The Megacity in the New Millennium: An Evaluation of the Amalgamation of Metro Toronto Using the Tiebout Framework for Pareto Optimality

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After much controversy, on 1 January 1998, the five municipalities and one borough that comprised the Metropolitan Toronto region were amalgamated into a single Toronto megacity. The Ontario government, headed by then Premier Mike Harris, had argued for the downloading of responsibilities to and the streamlining and rationalizing of local governments across the province, and the consolidation of Metro Toronto governments and services was their most ambitious and highest profile undertaking to date.

One of the main aims of the province was to increase efficiency and eliminate duplication in the provision of local services towards an end of cost savings. At the time, there was little evidence, either academic or physical, to support the belief that these cost savings and efficiencies would accrue as a result of consolidation. Even more absent was any real attention paid to Metro residents' opposition to the initiative. Whether residents would gain from amalgamation was an issue overshadowed by the province's drive to cut spending by local government. Today, six years later, we can ask "Was the Megacity a success?" More precisely, did amalgamation lead to more efficient service delivery and savings? Ultimately, and most importantly, were the residents of Metro Toronto made better-off as a result of amalgamation?

To answer these questions, a framework for analysis is essential. In 1956, Charles Tiebout developed what has become a seminal work in the literature addressing such municipal issues as optimal city size, optimal efficiency in service delivery and the optimal satisfaction of the consumers of these services - local residents. The Tiebout model suggests that voters will sort themselves into a large number of homogeneous communities based on a coincidence of demands for a preferred set of public goods and level of taxation. This "shopping" by voters for jurisdictions results in a fragmented system of local government where public goods are allocated efficiently and residents are the best off they can be. According to Tiebout (1956: 423), municipal consolidation is justified only if it is Pareto optimal: more of any one public good or service will be offered at the same total cost (of the former smaller jurisdictions) without a reduction of any other services.

The objective in this study is to determine if Metro amalgamation has been Pareto-optimal, and if not, who gained and who suffered. The Tiebout model has been used extensively by economists to examine migration trends at the local level in the US, but this is a new application and one of few Canadian uses of Tiebout in any way. While there exist some

shortcomings in the model and limited availability of data (discussed throughout), it is still possible to gain insight into the impact of amalgamation on the delivery of public services and the economic well-being of Toronto residents.

The Tiebout Model

Tiebout (1956) was the first to formulate a rational choice model of how "consumer-voters" select local governments. Voter decisions are based on their preferred tax-expenditure combinations that result in the efficient allocation (distribution) of municipal public goods. Tiebout (1956: 417) adopts Samuelson's definition of a public good: a collective consumption good enjoyed by all such that no individual's consumption of such a good subtracts from another's consumption of that good. Moreover, this definition includes goods that are not strictly public goods but have external economies. For example, a city plants trees in a local park; the trees enhance the park for all users of the park, and they also provide a noise barrier for neighbouring households. The reduction in noise enjoyed by the neighbours is an external economy.

With respect to the provision of local public goods, Tiebout identifies some problems. First, consumer-voters must somehow register their preferences. Second, government has to ascertain their preferences and finally, tax residents appropriately. One way consumers reveal their preferences is through the electoral process. Where candidates have clear platforms, voters can cast their ballots for those whom they feel will best represent and deliver their preferences.[1] However, there exists no mechanism to force voters to disclose their true preferences; if consumers are rational, they will understate their choices, hoping to enjoy the goods while simultaneously avoiding the

[1]For instance, in the first megacity election, the big issues were a property tax freeze and addressing the homeless problem. Voters apparently preferred the former and elected Mel Lastman, who promised a three-year freeze, as the first mega-mayor.

tax.

In Tiebout's world, consumer-voters shop for their preferred bundle of taxes and expenditures on public goods and will locate in the jurisdiction that best satisfies their criteria. This sorting of citizens into homogeneous communities is "voting with their feet:" if they are dissatisfied with their community, they move to another. The result is that all residents in a community have the same (or as close as possible) preferences, and governments can efficiently provide public goods. Efficiently, simply, means that all residents will want the same size park, say, will pay the same tax for it and are provided with it at the lowest cost.

There are numerous weaknesses in the Tiebout model. First, Tiebout's tax is a head tax. Hamilton (1975) makes the model more realistic by introducing property taxes. In this scenario, voters sort themselves with respect to housing consumption, and the equilibrium number of communities will depend not only on the public goods offered but on the number of housing types- wealthy, poor, and so forth.[2] The sorting according to property values however is imperfect, for there are normally some small houses in communities where most of the homes are large. Where the smaller homes incur lower tax rates, these taxes are capitalized into the market value of the small house, diminishing the incentive for free riding (in this case, paying lower tax rates than the rich for the same delivery of public goods). Oates (1969) found that the higher the quality of services provided, the higher the property values within a community.

