate of the lowest subgroup. Among the urban classes, that ratio is 1.9 for the cities and 2.5 for the towns and villages. Obviously, the effective tax rates are quite different among municipalities and across municipal classes.

Various factors contribute to variations in effective tax rates. A major determinant is the level of equalized non-residential assessments per person. Typically, municipal governments tax non-residential property more heavily than residential or farm property. Where that occurs, the non-residential share of municipal property taxes will exceed the non-residential share of equalized assessments. On average, this is the case across the four municipal classes. In 2019, the ratio of the non-residential tax share to the non-residential assessment share for the cities averaged 1.47, and about 1.35 for the other three classes of municipalities. Very few municipalities had a ratio less than 1.0. As more specific illustrations, in Calgary and Edmonton, non-residential property accounted for about one-quarter of the total equalized assessments but about one-half of those cities' total municipal property taxes were generated from non-residential property. Typically, large amounts of non-residential assessment and higher non-residential property taxes enable municipal governments to subsidize the residential and farm taxpayers. That subsidy may come in the form of low-cost additional services and/or lower residential/farm taxes. It is difficult to measure service benefits but the impact on residential/farm tax rates is easier to observe.⁵⁸

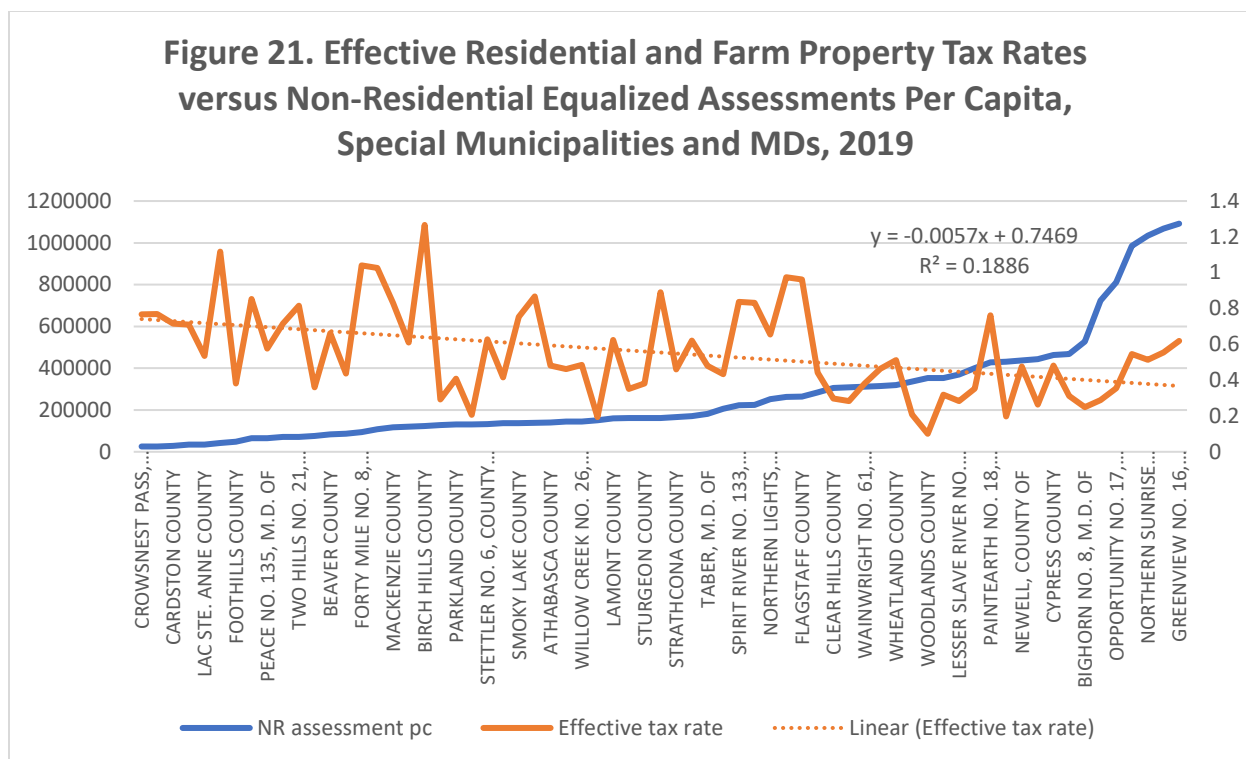
Figure 21 below shows the effective tax rates compared to the per person non-residential equalized assessments for the municipal districts and specialized municipalities. (Space permits

⁵⁸ A 2006 study (Senkiw, 2006), looking at Alberta municipal data from 1991, 1996 and 2001, found that linear property provided a tax windfall. Linear property taxes were not found to result in larger total expenditures but, rather, it was observed to reduce other property taxes (e.g., primarily residential and farm property taxes). Linear property includes pipelines and transmission lines. At the time, it was the dominant non-residential property type and that was especially so in the rural municipalities where it was mostly located. Further investigation would be useful. For further discussion see Rural Municipalities of Alberta (2021).

only about one-half of the names to appear but all municipalities are included in the data presented.) The municipalities are ranked by per capita non-residential assessment from smallest to largest. The corresponding effective residential/farm property tax rates form the jagged line with the scale in per cent on the right-hand side. Effective tax rates vary substantially from one municipality to another but there is a downward trend in moving to the right. Hence, the figure shows that those municipalities having higher non-residential assessment per person typically experience lower residential/farm effective tax rates. The lower rates are most noticeable across the about one-third of municipalities having the highest per capita non-residential assessments. That group had an average effective tax rate of 0.39 per cent compared to a rate of 0.65 per cent for the approximately two-thirds with relatively lower non-residential assessments. Overall, within the specialized municipalities and municipal districts class of municipalities, higher per capita non-residential assessments tend to translate into lower effective residential/farm tax rates.⁵⁹

The cities, towns and villages show similar patterns. Their effective tax rates vary substantially from municipality to municipality, but their trend lines also slope downward as per person non-residential assessments increase. Also, it is relatively few municipalities that have high non-residential assessments per person and it is those municipalities that, on average, have notably lower effective residential tax rates.

⁵⁹ A regression analysis exploring the determinants of the effective tax rates of these municipalities' data found per capita non-residential assessments to have a negative sign (i.e., higher assessments implied lower rates) and to be the major single determinant of effective tax rates. Also, in their thorough examination, Conger and Dahlby (2015, Table 4) found that a higher per capita machinery and equipment assessment was associated with lower residential and non-residential property tax rates in cross section regressions on 2013 data for 69 rural municipalities.



4.2.2 The Dollar Amounts Per Capita of Municipal Residential Property Taxes

The actual dollar amounts of municipal property taxes are also a useful indicator. Table 20 provides data on the municipal residential property taxes per capita for the four classes of municipalities.⁶⁰ The per capita taxes are reasonably similar across the four municipal classes but there are large variations within each class. The average property tax, at \$846 per capita, is largest for the cities and, at \$617 per capita, lowest for the municipal districts and specialized municipalities. The towns and villages are very similar in average tax at about \$765 per capita (and in regard to other characteristics in the table).