Second, the Tiebout model assumes that households are perfectly mobile and have perfect information, although Tiebout (1956: 423) himself admits that this is not a valid assumption. In practice, information is not perfect and costly to obtain at any rate. Moreover, there are high costs to moving to another community, especially if one's employment is not portable, and Tiebout's assumptions that household incomes are independent of employment income makes the perfect mobility assumption even less

[2]Zoning by-laws, not discussed here, are important in that communities may segregate-out undesired residents. For example, rich suburbs may vote in zoning restrictions on minimum lot sizes in an attempt to discourage smaller, lower income housing in their neighbourhoods.

plausible. Since Tiebout households only change jurisdictions when benefits outweigh costs, the matching of households and jurisdictions will be imperfect as some voters who would choose to move do not because of employment opportunities or imperfect information.

In addition to employment possibilities, there are other important determinants of migration. While potential welfare recipients will be attracted to higher welfare-paying communities (Brehm and Saving 1964; Cebula 1974; Pack 1973; et.al.), these same areas will be less desirable to wealthier households (Von Furstenberg and Mueller 1971; Aronson and Schwartz 1973).[3] Age has also been cited as a factor in migration (Islam 1989).

Numerous studies have examined the impact of budget differentials on migration patterns. Ellson (1980) finds that budget variations influenced location choices for middle class residential households, but for upper income groups, the marginal utility of public services was sufficiently low that service expenditures had no impact on mobility decisions. More recent studies have shown that tax and service factors significantly influence migration to other jurisdictions (Percy, Hawkins and Maier 1995; John, Biggs and Dowding 1995; Grossman 1990) Expenditures on police and fire services and per capita taxes have proven to be significant factors in inter-jurisdictional migration patterns (Koven and Shelley 1989). In a Canadian study, Day (1992) finds that the higher the per capita spending on education and health by a province, the greater the migration into that province. These latter studies, among others (Aronson and Schwartz 1973; Davies 1982; Twomey 1987; et.al.) offer evidence that voters have some information about inter-jurisdictional budget differences and do react as Tiebout

[3]Much of the American literature looks specifically at migration patterns of black versus white residents with respect to welfare consumption patterns. I will not cite these works here.

predicts.

Third, Tiebout assumes that there are a sufficient number of jurisdictions to satisfy every household's preferences. This does not happen in practice. Property taxes complicate this problem, for as Hamilton (1975) has shown, households must sort themselves with regard to housing values, compromising on their ideal tax-public good preference sets if they can only afford to live in a suboptimal (by their preferences) community. Further, with respect to property values, it is difficult to measure the impact of public service delivery on property values. Numerous studies have attempted to address this issue by examining the relationship between different services and property value: education expenditures (Heinberg and Oates 1970; Meadows 1976), non-school expenditures (Oates 1973; Meadows 1976), and road maintenance (Edel and Sklar 1974), among others, yet the use of expenditure as an indicator of benefits enjoyed by consumer-voters has been criticized (Rosen and Fullerton 1977); it is not necessarily how much is spent on a public good as it is how it is spent.

Insofar as Tiebout assumes that a sufficient number of jurisdictions exist to accommodate all consumer-voter preferences, he does not specify the optimal size of each of these jurisdictions. The possibility of scale economies in public service delivery, especially in the provision of police and fire services, suggests that a larger municipality may be better able to provide these services at a lower cost, and hence a lower rate of taxation. Miceli (1993) argues that communities provide numerous services, each with a different optimal scale; in many cases some services should be jointly provided (that is, regionalized) while others should remain locally controlled. Nonetheless, opponents of large government contend that there is a direct correlation between large jurisdictions and inefficient service delivery (Santerre 1986; et.al.). However, Dowding et.al. (1994) note that these and other studies measure not efficiency, but expenditure; the above criticism by Rosen and Fullerton (1977) may likewise apply.

Fourth, the Tiebout model assumes that there are no externalities accruing from public goods across jurisdictions. Therefore, the fragmented system of local government is efficient because each household, once it has sorted itself, consumes no

more nor no less than its ideal bundle of tax and public goods. It follows that even a single-person jurisdiction would be efficient. If, in theory, no two individuals were to agree on preferences, there could be an uncountable number of single-person jurisdictions, all isolated and all efficient in the Tiebout sense. Again, this scenario is unrealistic.

Finally, the Tiebout contention that consumers "vote with their feet" has been challenged by the median voter model. In this model, local governments who must decide how much of a public good to provide and how much to tax will make their budget decisions based on the preferred budget of the median voter. Ideally a vote would be held on the budget directly, but in a representative democracy, budget decisions are made by elected officials. Voters therefore "vote with their ballots" by choosing the candidate whose platform (proposed budget) best satisfies their demands, and the result is that the median voter determines the budget.

Problems with the median voter model arise because first, in practice, it may be very difficult for a candidate to identify the median voter, if at all, and second, the median voter's preferred budget may not be optimal. However, if Tiebout is correct regarding the homogeneity of local jurisdictions, the median voter accurately represents all voters, and thus his/her preferred budget is necessarily optimal.

Clearly, the Tiebout thesis has undergone extensive academic scrutiny. Most direct testing of his hypothesis has tended to focus on Tiebout effects as applied to inter-jurisdictional migration. However, the Tiebout model can be useful as a framework of analysis to determine if municipal consolidations are prudent; that is, are amalgamations Pareto-optimal (as outlined above)? In particular, Tiebout can be used to evaluate the Pareto-optimality of the Metro Toronto amalgamation.

Applying Tiebout to Toronto

As noted above, one of the inherent problems with the Tiebout model is the establishment of what, exactly, are consumers' preferences with respect to their optimal tax-services bundles. To this effect, the following assumptions initially are made:

1. Prior to amalgamation, the residents of the six former Metro municipalities had sorted

themselves into their city of residency based on their optimal preferences (their preferred tax-services bundles). Levels of taxation and expenditures on service delivery in various areas are thus assumed to be optimal levels based on consumer-voter preferences.

2. Consumer-voters revealed their preferences to government providers of services through various activities. These include expressing their preferences through their responses to surveys and through the election of political officials (voting with their ballots). Specifically, as mayors are perceived to be the elected official with the most clout when it comes to directing or influencing service delivery decisions, voters' reactions to the campaign and platforms of serious mayoral candidates during the election will be interpreted as an expression of voter preferences.

3. Consumer-voter preferences are assumed to remain constant prior to, during and throughout the first years of amalgamation. This assumption can be justified for, following Tiebout, voters whose preferences had changed over this time period would have relocated to another jurisdiction where their preferences would have been better met.

4. The Tiebout assumption of perfect consumer-voter mobility is supported by the unique environment afforded residents of Metro Toronto. Transportation across Metro is superior to public systems provided by many large municipalities, and living in one Metro municipality does not restrict an individual to employment in that municipality. Residents do not have to move to a less preferred jurisdiction for employment; if they migrate, it is because their new destination better satisfies their preference bundles. In addition, many workers in Metro commute from elsewhere in the Greater Toronto Area (GTA). For these individuals, their preferences are better satisfied outside Toronto. In other words, consumer-voters are not restricted to jurisdictions that do not optimally satisfy their preferences - they can move freely to more optimal jurisdictions. That many do not indicates that they have sorted themselves into preferred jurisdictions as Tiebout suggests. More details are provided below.

5. Where Tiebout used a head tax, this analysis will use property taxes. Since consumer-voters are assumed to have perfect information regarding taxation levels, they will know that taxes vary across not only jurisdictions but within their community as a result of different property values etc. Given that all residents can enjoy the same level of services regardless of their actual tax expenditures, the average property tax per household is used to estimate the preferred level of taxation for each household in communities which, as Tiebout argues, are homogeneous to begin with.

6. Since expenditures on services is assumed to be optimal prior to amalgamation, the actual levels spent on a given service per household will be used as a benchmark to which post-amalgamation levels will be compared.

Before amalgamation can be analysed using the Tiebout framework, the assumptions

made in his model, critical to applying the theory to any case study, need to be examined in order to determine whether Metro "fits" the criteria for a Tiebout test. Here, each assumption is discussed in detail.

Assumption 1: Voters are fully mobile and will move to a community which best satisfies their preferences.

Metro residents for the most part do not have to move to follow employment opportunities across the region.[4] In 2001, 57.6% of residents arrived at work in a private vehicle (either as driver or passenger) and 33.8% used public transport (Census of Canada, 2001). In fact, Toronto residents appear to be even more inclined to commute to work than Ontarians and Canadians in general: the median commuting distance for Torontonians in 2001 was 9.2 km^2 compared to 7.2 km^2 for Ontario residents and 8.2 km^2 for all Canadians (Census of Canada, 2001). That consumer-voters are so willing to commute to work suggests that they do not move because they are satisfied with the taxation/services allocation in their community. Rather than relocate to a sub-optimal community for the sake of living closer to where they work, residents are more willing to commute. Notwithstanding, most mega-residents do live close to where they work (or vice versa). Of those who have a regular place of work outside the home, 81.5% work in the same census subdivision in which they reside. Another 6.1% of all Metro workers work at home (Census of Canada, 2001)..

None of the above is meant to suggest that megacity residents do not move around. In 2001, 85.4% of residents had lived at the same address one year earlier, but only 54.5% of Torontonians lived at the same address at which they had resided five years earlier (Census of Canada, 2001).[5] Perhaps more insightful are the data reported in the 2001 Census regarding

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[4]Unless otherwise indicated, Metro refers to the megacity as a whole. Toronto refers to the former, pre-amalgamation City of Toronto. The distinction is made to avoid confusion between the former municipality and mega-Toronto.

[5]Census data do not report whether individuals who moved did so within their municipality. Data only report whether a person lived in the same census subdivision, same province or a different province one or five years prior to the date of the census. Only in the 1971 Census was a question asked regarding intermunicipal moves.

movers and non-movers. Of those residents who had moved in the previous five years, 64.2% migrated within the same census subdivision. Given that the land area of the megacity is 629.91 km^2 and there are 3943 census subdivisions, over two-thirds of movers moved within an area of only .16 km^2 on average (Census of Canada, 2001). From a Tiebout perspective, it appears that consumer-voters' preferences had remained consistent over a five year period for the most part; otherwise, they would have moved out of their community. Notably, the five year period from 1996 to 2001 covered in the 2001 census covers two years prior to and three years following amalgamation. This suggests that preferences for taxation and services delivered were not affected by political unification.

Assumption 2: Voters have perfect information about different patterns of taxation and spending across jurisdictions and will react.