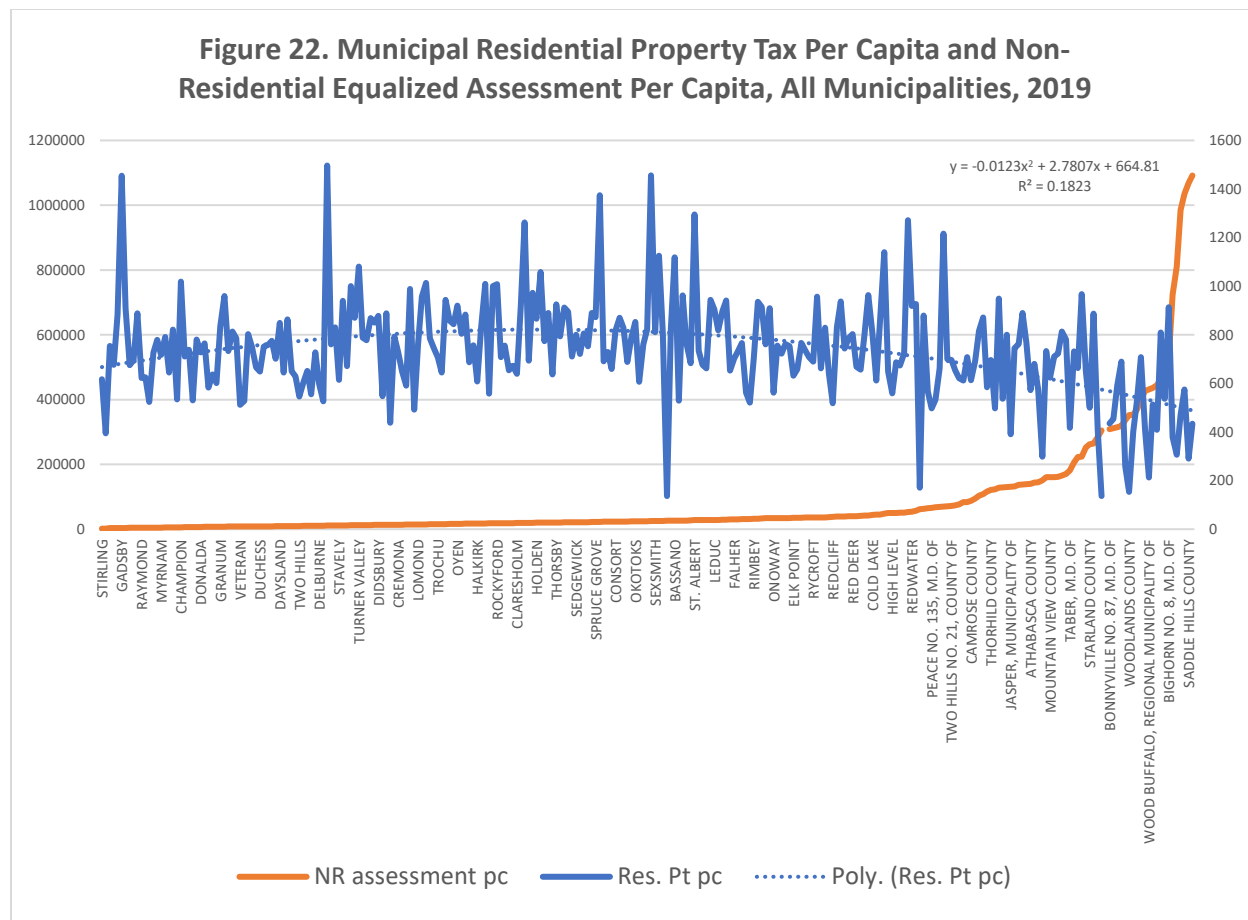
⁶⁰ The taxes for the municipal districts and specialized municipalities here are those on residential property only (i.e., not residential and farm). Because of anomalies in the data, the municipal districts of Pincher Creek and Ranchland are excluded.

Table 20. Municipal Residential Property Taxes: Dollars Per Capita, 2019 ^a								
	Average	Maximum	Minimum	Std. Dev.	Subgroup Relative to Average ^b			
					highest	mid-high	mid-low	lowest
Cities	846	1295	606	154	1014/5	886/5	789/5	655/4
Sp Mun & MDs	617	1140	137	213	864/18	682/19	527/15	327/15
Towns	771	1456	136	188	1009/25	830/25	711/18	565/28
Villages	757	1497	395	191	1020/18	791/18	719/24	573/24
All (but Sum. Vill.)	742	1497	136	238	1015/67	790/66	688/72	497/72
Notes: a) Residential property taxes are used to calculate the per capita taxes for all classes of municipalities including the Sp Mun and MDs class.								
b) See note b of Table 15.								

The variation in the per capita taxes within each municipal class is typically large. The range is lowest for the cities where the minimum (\$606) is only somewhat less than half of the maximum (\$1295). Across the other classes, the lowest goes from about one-tenth to about one-quarter of the maximum. The subgroup analysis suggests greater similarity among the classes. The average residential property tax in the highest tax subgroup only ranges from \$1009 to \$1020 across the urban municipalities – but, for that subgroup, the municipal districts and specialized municipalities have the lowest level of tax at \$864 per capita. Across the lowest tax subgroup, the lowest average is (at \$327 per capita) again for the municipal districts and specialized municipalities and, again, the levels for the urban municipalities are quite similar though highest (at \$655) for the cities.

Non-residential assessments per capita are again a determinant of the per capita municipal residential property taxes. Figure 22 provides an indication of the relationship. That figure shows (on the right-hand scale) the municipal residential property taxes per capita for all municipalities (excluding the summer villages). Those data are ordered according to the municipal per capita non-residential equalized assessment from lowest to highest. One can see that those municipalities having high non-residential assessments tend to have low residential property taxes. The trend line fitted to the per capita property tax data has a shallow inverted U shape -- that is, lower on the left-hand side (starting at about \$700), somewhat higher towards the middle (where it is slightly over \$800), and then declines (approaching \$500 at the right hand side). While only a minority of the municipality names can be accommodated, it is clear that the villages dominate those on the left-hand side of the figure while the specialized municipalities

and municipal districts dominate the very right hand side. Trend lines fitted to the property tax data for the separate classes conform to the pattern observed in Figure 22. In separate regressions, the villages show a slight positive trend, the cities essentially no trend, the towns a slight negative trend, and the specialized municipalities and municipal districts' trend line has a distinct and substantial negative slope. Where per capita non-residential assessments are large, per capita residential property taxes tend to be low.



4.2.3 Residential Property Taxes and Household Incomes

The burden of the property tax – that is, the size of property taxes relative to income – is also a relevant consideration and fiscal indicator. The burdens of the property tax are reviewed in this section. Because incomes are the comparative measure, it is important to have a perspective on incomes across Alberta’s municipalities. A summary of that is provided in Table 21. The income measure reported is the all family median income for 2019. That is reported in the Alberta Regional Dashboard for most municipalities. Some small municipalities are omitted. The average of the all family median incomes for the municipalities in each of the four classes is provided in Table 21 along with the maximum and minimum within each class. The cities have the highest average at \$109,303 followed by the towns at \$98,779. The municipal districts and specialized municipalities are next at \$91,778 which is very close to the average for Alberta municipalities. Villages have the lowest average family income. There is a wide range of incomes across municipalities in each class but especially so for the towns and the municipal districts and specialized municipalities.⁶¹

	Average	Maximum	Minimum
Cities	109,303	134,030	85,290
Sp Mun & MDs	91,778	175,401	40,317
Towns	98,744	202,940	64,830
Villages	87,210	124,990	60,157
All (but Sum. Vill.)	91,502	202,940	40,317

Notes: a) Source is the Alberta Regional Dashboard at <https://regionaldashboard.alberta.ca/#/>.

⁶¹ The municipal districts and specialized municipalities have one municipality with what appears to be a surprisingly low median family income (\$40,317 while the next lowest is \$56,331).