While voters do have information about taxes and spending, it is unlikely that it is perfect information. These figures are available (mill rates, budget reports, media dispersion of information, etc.), but it is impossible to determine how many voters actually access these resources. More probable is that voters learn of disparities more informally, through casual conversations with friends and neighbours. Insofar as voters react, we have seen above that they do not vote with their feet to any great extent. As we saw in the previous chapter, voters do appear to vote with their ballots based on preferences regarding candidates' positions on salient issues.

Assumption 3: There are a large number of communities from which voters can choose.

This assumption is very true for residents of Metro and the surrounding GTA. As noted above, many residents commute to work and could live in another community closer to their workplace but choose not to move. On the other hand, communities surrounding the megacity have long been nicknamed "bedroom communities" based on observations that many of these residents work in Toronto but come home to smaller, slower-paced municipalities better suited to their preferences. Intermunicipal transit systems have improved over time to accommodate

commuters.[6] In sum, it is plausible that many voters could choose another community in which to live.

Assumption 4: Employment opportunities are not considered; people are assumed to live on dividend income.

Prima facie, this assumption appears impossible to justify. Tiebout intended to address the conventional wisdom that consumer-voters may not be perfectly mobile because their employment opportunities might be constrained to certain communities. Certainly, in 1956 this was more true than it is today. Modern technology has made jobs more portable. As noted above, 6.1% of Metro residents worked at home in 2001; another 8.7% had no fixed workplace address and .5% of residents worked outside of Canada (Census of Canada, 2001). Also telling are data on earnings. In 2001, of all Toronto residents who reported earnings, only 54.5% worked full year, full time (Census of Canada, 2001). With respect to the composition of total income, employment earnings accounted for 78.7% of the total while earnings from government transfers accounted for 9.5% and "other money" made up the remaining 11.8% of total reported income (Census of Canada, 2001). In other words, 21.3% of residents' total income came not

[6]For example, the Queen Elizabeth Way (the main highway connecting Toronto to all lakeshore communities en route to Fort Erie and Niagara) has been widened to accommodate increased traffic flows occurring especially during morning and late afternoon rush hours. The number of intercity busses running increases during these peak hours as well. Many other more southerly communities have expressed an interest in adding their city as a stop for GO Transit.

from employment but from what Tiebout would liken to “dividend” income.

Assumption 5: There are no extenalities between communities from any public good.

This Tiebout assumption is more difficult to justify. Ease of travel across Metro made it possible for residents of Etobicoke to enjoy a stroll on the boardwalk in the Toronto Beaches area, for example. Residents can choose a hospital based on need rather than strictly location. Alternatively, rush hour traffic congestion tends to concentrate noise and air pollution in the downtown core as opposed to the suburbs; this is also true for the incidence of the homeless population. What may be important to residents is the availability of public schooling. Generally, there is a restriction as to what school a child may attend based on residency; parents may not be able to send their child to a school they prefer unless they live within a certain distance from that school. If this is a preference that ranks highly in their preference bundle, according to Tiebout, they probably live in that community already. With regard to the provision of protective services, policing was provided at the Metro level prior to amalgamation. Fire protection had previously been provided at the local level, but if the need arose, assistance would be forthcoming from other nearby stations where possible. A general observation is that in Metro prior to amalgamation, there existed positive spillover effects from the availability of public goods, but negative externalities seemed to be contained within the community in which they were based. Amalgamation likely would have little effect on any potential spillovers.

Assumption 6: There is an optimal city size for which the preferred bundle of services can be produced at least cost.

Evidence suggests Tiebout is correct in this assumption. Briefly, Kushner (1992) suggested that the optimal population for a single-tier municipality is 250, 000. Table 3.2 below reports population data for each of the former Metro municipalities in 1996 and 2001. If Kushner is correct, then none of the former municipalities were at optimal size, and services were not being provided at the lowest possible cost. However, Kitchen (1995) suggested that the optimal city size may be different for different services. This could mean that some services were in fact being provided at least cost while others were not.

Table 3.2 Metropolitan Toronto Population, 1996 and 2001

Municipality	Population 1996	Per cent Change From 1991	Population 2001	Per cent Change From 1996
East York	107822	5.0	115185	6.8
Etobicoke	328718	6.0	338117	2.9
North York	589653	4.7	608288	3.2
Scarborough	558960	6.6	593297	6.1
Toronto	653734	2.9	676352	3.5
York	146534	4.8	150255	2.5
Total Metro	2385421	4.8	2481494	4.0

Source: Census of Canada 1996, Community Profiles

Assumption 7: Communities below optimal size will try to attract new residents and vice versa.

For the most part, Tiebout appears to have been accurate in this assumption. Table 3.2 indicates that population grew more slowly in larger municipalities than in smaller ones over both 1991-1996 and 1996-2001.[7]. Moreover, population growth rates are slowing within each constituent community over time with the exception of rates in East York and old Toronto. In the Tiebout sense, East York and York should be increasingly growing, as its population is below Kushner's (1992) optimal size. One reason Toronto growth rates have increased could be a growing number of job opportunities attracting migration.