Municipal residential property taxes as a percentage of municipal median all family income – that is the relative burden of the municipal residential taxes – are reported in Table 22 for the municipal classes.⁶² The average property tax burdens are relatively comparable across the four municipal classes. That for the cities and the towns are almost the same at 2.42 and 2.46 per cent of family incomes. On average, villages experience the highest burden at 2.81 per cent. The municipal districts and specialized municipalities report the lowest burden although the taxes used in the calculations are both residential and farm. The range between the minimum and maximum tax burdens is large for all classes but especially so for the municipal districts and specialized municipalities and for the towns. Even for the cities, for which the range is the smallest, the maximum is 83 per cent larger than the minimum.

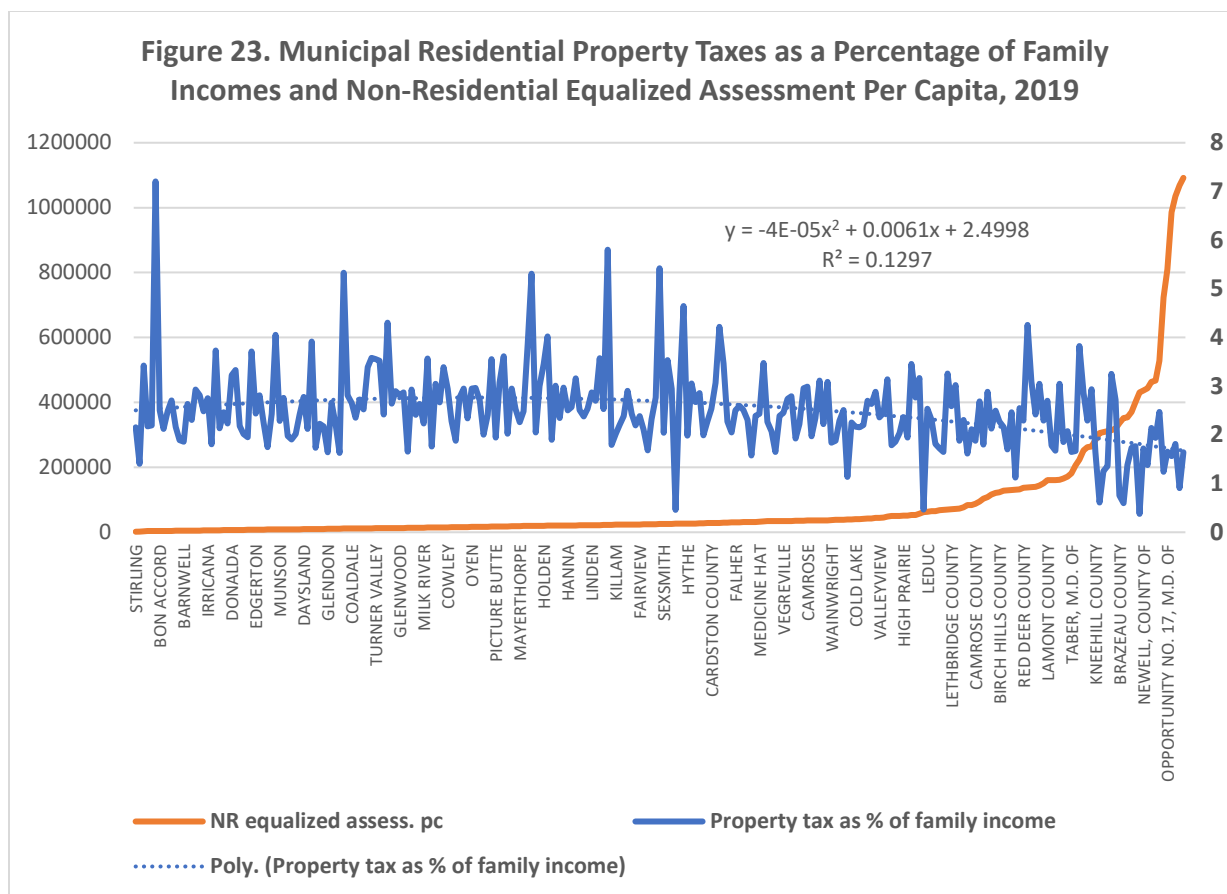
	Average	Maximum	Minimum	Std. Dev.	Subgroup Relative to Average ^b			
					highest	mid-high	mid-low	lowest
Cities	2.42	3.07	1.68	0.11	2.97/5	2.49/5	2.23/4	1.94/5
Sp Mun & MDs	2.29	10.65	0.38	1.31	3.75/14	2.55/14	2.01/19	1.25/18
Towns	2.46	5.41	0.45	0.7	3.41/22	2.64/22	2.29/28	1.75/28
Villages	2.81	7.21	1.41	0.99	4.26/17	2.99/17	2.48/23	1.91/23
All (but Sum. Vill.)	2.49	7.21	0.38	0.84	3.61/58	2.71/58	2.29/73	1.65/74
Notes: a) Residential plus farm taxes are used to calculate the percentages for the Sp Mun & MDs class (residential only otherwise).								
b) See note b of Table 15.								

The subgroup analysis provides more information on the distribution of the tax burdens. Those municipalities in the subgroup enjoying the lowest tax burdens have relatively similar burdens across the urban classes while the special/rural municipalities in that subgroup have the lowest average burden at 1.38 per cent. The medium-low burden subgroup is more uniform with all classes having averages (with the possible exception of the villages) the same as or close to

⁶² Municipal residential property taxes are used for cities, towns and villages. However, municipal residential and farm property taxes are used for the special/rural calculations because calculation of residential only property taxes resulted in numerous anomalies. Also, the family tax burden is calculated as the per capita tax times 3.1 which is the average family size in Alberta.

the overall average of 2.29 per cent. The medium-high burden subgroup shows more variation with the special/rural municipalities in this subgroup having the largest burden. The differences among municipalities are quite pronounced for those municipalities experiencing the highest tax burdens. In that subgroup, the specialized municipalities and municipal districts and the villages have average burdens of 4.35 and 4.26 per cent respectively. Overall, the highest tax burden communities average 3.61 per cent of incomes while the lowest average 1.65 per cent; that is the burdens in the low burden municipalities average just under one-half of the burdens in the high burden municipalities.

As might be expected, municipal residential property tax burdens are related to the per capita non-residential equalized assessments. This relationship is reflected in Figure 23 which shows the tax burdens for all municipalities (in the four classes) in the order of their per capita non-residential assessments. One can see that on the right-hand side, as non-residential equalized assessments become larger (and eventually very large), the tax burdens trend down. The overall correlation is -0.321. The downward trend is quite strong across the specialized municipalities and municipal districts, less pronounced among the towns, negative but weak across the cities and, across the villages, the trend is positive. Across all the municipalities, as in Figure 22, a polynomial best fits the ordered tax burden data. The trend line increases slightly to about 2.6 per cent at about one-third of the way to the right-hand side and then begins a gradual decline reaching about 1.6 per cent at the right-hand end where non-residential assessments are the largest. Once again, municipalities with high per capita non-residential assessments tend to realize residential tax benefits.



4.3. Summary and Conclusion

In this section we examined a number of indicators of municipalities' fiscal capacities and demonstrate how uneven they are across Alberta municipalities. The property tax bases differ dramatically across the classes of municipalities and among the municipalities within any class. The municipal districts and specialized municipalities stand out in both respects. For example, the average total per capita equalized assessment of the municipal districts and specialized municipalities is 2.5 times that of the cities and, even over the four subgroups within the municipal districts and specialized municipalities class, the highest per capita tax base subgroup has a tax base 4.7 times that of the lowest subgroup. Differences in the per capita total tax bases are primarily the result of large differences in the non-residential/non-farm tax bases. Again, the municipal districts and specialized municipalities stand out with, for example, an average non-residential/non-farm per capita equalized assessment almost eight times that of the cities. Also, the non-residential/non-farm tax base accounts for 66.3 per cent of the total average

tax base of the municipal districts and specialized municipalities but less than one-quarter of those of the urban municipalities. The non-residential/farm tax bases are the main determinant of differences in the per capita tax bases across and within municipal classes.

The indicators of fiscal pressure added further insights. Those examined were the municipal residential effective tax rates, municipal residential property taxes per capita and the tax burden relative to income (i.e., the municipal residential property taxes relative to family income). All of these suggested or indicated a tax advantage for residents of the municipal districts and specialized municipalities compared to taxpayers in the urban classes. The disparities among municipalities within all classes were large and notably so for those in the municipal districts and specialized municipalities. Other than for the villages, the tax pressure indicators quite consistently showed that larger per capita non-residential/non-farm assessments were associated with property tax benefits for local residents. That relationship was especially strong among the municipal districts and specialized municipalities.

A main conclusion from our assessments is that the provincial government's capital transfers are not closely related to municipal capital purchases (note section 3). In addition, capital transfers tend to favour "have" municipalities; that is, those with a large per capita tax base⁶³ and especially those with a large non-residential/non-farm tax base. While an argument can be made that municipal service levels (and costs) differ and especially among classes of municipalities, the differences in transfers within each class are striking. As seen in section 4, a product of the grant-property tax system is that municipalities having large non-residential/non-farm tax bases per person tend to provide property tax advantages (and possibly other advantages) to their residents. The patterns revealed here leave one asking, "what is the purpose or objective of the Alberta grants system?" However, the patterns observed provide information that is useful in the consideration of grant reform.

5. Reforming Provincial Capital Transfers to Municipalities

Municipal infrastructure improves labour productivity and contributes to the quality-of-life of Albertans. Like other levels of government, municipalities can finance their infrastructure spending by increasing current taxes or by borrowing to spread the tax burden over several years.

⁶³ This feature appears to be a product of the education tax requisition being a major determinant of a municipality's MSI capital transfer.

Given their tax powers and borrowing capacities, why should the provincial government help fund municipal infrastructure spending through transfers?

There are two main rationales for provincial capital transfers—benefit externalities and differences in the municipalities' fiscal capacities. Benefit externalities arise when a municipality's infrastructure spending improves the well-being of individuals in the rest of the province. For example, a municipality's expenditures on transportation facilities can improve the movement of people and products in an area that extends beyond a municipality's boundaries. Such productivity improvements can increase the incomes of the residents in other municipalities and increase federal and provincial income tax revenues. Differences in fiscal capacity arise because of differences in per capita tax bases across municipalities, as well as differences in the tax sensitivity of the tax bases of the different levels of government. Accordingly, a provincial capital transfer program should incentivize municipalities to spend on infrastructure projects that generate significant positive externalities, and it should help to reduce the differences in the abilities of municipalities to provide basic infrastructure for their residents. These two components of a revised provincial capital transfer program are discussed below.⁶⁴

Three issues need to be addressed in designing a capital transfer program: the allocation and quantum of the transfer, and the funding source for the transfer. We will deal each of these issues in turn.

5.1 Allocating Provincial Capital Transfers

The criteria for allocating provincial capital transfers should be based on the rationales for such transfers, namely benefit spillover from municipal infrastructure and differences in the municipalities' capacity to fund basic infrastructure from their property tax base. It follows that the allocation formula (or formulae) should encompass these two elements—one that incentivizes municipalities for their spending on infrastructure that benefits non-residents and one that supplements the financial resources of those municipalities with deficient property tax bases. We will consider in general terms how each of these components could be structured in a re-designed capital transfer program in Alberta

⁶⁴ Further information on the theory and practice of intergovernmental transfers can be found in Shah (2006), Sole-Olle (2006) and the relevant chapters of Boadway and Shah (2007 and 2009) and Kitchen, McMillan and Shah (2019).

It should be noted that our proposed reforms would only apply to cities, towns, villages, municipal districts, and specialized municipalities. Summer villages, special areas and improvement districts require separate capital transfer programs, given their very unique characteristics. In this section, our reference to municipalities only refers to the subset of municipalities noted above.

5.1.1 Matching Capital Grants

First, the municipal infrastructure that generate significant benefit spillovers needs to be identified. Although all municipal infrastructure may provide benefit spillovers to some degree, the most significant benefit externalities are probably for transportation infrastructure and water and waste management infrastructure. A detailed analysis of the extent to which these municipal facilities generate external benefits is beyond the scope of this report, but for concreteness we consider how municipal capital expenditures on roads and water treatment could be addressed under a revised capital transfer allocation formula.

The degree of support for municipal infrastructure spending should be based on the extent of the direct benefit spillovers to non-residents and the fiscal benefits that accrue to the provincial government from the increase in economic activity that such facilities provide.

Appendix 1 provides a framework for determining the optimal matching grants rate for infrastructure that generates benefit spillovers. Based on the numerical example in Appendix 1, a 35 per cent matching grant for municipalities' capital expenditures on roads might be appropriate given the direct and indirect benefit spillovers from roads. In 2019, municipalities spent \$1.430 billion on "Roads, Streets, Walks, Lighting" (category 02830 in the Municipal Financial Statistics). Thus, a transfer equal to 35 per cent of the municipalities' expenditures on roads in 2019 would have equaled \$500 million, which is less than the actual provincial capital transfer for roads, \$594 million.⁶⁵ Similarly, a capital transfer equal to 15 per cent of municipal capital expenditures on wastewater treatment and disposal (categories 02900) would have resulted in a capital transfer of \$68 million in 2019, which is larger than the \$43.6 million that in provincial capital transfers in 2019.⁶⁶

To repeat, these are examples of how capital transfers might be structured for municipal infrastructure that generates significant benefit spillovers. A more detailed analysis of the direct

⁶⁵ This is the sum of provincial capital transfers for "Roads, Streets, Walks, Lighting" in the FIR/MFSD E02330.

⁶⁶ This is the total of provincial capital transfers for Wastewater Treatment and Disposal in the FIR/MFSD E02400.

and indirect benefits from different types of infrastructure should be undertaken to determine the degree of support for such infrastructure spending. Nonetheless, we use the above calculations to “ballpark” the funds that would be available for a matching capital grants program for the municipalities’ capital expenditures on roads and water treatment and disposal.

5.1.2 A Tax Base Supplement

In Section 2, we reported on the results of an econometric model that indicated that municipalities with higher equalized property assessments, and therefore a greater capacity to raise revenues through property taxes, tend to spend more on infrastructure (and tend to receive more in capital transfers). There is also an indication that municipalities with higher median family incomes spend more on infrastructure, although this effect was not statistically significant at a 95 per cent confidence level.⁶⁷ In this section, we show how a transfer that supplements revenues of municipalities with deficient property tax bases could be structured.