If a community desires to attract new residents, clearly it must make housing available. Table 3.3 reports data on changes in the number of dwellings available over the period 1991-2001. Note that the three largest municipalities also had the highest numbers of new dwellings

[7]The Pearson Correlation coefficient for these negative relationships are -.236 and -.042, respectively. Neither correlations are significant at even the ten per cent level of significance.

built. This does not necessarily indicate that these municipalities were purposefully trying to attract new residents; this could simply mean that each community was trying to increase supply to meet an existing demand for housing. In Scarborough, this may well be the case, as Scarborough has had consistently high population growth over the ten-year period in question. Relative housing prices and property tax rates play a role in attracting new residents as well.

Table 3.3 Dwelling Availability, Metropolitan Toronto, 1991-2001

Municipality	Dwellings In 1991	New Dwellings 1991-2001	Per cent Change From 1991 to 2001
East York	44825	1760	4.0
Etobicoke	116725	7245	6.0
North York	201110	16880	8.0
Scarborough	177735	16590	9.0
Toronto	280335	21835	8.0
York	55130	2905	5.0

Source: Census of Canada, 2001, Community Profiles

More importantly to this study, this last assumption of Tiebout does not have to rigorously hold. With amalgamation, the population of the megacity well exceeds what Kushner (1992) considers optimal size. Technically, there is no reason for the former communities which were below optimal size to attempt to attract more residents post-amalgamation. Realistically, urban cities do not try to discourage in-migration (and a larger tax base) and continue to expand.

In sum, the Metro amalgamation initiative makes an appropriate candidate for analysis using the framework established by Tiebout nearly 50 years ago. What follows is an overview of taxation and expenditures and an examination of the impact of amalgamation on each of the former Metro municipalities from a Tiebout perspective.

1. Overview

Taxation Levels and Service Expenditures

At the heart of a Tiebout analysis of tax/expenditure bundles in Metro both before and following amalgamation lies the concept of utility. Rational voter-consumers will choose their preferences and seek to maximize the utility enjoyed from their individual bundles. Utility can be simply described as "happiness" or "satisfaction" derived from the net receipt of services over taxation. In reality, each household would have a unique utility function; Tiebout assumes that each community is homogeneous so it follows that each constituent household would have the same (or very nearly identical) preferences and utility functions. There is no need to make any further assumptions about the degree of substitutability between services and taxation levels beyond the recognition that at a given tax expenditure, there is a trade-off among levels of services provided; for local government to increase the provision of one service, it must reduce expenditures in another area for a given amount of revenue.

In this study, only residential property taxes are considered to be the tax component of consumer-voters preference bundles. Prior to 1998, local school boards levied property taxes to be used for education; from 1998 onward, the province assumed responsibility for funding schools, pooling all education "taxes" collected and distributing them among all of Ontario's school boards. In effect, education spending is not considered to be a municipal expenditure on a service and is eliminated from residents' tax preferences. Certainly, rational consumer-voters would always prefer to pay less tax, but it is assumed that they are at least tolerant of current levels given the service levels they receive in return. If residents were severely dissatisfied, then according to Tiebout, they would relocate to another community.

Service expenditures are disaggregated into various areas: protective services (policing, fire), transportation services (roads, transit), environmental services (sewage, waste collection, water), public health, social services and recreation and leisure services (parks, libraries). Note that prior to amalgamation, expenditures on policing and transit were made at the regional level, analogous to those made by the megacity after 1998. All data collected come from two sources. Prior to amalgamation, data were collected from the Financial Information Statements published by the Ministry of Municipal Affairs and Housing. Post-amalgamation, data were collected from the annual budget reports of the unified City of Toronto. These were readily available; the Ministry has a long time lag before it releases data to the public. The data are assumed to be

consistent as the individual municipalities filed their reports with the Ministry prior to 1998.[8]

Earlier, the assumption was made that both taxation levels and expenditures on services by local governments were a reflection of residents' optimal choices for both. This assumption is valid for, under Tiebout, consumer-voters had already sorted themselves into communities which best satisfied their preferred tax/services bundles. Further, those residents whose preferences had changed over the period studied are assumed to have relocated to a more "preferred" community; thus these preferred levels of taxation and service delivery are assumed to remain constant over time.[9]

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[8]From this point onward, all cited statistics are calculated based on the author's data set compiled from the aforementioned Financial Information Statements and Toronto Annual Budgets unless otherwise stated. For reference purposes, these data will be cited as taken from Author's Compiled Data.

[9]This assumption is rigorous but defensible. The eight-year time frame for analysis is

short term, and it is rather unlikely that consumer-voter preferences would radically shift in the short run. In the long run, it is perfectly conceivable that preferences will change, especially as new generations form households. If Tiebout is correct, should preferences change in the future, they would change nearly identically for each resident who chose to remain in their community. Householders whose preferences altered dramatically from these residents would relocate.