We begin by describing a basic formula for determining the level and allocation of transfers that provide fiscal supplements to municipalities with property tax bases that fall below a standard level. In the equations below, T_i is the per capita transfer for municipality i which has a per capita property tax base of B_i . Two policy parameters, S and t , determine the eligibility for the transfer and the size of the transfer. S is a standard per capita property tax base. A municipality would receive a transfer only if its per capita tax base, B_i , is less than the standard tax base, S . t is a standard property tax rate that determines the size of the transfer.

$$T_i = t(S - B_i) \quad B_i < S$$

$$T_i = 0 \quad B_i \geq S$$

Municipalities with tax bases above the standard would not receive a transfer, although they would receive transfers based on their capital expenditures under our proposed matching grant program. Under this formula, a municipality with property tax base below the standard would receive a transfer that would bring its revenues up to the level of a municipality with the standard tax base and that levied the standard tax rate.

⁶⁷ Equalized assessments (typically per capita) are a common indicator of fiscal capacity because of municipalities’ reliance on property taxes. However, other indicators can be used. For example, U.S. General Revenue Sharing by the federal government with states and local governments (1972-1986) used three or five factor formulae to distribute the pool of funds somewhat towards those jurisdictions with lower fiscal capacities. See for example, Maguire (2009).

The provincial government would set the two policy parameters, the standard tax base and the standard tax rate. The standard tax base determines which municipalities would be eligible for the supplementary transfer. The standard tax rate would largely determine the size of the transfer to eligible municipalities. The choice of these parameters involves value judgements about the need to supplement the revenues of municipalities with low property tax bases. The total cost of the program would also be a consideration within the context of the province's overall fiscal position and the source of funds for the transfer, an issue that is discussed in greater detail below. Given that the choice of the key policy parameters is highly subjective, below we will use a range of values to illustrate how they would affect the level and allocation of such transfers.

Given the choice of standard tax base, the distribution of the per capita equalized property assessments among the municipalities determines the number of municipalities eligible for the transfer. Figure 24 shows the distribution of the municipal per capita property tax bases between the 10th percentile and the 90th percentile.⁶⁸ The figure clearly indicates that the distribution is highly skewed to the right. While the median per capita equalized assessment was \$117,159 in 2019, the average of the municipalities' equalized assessments was \$190,589, which represents the 77th percentile of the distribution. In other words, if the standard tax base were set equal to the average per capita property tax base of the municipalities that are covered in this section of the report, 216 municipalities or 77 per cent of the municipalities would be eligible for the fiscal supplement transfer. (Recall that our proposed reforms would only apply to 281 cities, towns, villages, municipal districts, and specialized municipalities.) The total transfer based on the average tax effective property tax rate, 8.056 mills and the average municipal per capita property tax base would have been \$667.8 million in 2019.

⁶⁸ The per capita property tax bases of the top 10 per cent of the municipalities have been omitted from the figure because of their extremely high values, which range from \$373,973 to \$1,931,750. The per capita property tax bases of the bottom 10 per cent range from \$19,244 to \$66,717.

Figure 24. Distribution of Per Capita Equalized Assessment among Municipalities in 2019

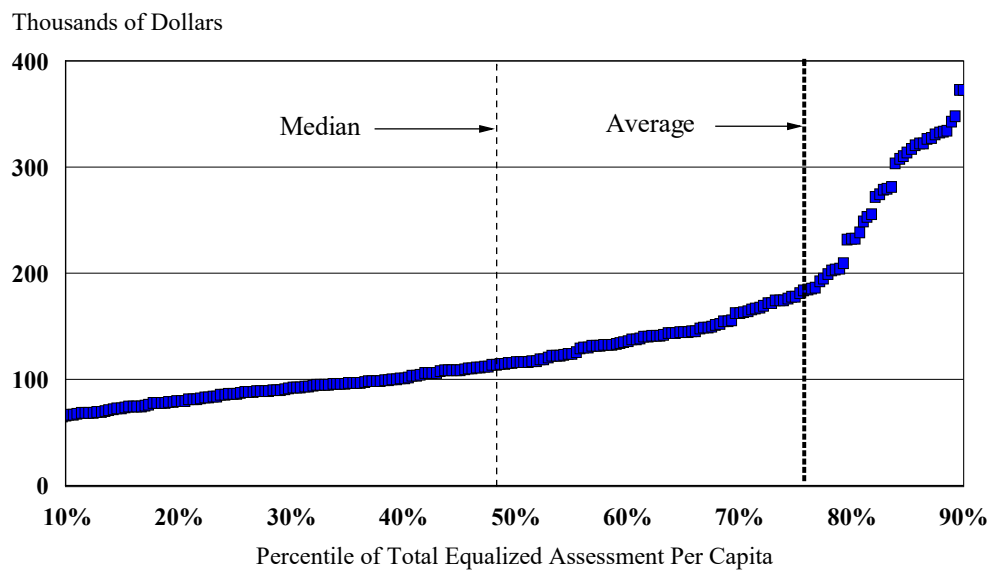
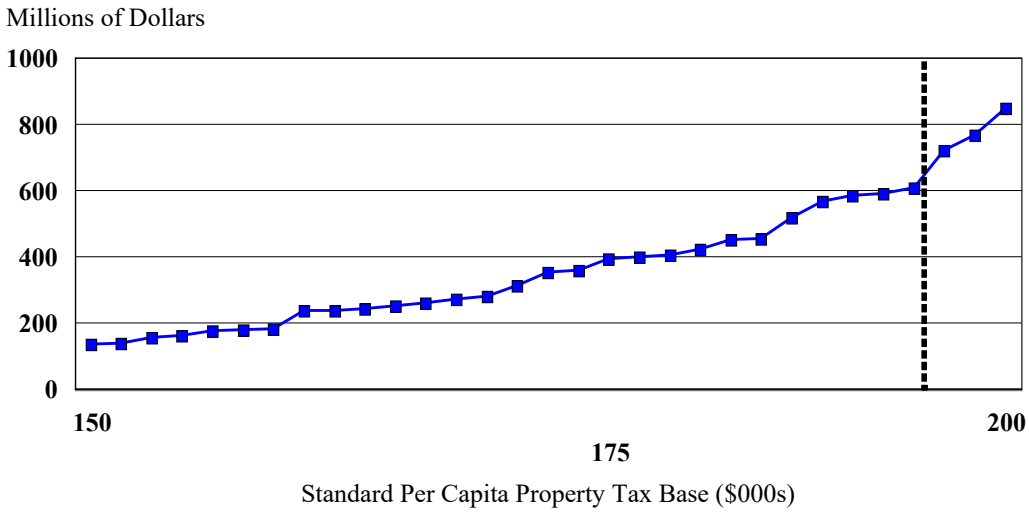


Figure 25 shows that the total cost of the transfer rapidly increases as the standard tax base approaches and then exceeds the average per capita tax base.

Figure 25. Total Tax Base Supplement Transfer at the Average Effective Property Tax Rate



Note: The average effective property tax rate in 2019 was 8.056 per thousand dollars of equalized assessment.

Table 23 indicates the number of recipient municipalities, the total population of recipient municipalities, and the total cost of the program for a range of values for the standard property tax base and the standard property tax rate. For example, with a low standard base of \$150,000

per capita, 189 municipalities with 803,944 residents would have been eligible for the transfer in 2019. The total amount transferred ranges from \$102.7 million with a standard tax rate of 6 mills to \$171.2 million with a standard tax rate of 10 mills. At the other extreme, if the standard tax base were \$200,000 per capita, 218 municipalities with 2.27 million residents would have been eligible for a transfer from a pool of funds between \$625.2 million and \$1041.9 million over the same range of standard tax rates.

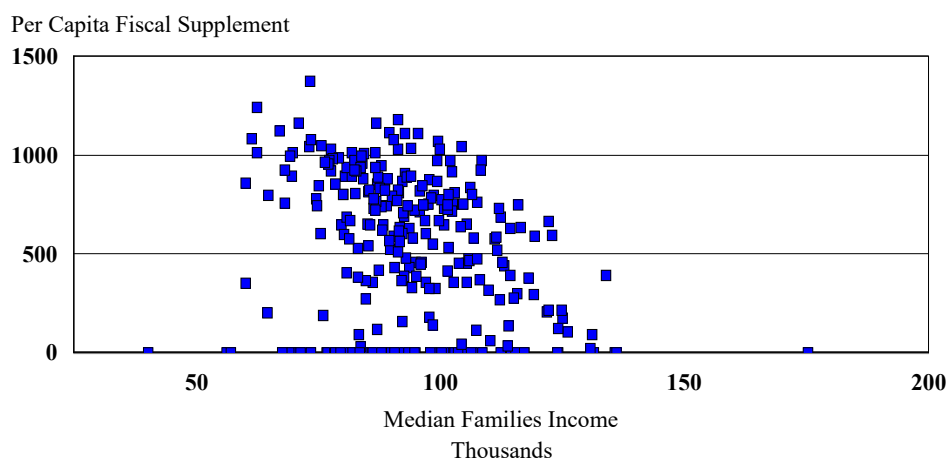
**Table 23. Total Transfers under a Tax Base Supplement Transfer Program
(Millions of Dollars)**

Standard Property Tax Rate per \$1000 of Equalized Assessment	Standard Property Tax Base (Thousands of Dollars Per Capita)		
	150	175	200
6.000	102.7	291.2	625.2
8.000	137.0	388.3	833.6
10.000	171.2	485.3	1041.9
No. of Municipalities Receiving Fiscal Supplement Transfers	189	205	218
Total Population of Municipalities Receiving Fiscal Supplement Transfers	803,944 (18.8%)	2,076,069 (48.4%)	2,267,069 (52.9%)

It is important to note that while the proposed transfer is based on a municipality's property tax base, Figure 26 shows that municipalities with lower family incomes would tend to receive larger per capita transfers. A regression model confirms the visual impression in Figure 26 that the transfer program would be a progressive policy in that it would provide larger per capita transfers to municipalities with lower family incomes.⁶⁹

⁶⁹A tobit model was estimated because of the large number of zeros for the per capita transfer. The estimated coefficient for median family income in a tobit regression with 275 observations from 2019 was -0.0057709 with a t

Figure 26. Municipalities' Per Capita Transfers versus Their Median Families Incomes



Note: The transfer was calculated at the average effective property tax rate in 2019 of 8.056 mills.

In section 5.1, a case has been made for matching capital transfers plus a tax base supplement grant. The matching grants are to account for benefit spillovers. The supplementary grants are designed to offset (at least partially) the substantial unevenness in municipalities' revenue generating abilities that exist because of the disparities in their per capita property tax bases.⁷⁰ Next, we propose a more extensive reform of Alberta's provincial-municipal transfer system.

5.2 Further Thoughts on Reforming and Funding Provincial Transfers to Alberta's Municipalities

The Alberta government collects almost \$2.5 billion in property taxes. Those are called education property taxes. Although they go into general revenue, they are ostensibly intended to fund schooling. Following the 1994-95 reforms, there may have been some intention to phase out the school property tax but, if so, that ended as of 2006-07. From 1994-95 to 2005-06, the total

statistic of -3.63. These results imply that a municipality's expected per capita transfer would decline by \$5.77 with a \$1000 increase in its median family income.

⁷⁰ The province is now consulting with the municipalities on the transition of the MSI program to the LGFF. A major feature of the provincial position is that the new LGFF transfer pool will be limited to \$722 million (a notable reduction from the average level over the past five years) with \$382 million to be allocated between Calgary and Edmonton and \$340 million to be distributed among the other municipalities in the province. Although no report is available at this time, the Alberta urban municipalities have proposed a framework for the allocation of the \$340 million that could see some decrease in the unevenness of the distribution of the transfers among municipalities.

amount of the education property tax collected annually was essentially constant at about \$1.2 billion with the result that it went from funding 51 per cent of school costs to 30 per cent. The provincial school property taxes levied are targeted to amount to 30 per cent of school operating costs and the target has been at that level since 2006-07. The result has been that education property tax revenues have increased steadily from \$1.28 billion in 2005-06 to an estimated \$2.50 billion for 2022-23.

There is logic for terminating provincial school property taxes. Provincial education property taxes are largely the relic of an era when schools were primarily locally funded by local property taxes and provincial governments seeking to provide some support to local school authorities did not have income or general sales taxes or those taxes were not substantial sources of revenue. Today, the benefits of education are not closely related to property but, rather, are more closely associated with income and consumption (which are the major tax bases of the upper level governments). While the education property tax did in an earlier time provide a mechanism for supporting local schools and for evening out somewhat the fiscal capacities of local school authorities, alternative sources of funding (which Alberta now relies upon for over 70 per cent of school finances) now prevail and are preferable.

Property taxes are better suited for financing local general purpose government; that is, municipalities in Alberta. At the municipal level, property taxes approximate a benefit tax. They finance local services that are closely related to property and the people living in or using the property. The net benefits (the value of municipal services less property taxes) are generally reflected in property values. The property tax is a very transparent tax and taxpayers monitor closely the tax-service trade-offs. An adequate property tax base reduces the demands for access to alternative taxes less well suited to municipalities.⁷¹

The province should stop calling the provincial property tax an education property tax and instead designate the revenues the tax generates to fund municipal grants (and possibly to provide additional property tax room for municipalities). Using 2019 figures, the province collected \$2.484 billion in school tax revenues.⁷² Total provincial transfers to the municipalities

⁷¹ For further discussion, see, for example, Dahlby and McMillan (2019) and McMillan and Dahlby (2014) and references cited in those publications.

⁷² See Municipal Financial Statistics, 2019, Schedule K 04031 and 04035.

were \$2.143 billion.⁷³ Hence, if the province stops “earmarking” provincial property tax revenues for education and reassigned them for municipal purposes, that revenue would cover all the provincial grants and leave \$0.341 billion as a property tax reduction or as additional tax room for municipalities.⁷⁴ The province would no longer fund (or at least appear to fund) any schooling costs from education property taxes or, more accurately, direct education property taxes to general revenue. Rather, school costs would be financed from provincial general revenue and the amounts that are currently collected as education property taxes would be a provincial property tax directed to fund municipal grants. That is, what is now the education property tax would be converted to a provincial property tax to fund provincial transfers to municipalities (say via a municipal grant fund).

Establishment of a municipal grant fund financed by a provincial property tax brings with it numerous issues. Most important is that the fund continue to provide revenues sufficient to fund transfers to municipalities comparable to current levels. That could be achieved by the province committing to maintain, measure and update equalized assessments and tax those assessments at the current rate. Probably a preferable option would be to commit the fund to equal a specific percentage of municipal tax collections (e.g., education property taxes were 32.4 per cent of municipal property taxes in 2019). Even with a provincial commitment to the level of funding (and its growth), it is reasonable to expect that municipal governments might have more say about the distribution of the funds. A joint municipal-provincial management board could be a possibility.⁷⁵ Notable advantages of a municipal grant fund are that a) the level of transfers to municipalities would be stabilized, be predictable and grow with the economy, and b) that all property taxes would be directly related to the services of municipal governments (versus about three-quarters now). Furthermore, the change would improve transparency in that school finances would be seen to be financed entirely from general revenue and it would also reduce the

⁷³ See Municipal Financial Statistics, 2019, Schedule D 01910 and 01920.