While obvious to most individuals, one important point needs to be addressed. Property taxes make up only part of a local government's entire revenue and expenditures on services directly consumed by residents make up only part of a local government's total spending each fiscal year. Indeed, over the period 1994-2001, property taxes across Metro on average constituted 62.7% of each government's total revenues. Likewise, spending on direct services on average accounted for 80.3% of total government spending.[10] Given this fact, the assumption is made that residents pay an optimally tolerable level of taxation that contributes to government spending on services. Note that services expenditures include both capital and operating (revenue fund) expenses - a library would be of no value if no one were there to open the doors each day. Capital revenues are generated from transfers from revenue funds, capital reserve funds, long term borrowing and provincial grants. Similarly, revenue funds arise from property taxes, user fees and provincial grants.[11]

Table 3.1 reports aggregate data regarding households, taxation and spending in the former municipalities and the megacity for the years 1994 to 2001 inclusive. Data are included for Metro as a whole for 1994 to 1997 to reflect additional spending at the regional level, when it existed. Note that at the regional level, no taxes were collected; the constituent municipalities would transfer up funds to the Metro level and the region enjoyed revenues from regionally provided services and their user fees as well as provincial grants.[12] Taxes collected per household are disaggregated into those designated for school funding and those allocated for local spending in such areas as services, government, debt financing and the like. Prior to 1998, these municipal levies included a nominal figure for special charges (about 25% of the total municipal tax amounts reported).

Per household expenditures at both levels of government are separated into revenue fund and capital fund expenditures. Revenue fund expenditures including spending in such areas as salaries and wages, materials and supplies, external and internal transfers and debt. Capital fund

[10]Author's Compiled Data.

[11]From 1998 onward, Ontario grants to the megacity accounted for roughly 21% of revenue fund revenues.

[12]Regional revenues accrued from such services as transit and homes for the aged.

expenditures address such initiatives as additions and/or improvements to and/or replacement of physical capital in areas such as general government, protection, transport, the environment, health and social services, recreation and planning. Note that capital fund expenditures comprise only a small proportion of total per household spending on service delivery.

Table 3.1 Overview of Taxation, Revenues and Expenditures, 1994-2001 (Nominal Dollars)

		Households	Taxes Collected Per Household			Per Household Expenditures		
		Total Number	Municipal	School	Total	Revenue Fund	Capital Fund	Total
1994	Metro Toronto	910,549	0	0	0	4,315	480	4,795.00
	Toronto C	209,038	1,117	1,131	2,248	2,334	321	2,655.00
	Etobicoke C	121,865	1,210	1,384	2,594	1,488	163	1,651.00
	Scarborough C	183,432	1,116	1,248	2,364	1,218	157	1,375.00
	North York C	211,083	1,207	1,456	2,663	1,546	213	1,759.00
	York C	58,254	1,228	1,035	2,263	1,209	144	1,353.00
	East York	45,877	1,131	1,111	2,242	1,185	103	1,288.00
	TOTAL	910,549	1,157	1,257	2,414	5,998	700	6,698.00
1995	Metro Toronto	916,817	0	0	0	4,314	606	4,920.00
	Toronto C	292,724	1,137	1,151	2,288	2,327	395	2,722.00
	Etobicoke C	122,193	1,286	1,416	2,702	1,494	256	1,750.00
	Scarborough C	185,285	1,126	1,270	2,396	1,255	221	1,476.00
	North York C	211,991	1,215	1,472	2,687	1,493	269	1,762.00
	York C	58,531	1,138	1,057	2,195	1,210	165	1,375.00
	East York	46,093	1,157	1,144	2,301	1,151	149	1,300.00
	TOTAL	916,817	1,173	1,278	2,451	5,990	891	6,881.00
1996	Metro Toronto	920,191	0	0	0	3,991	719	4,710.00
	Toronto C	294,190	1,131	1,151	2,282	2,208	426	2,634.00
	Etobicoke C	122,430	1,270	1,417	2,687	1,514	222	1,736.00
	Scarborough C	186,283	1,122	1,281	2,403	1,210	205	1,415.00
	North York C	212,544	1,214	1,478	2,692	1,462	294	1,756.00
	York C	58,598	1,259	1,049	2,308	1,225	165	1,390.00
	East York	46,146	1,117	1,150	2,267	1,131	220	1,351.00
	TOTAL	920,191	1,174	1,281	2,455	5,616	1,015	6,631.00

1997	Metro Toronto	928,039	0	0	0	3,956	712	4,668.00
	Toronto C	296,435	1,136	1,133	2,269	2,272	309	2,581.00
	Etobicoke C	122,664	1,285	1,397	2,682	1,591	207	1,798.00
	Scarborough C	188,693	1,135	1,266	2,401	1,257	213	1,470.00
	North York C	214,907	1,217	1,454	2,671	1,545	415	1,960.00
	York C	59,151	1,261	1,036	2,297	1,190	94	1,284.00
	East York	46,189	1,138	1,143	2,281	1,152	241	1,393.00
	TOTAL	928,039	1,163	1,283	2,446	5,639	995	6,634.00
1998	Toronto	943,335	1,759	1,011	2,770	5,816	1,127	6,943.00
1999	Toronto	943,335	1,758	911	2,669	6,279	1,314	7,593.00
2000	Toronto	943,335	1,758	911	2,669	6,243	1,047	7,290.00
2001	Toronto	943,335	1,829	911	2,740	6,214	836	7,050.00

Prior to amalgamation, the old city of Toronto collected property taxes per household that were well within the range collected elsewhere across Metro but spent substantially more per household. This was possible because Toronto had significantly higher total revenues from which to spend than did the other municipalities.[13] In 1998, the province re-assessed all Ontario properties under the Ontario Fair Assessment System, valuing properties based on their current market value. The result was that across the GTA, property values increased. Noteworthy as well is that Mayor Lastman made good on his campaign promise and kept the property tax rate frozen throughout his first term, 1998-2000. For example, from 1997 to 1998, average non-school property taxes increased by roughly 51%, but remained constant until 2001. Further, megacity figures should be compared to the total figures for all of Metro and not to figures based on the former individual municipalities' tax/spending trends. To do the latter would overlook spending on services formerly undertaken at the regional level which are now considered Toronto government level expenditures (since 1998).