⁷⁴ The residual \$341 million implies a loss of revenue to the province. The province, however, could use the revenue to enhance provincial grants to the municipalities or to reduce the provincial property taxes by that amount. (The impact on total property taxes would be nebulous because some municipalities might find stepping into that tax room attractive.) Regardless, the \$341 million is relatively modest at both the provincial and municipal level. It amounts to about \$8 per person or 13.7 per cent of the current school property taxes. Alternatively, it amounts to 3.3 per cent of total property taxes or 0.6 per cent of provincial expenditures. Of course, the province could retain the residual, at least temporarily until municipal grants grew to absorb that amount.

⁷⁵ Another possibility is that the municipalities collectively assume entirely the responsibilities (and costs) of any property assessment, rate setting, and the distribution of the funds for the new municipal revenue fund.

confusion that some property taxpayers experience in distinguishing between municipal and provincial property taxes.

6. Concluding Summary

A striking feature of municipal finances in Alberta has been the doubling of the municipal infrastructure stock since 2005. Net capital assets per person increased across all municipal types between 1999 and 2019 but most substantially for the cities (other than Calgary and Edmonton), the specialized municipalities and municipal districts, and summer villages. The large increases were the product of a surge of investment that peaked about 2009-12. Current investment is just maintaining the now larger per capita capital stock. Investment for maintenance alone requires 50 to 60 per cent more of the municipalities' revenues than was the case pre-2005. That in turn implies that municipal investment places greater demands on local residents.

Municipalities finance their infrastructure investments from four main sources—borrowing, drawing upon their financial assets, using current year own source revenues, and applying transfers from the federal and provincial governments. We provide some background on these funding sources, with particular attention on provincial capital grants.

Cities are the most reliant on debt financing of capital spending, although debt has financed less than 25 per cent of their tangible capital asset purchases in recent years. Debt has not been an important source of funds for the other types of municipalities. As a consequence, most municipalities' debt and debt service levels are well below the limits established by the provincial government.

Drawing on financial assets is an important source of capital financing for the municipal districts and specialized municipalities, and many have financial reserves that are large relative their needs for financing new and replacement capital assets. Villages and summer villages rely almost entirely on capital grants to finance their capital expenditures.

Government grants, and especially provincial government grants, are very important sources of funding for municipal infrastructure investments. However, total transfers as a percentage of municipal revenues have declined from 20.5 per cent in 2010 to 14.9 per cent in 2019. They have also become an unstable source of revenues, ranging from 11 per cent to 22 per

cent of total revenue or from 20 to 45 per cent of municipal investment since 1990. Such fluctuations pose difficulties for municipal budgeting. Another major trend since the early 1990s has been the shift from provincial transfers for non-capital purposes to predominantly capital grants. The fact that capital transfers cover a high percentage of the cost of capital purchases by an average municipality, while non-capital or operating expenditures receive little or no support from the province, poses the question of whether this biases spending decisions towards capital undertakings.

For 2019, the municipalities reported total provincial transfers of \$2.143 billion, of which \$1.539 billion were provincial capital transfers. The Municipal Sustainability Initiative (MSI) was the largest capital transfer program at \$639 million.⁷⁶ The MSI current allocation formula is very complex and clearly reflects a desire to provide more per capita funding to smaller municipalities. The formula also allocates part of the grant based on the municipalities' shares of the total education property tax requisitions, which implies that municipalities with greater fiscal capacity, as measured by their property tax bases, tend to receive larger capital transfers.

Disparities in the relative contributions of the provincial capital grants to capital purchases exist in each municipal class and they are large in each as well as overall. While provincial capital transfers funded about half of the capital purchases of a typical Alberta municipality between 2015 and 2019,⁷⁷ the contributions among the municipalities were most uneven. Some municipalities received capital transfers that were small relative to their capital purchases while at least one received amounts that were almost twice its capital purchases.

Regression models indicate increases in provincial capital transfers and contributed and donated assets are associated with higher levels of municipal infrastructure spending. Most notably from a public policy perspective, municipalities with higher equalized property assessments, and a greater capacity to raise revenues through the property tax, tend to spend more on infrastructure.

Contributed and donated assets are an important (private) source of municipal infrastructure. That source amounted to \$784 million in 2019 – an amount equal to 51 per cent of

⁷⁶ Recall that the 2019 MIS transfer was unusually low in 2019. From 2015-2019, the MIS program averaged about \$1.0 billion annually and represented about 75 per cent of the provincial capital transfers.

⁷⁷ In aggregate, capital transfers amounted to about 30 per cent of capital purchases but for many municipalities the transfer contributed a much larger percentage; hence, about one-half for the typical municipality.

provincial capital transfers and 30 per cent of total government grants to the municipalities. The municipal districts and specialized municipalities and the cities particularly benefited from that source while the summer villages received negligible contributions.

There are substantial disparities in per capita property assessments among Alberta municipalities, especially among the specialized municipalities and municipal districts where the largest is more than 13 times the lowest. Across all four classes of municipalities, the maximum per capita total assessment is 51 times the minimum. Non-residential property, which includes linear, machinery and equipment, other non-residential, railway, and co-generation, is the primary determinant of the differences in total per capita assessments.

The disparities in the non-residential assessments are associated with large differences in municipalities' fiscal capacities as measured by the effective property tax rates on residential property, the dollar amounts that residential taxpayers pay, and the burden of residential property taxes relative to family incomes.

The distribution of effective property tax rates, calculated as the municipal residential and farm property taxes as a percentage of residential and farm equalized assessments, is huge. While the ratio of the maximum to the minimum is relatively modest at 2.9 for the cities, it is about 15 for the specialized municipalities and municipal districts and the towns and 9.6 for the villages. Across all four classes of municipalities, the maximum is 26.9 times the minimum rate. The per capita non-residential assessments are a major determinant of the variation in effective property tax rates across municipalities because municipal governments usually tax non-residential property more heavily than residential or farm property.

The per capita taxes are reasonably similar across the four municipal classes, with the cities having the largest at \$846 per capita and the specialized municipalities and municipal districts having the lowest at \$617 per capita, and the towns and villages falling within this range at \$765 per capita. The variation in the per capita taxes within each municipal class is typically large. The range is lowest for the cities where the maximum is just over twice the minimum. The ratio of maximum to minimum is 8.3 for specialized municipalities and municipal districts, 10.7 for towns, and 3.8 for villages. The variation in per capita non-residential assessments per capita is again a determinant of the variation in per capita municipal residential property taxes across municipalities.

Municipal residential property burden, measured as a percentage of municipal median all family income, are relatively comparable across the four municipal classes. For the cities and the towns, it is 2.42 per cent of family incomes. On average, village residents experience the highest burden at 2.81 per cent. The range between the minimum and maximum tax burdens is large for all classes but especially so for the specialized municipalities and municipal districts and for the towns. For the cities and villages, the ratios of the maximum to the minimum are 1.8 and 5.1 respectively, while it is 14.5 for specialized municipalities and municipal districts and 12.0 for towns. Municipal residential property tax burdens are generally inversely related to per capita non-residential equalized assessments.

Our overall conclusion from reviewing provincial capital transfers and the disparities in the municipalities' fiscal capacities is that currently capital transfers are not closely related to municipal capital purchases, and the system tends to favour "have" municipalities with above average fiscal capacities; that is, those with a large per capita tax base and especially those with a large non-residential tax base.

This perverse allocation of grants has led us to propose a new system of provincial transfers to municipalities with two components. One component would provide matching grants to municipalities for spending on infrastructure, such as roads and water treatment facilities, that directly benefit non-residents and that generate fiscal benefits for the provincial government from increases in economic activity. A second component would provide grants to municipalities with deficient property tax bases.

We also propose a change in the way provincial transfers to municipalities are funded. We argue that the province should stop earmarking the provincial property tax for education spending and instead use those revenues to fund municipal grants and possibly provide additional property tax room for municipalities. That is, the education property taxes would be redirected to a municipal grant fund. With this change, the province would no longer appear to fund any schooling costs from the education property taxes. Instead, education spending would be funded from provincial general revenues and all property taxes would, more appropriately, be used to fund municipal services. This reform would be almost revenue neutral for the province – in 2019 it would have redirected the \$2.484 education property tax revenue to fund the \$2.143 in total provincial grants to municipalities.

The municipalities and province should come to an agreement on the level and management of those taxes and grants. Issues to be resolved include whether the municipal transfer tax (currently the education property tax) would grow with municipal own revenues, whether the province continues assessment and collection, and how grants are allocated among the municipalities.

Using provincial property tax revenues to fund municipal grants would bring three main benefits. First, it would make transfers to municipalities more predictable, stable, and transparent. Second, all property taxes would directly fund municipal services and infrastructure. Third, the system would be more transparent in how education spending is currently funded which, in effect, is out of the province's general revenue.

Appendix 1. A Framework for Determining Matching Rates for Municipal Infrastructure Spending

Benefit spillovers provide a rationale for provincial funding of municipal infrastructure spending. A provincial matching grant can incentivize a municipality to invest in infrastructure projects up to the point where the total marginal benefit from an additional dollar spent on an infrastructure project equals the total marginal cost of spending an additional dollar on that project. Dahlby (2020) provides a general framework for determining the optimal matching rate for infrastructure grants. Here we will modify that framework based on our proposal to fund provincial capital transfers through a provincial property tax.

We will use the following notation:

- MB the present value of the marginal direct benefits to a municipality's residents when it spends an additional dollar spent on a given infrastructure project;
- MB_o the present value of marginal direct benefits to the residents of other municipalities from such spending;
- MCF the marginal cost of public funds from raising revenue through a municipal or provincial property tax rate increase;
- MCF_p the marginal cost of public funds from a provincial personal income tax rate increase;
- ρ the increase in the present value of the increase in incomes from an additional dollar spent on the infrastructure project.
- τ the marginal provincial tax rate on income;
- m the matching rate under the capital transfer program.

From a municipality's perspective, the optimal expenditure on an infrastructure project occurs when the marginal benefit to its residents from an additional dollar spent on the project is equal to its marginal cost of public funds from a property tax increase, MCF, times the net amount of revenue that has to be raised to finance a dollar spent on infrastructure, which is $(1 - m)$. Accordingly, the municipality's expenditure on the project will be determined by the following equation:

$$MB + (1 - \tau)\rho = MCF[1 - m]$$

The first term on the left-hand side of the equation is the residents' marginal direct benefit generated by the project and the second term is the increase in the residents' after-tax incomes from a productivity enhancing infrastructure project.

The marginal total benefit from an additional dollar spent on the project is $MB + MB_o + (1 - \tau)\rho + [\tau \cdot \rho \cdot MCF_p]$ where the last term in square brackets is the benefit to provincial government from the increase in income tax revenues. The optimal expenditure on the project occurs where the marginal total benefit equals the marginal cost of project, which is assumed be the marginal cost of raising an additional dollar of property tax revenues. Therefore, the optimal expenditure on the project occurs when the following condition is satisfied:

$$MB + MB_o + (1 - \tau)\rho + \tau \cdot \rho \cdot MCF_p = MCF$$

Substituting $MB + (1 - \tau)\rho$ from the first equation into the second, we obtain the following expression for the matching grant rate:

$$m = \frac{MB_o}{MCF} + \tau \cdot \rho \cdot \frac{MCF_p}{MCF}$$

The matching rate has two components. The first term on the right-hand side of the above equation reflects the quality-of-life benefit spillovers to non-residents in other jurisdictions. The matching rate increases with the extent of these benefit spillovers to the residents of other jurisdictions, MB_o , and is decreasing in the marginal cost of public funds in financing the infrastructure spending through a property tax rate increase, MCF . The second term reflects the fiscal externality for the provincial government from an additional dollar spent on the project. This component is increasing in the additional provincial revenue that is generated by the project and is increasing in the ratio of the provincial marginal cost of public funds from a personal income tax increase, MCF_p , to a property tax rate increase, MCF .

In the tables below, we show how matching rates can be computed from estimates of the key parameter, MB_o , MCF , ρ , τ , and MCF_p . In all of these examples, we assume that the provincial tax rate on income is 0.10 and the marginal cost of public funds from a provincial personal income tax rate increase is 1.77 based on estimates of the personal income tax base elasticity in Dahlby and Ferede (2018). Table A1 shows the matching rates for a project that only yields quality-of-life benefits, i.e., $\rho = 0$, with the benefit spillover ranging from 10 to 30 per cent of the total benefit of the project and with the marginal cost of public funds for a property tax ranging from 1.00 to 1.30.

Table A1. Matching Rates for Infrastructure with Direct Benefit Spillovers

		MCF for Property Tax		
		1.00	1.15	1.30
Direct Benefit Spillover	0.10	0.100	0.087	0.077
	0.20	0.200	0.174	0.154
	0.30	0.300	0.261	0.231

The matching rate would be equal to the benefit spillover rate if the property tax rate did not distort investment and location decisions and the MCF was equal to one. However, research indicates that property taxes, especially on commercial and industrial property, are distortionary and an estimate of the MCF for the property tax in the 1.15 to 1.30 range is more realistic. Over this range the matching rate is 77 to 87 per cent of the benefit spillover rate.

Table A2 shows the matching rates for a productivity-enhancing infrastructure project, where the present value of the increase in output from an additional dollar spent on the project, ρ , is between \$1.05 and \$1.20 and there are no quality-of-life benefit spillovers, $MB_o = 0$. In these calculations, the matching rates are in narrow range from 0.143 if the income increase from the project is relatively modest and the property tax MCF is relatively high to 0.212 for a highly productive project if the property tax were non-distortionary.

Table A2. Matching Rates for Infrastructure with Only Productivity Enhancement

		MCF for Property Tax		
		1.00	1.15	1.30
Productivity Effect	1.05	0.186	0.162	0.143
	1.10	0.195	0.169	0.150
	1.20	0.212	0.185	0.163

Some infrastructure projects will generate both direct benefit spillovers and boost productivity. Table A3 shows the matching rates for project that generate both types of externalities assuming that the project and the grant is financed by a property tax increase with an MCF of 1.15. In these calculations the matching rates range from 25 per cent and 45 per cent of the cost depending on the direct benefit spillover rates and the productivity effects.

Table A3. Matching Rates for Infrastructure with Direct Benefit Spillovers and Productivity Enhancement

		Productivity Effect		
		1.05	1.10	1.20
Direct Benefit Spillover	0.10	0.249	0.256	0.272
	0.20	0.336	0.343	0.359
	0.30	0.422	0.430	0.446

MCF for the Property Tax is assumed to 1.15

The calculation in these tables can help to illustrate how this framework could be applied to derive matching grant rates for municipal infrastructure projects.

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