[13]For example, grants from the Ontario government were significantly higher for Toronto, as were revenues earned from user fees.

2. An Examination of Service Delivery Expenditures

In this section, we focus on gains and losses to consumer-voters accruing from amalgamation based on their revealed (albeit imperfectly) preferences. If amalgamation resulted in a Pareto-optimal outcome, then at the very least, taxation levels and expenditures on services per household should be consistent both prior to and following consolidation. Ideally, residents' tax dollars should go even further, seeing an increase in municipal spending out of tax revenue. To test consistency over time, we assume the null hypothesis that any differences in per household spending on service delivery by municipal government is insignificant at the five per cent level of significance.

The services examined in this study fall under the aforementioned broad headings of general government, protection, transportation, environmental services, health and social services, recreation and culture and planning and development. Within these categories lie more specific areas, such as policing and fire services within the protection category. Expenditures are disaggregated into revenue fund expenditures (analogous to spending out of the operating budget) and capital fund expenditures. Roughly 60 percent of revenue fund expenditures are made on salaries and wages and on materials and supplies, and approximately 75 percent of capital fund expenditures are allocated to transportation (road maintenance and transit capital investments) and environmental services (water, sewage and waste).[14] Revenues and spending are reported at the nominal level of measurement and analysis is conducted at a per household level. Further analysis follows, taking inflation into consideration.

Despite the dissolution of the former municipalities, the 2001 Census of Canada reports select data for these municipalities, including data on population and household numbers, which are used in this study. Importantly, prior to amalgamation, certain areas of service delivery expenditure include spending by the former regional tier of government. These per household figures are included in the final totals for the constituent municipalities for the years 1994-1997; after amalgamation, the megacity level of government absorbs these former Metro level expenditures.

[14]Author's Compiled Data

Data collection for this study was difficult despite the helpfulness shown by the staff at Toronto City Hall. While Tiebout analysis is based on total expenditures before and after consolidation, it would have been especially interesting to determine exactly what expenditures were allocated to which former municipality following amalgamation. From 1998 onward, available data are aggregated at the megacity level. Apart from an occasional mention of a planned project, it is impossible to ascertain how much was spent on service delivery in, say Etobicoke, in any year, post-consolidation. Notwithstanding, data for individual communities for the years 1994-1997 are reported for the benefit of interested readers. Statistical analysis is based on total average expenditures per household for Metro as a whole prior to amalgamation.

i) General Government Services

From this point, initially we consider revenue fund expenditures measured in current dollars for all areas of service delivery. Table 3.4 below reports expenditures on the delivery of general government services for each of the six former Metro municipalities. Table 3.5 reports the average per household expenditure before and following amalgamation for each of the former municipalities. In Table 3.6 we consider the possibility that total average expenditures across all of Metro have declined since amalgamation. For both these table data sets, averages were tested for any significant differences at the five per cent level of significance; p-values are reported.[15]

Table 3.4 Per Household Revenue Fund Expenditures on General Government Services, in dollars, by municipality

Year	East York	Etobicoke	North York	Scarborough	Toronto	York
1994	590	511	519	541	1124	499

[15]All statistics were calculated using SPSS for Windows. Any differences in average expenditures per household are statistically significant if the p-value is less than or equal to .05.

1995	601	546	578	596	975	574
1996	942	569	528	591	815	584
1997	1175	695	557	622	874	582
1998	653	653	653	653	653	653
1999	872	872	872	872	872	872
2000	420	420	420	420	420	420
2001	671	671	671	671	671	671

Table 3.5 Average General Government Revenue Fund Expenditures Per Household in dollars, by municipality

Municipality	1994-1997
East York	827
Etobicoke	580.25
North York	545
Scarborough	587.50
Toronto	947
York	559.75
All Metro 1994-1997	674.40
MegaToronto 1998-2001	654
P-value	.848

One of the goals of amalgamation targeted by the Province was the reduction of local government spending. This aim was to be achieved in Metro through the political consolidation

of six former municipal councils into one mega-council, thereby eliminating any duplication of services and reducing the number of elected officials and thus expenditures such as those on salaries of mayors, councillors and staff and municipal building maintenance. As Table 3.5 indicates, only in East York and the former city of Toronto did average per household expenditures appear to decrease after amalgamation.

However inconsequential the above results appear, if we consider average per household expenditures across all of Metro, then government spending did decrease with amalgamation. No doubt the bulk of this saving came from the elimination of government jobs.[16] Prior to 1998, average per household expenditures on general government services for all Metro households was $674.40; post-amalgamation, this figure decreased to $654. In current dollars, the average decrease in spending amounts to 3.02 percent. This difference, while not statistically significant, translates into a $76,976,136 overall saving in general government expenditures in the first four years following amalgamation. . If we convert nominal expenditures into real dollars, these differences become more pronounced. With 1994 as the base year and adjusting for annual inflation, pre-amalgamation average expenditures were $655; post-amalgamation, they decreased to $596.17, for an average decrease of 8.98 percent per household.. In real dollars, total savings in operating expenditures on general government for the four years 1998-2001 are estimated at $221,985,592.20.

Capital fund expenditures, as reported earlier, comprise a small portion of per household service expenditures, and this holds true for general government expenditures in particular. These figures are presented in Table 3.6 below.

Table 3.6 Per Household Capital Fund Expenditures on General Government, 1994-2001, in dollars

Year	East York	Etobicoke	North York	Scarborough	Toronto	York

[16]In 1998, 1,278 positions were to be eliminated and in 1999, an additional 1,250 positions were to be cut. The budget predicted an annualized saving of $33-million. *City of Toronto Budget 1998.*

1994	18	8	14	30	38	26
1995	33	24	48	47	44	30
1996	24	25	33	33	105	26
1997	40	22	50	33	77	19
1998	46	46	46	46	46	46
1999	189	189	189	189	189	189
2000	100	100	100	100	100	100
2001	55	55	55	55	55	55

Capital fund expenditures per household remained fairly consistent post-consolidation. The years 1999 and 2000 show a jump in spending; this is explained by temporary increases in expenditures on transition projects ($66-million and $70-million) and Y2K projects ($150-million and $20-million). Transit spending and road repairs generally require the largest percentage of capital budget allocations; these are not included here and will be discussed in detail in the appropriate sections that follow.

ii) Protection Services

Table 3.7 below reports per household revenue fund spending on fire and police services, the two largest expenditure categories within the broader sphere of protection services. By themselves, fire services and police account for roughly 4% and 9% of the city's total operating budget, respectively. As these areas often require important capital fund expenditures, these data are reported in Table 3.8. A problem with capital fund data is that from 1998 onward, only the total expenditures are available - spending is not disaggregated into separate categories for fire and police services. Prior to 1998, we can determine per household spending for fire services,

but these data are not reported here.

Table 3.7 Per Household Revenue Fund Expenditures on Fire and Police Services, 1994-2001, in dollars

	East York	Etobicoke	North York	Scarborough	Toronto	York	All Metro
Year	Fire						Police
1994	220	237	228	185	437	231	585
1995	223	239	232	195	318	226	583
1996	231	288	238	193	315	209	564
1997	232	238	238	189	329	193	578
1998	240	240	240	240	240	240	564
1999	254	254	254	254	254	254	671
2000	310	310	310	310	310	310	604
2001	291	291	291	291	291	291	656

From 1994 through to 1999, revenue fund expenditures on fire services remained fairly consistent, and spending in Toronto was consistently higher than that in the other municipalities. In 2000, per household expenditures increased, due in part to the hiring of 62 firefighters which resulted in an additional 3.1 more trucks put into service.[17] Consequently, an increase in capital

[17] City of Toronto Operating Budget Overview, 2000.

fund per household expenditures was realized in 2000. Expenditures on police services topped out in 1999, reflecting the hiring of 136 new officers by year end.[18]

Table 3.8 Per Household Capital Fund Expenditures on All Protection Services, 1994-2001 in dollars

Year	East York	Etobicoke	North York	Scarborough	Toronto	York
1994	41	33	37	32	42	28
1995	52	45	42	38	37	34
1996	36	26	40	34	33	38
1997	37	37	43	36	39	32
1998	48	48	48	48	48	48
1999	42	42	42	42	42	42
2000	53	53	53	53	53	53
2001	52	52	52	52	52	52

Tables 3.9 and 3.10 below report summary statistics for revenue fund and capital fund expenditures. In both cases, spending on protection services would have increased over time independent of amalgamation to reflect increases in population. Likewise, average capital fund expenditures on all protection services increased for all municipalities.

Table 3.9 Average Protection Services Revenue Fund Expenditures Per Household in dollars, by municipality

[18]City of Toronto 1999 Budget Highlights

Municipality	Fire	Police
	1994-1997	
East York	226.5	
Etobicoke	246.5	
North York	234	
Scarborough	190.5	
Toronto	349.75	
York	214.75	
All Metro 1994-1997	244.33	577.5
MegaToronto 1998-2001	273.75	601
P-value	.239	.114

Table 3.10 Average Total Protection Capital Fund Expenditures Per Household in dollars, by municipality

Municipality	1994-1997
East York	41.5
Etobicoke	35.25
North York	40.50
Scarborough	35.00
Toronto	37.75
York	33
All Metro 1994-1997	37.17
MegaToronto 1998-2001	48.75
P-value	.001*

* denotes significance at the 5% level of significance

The results reported above are based on average current dollar expenditures. Taking annual inflation into account, the findings are quite different. With respect to fire services spending in real terms, average revenue spending per household across all Metro only increased from $237.71 prior to amalgamation to $248.48 after consolidation; this difference is not statistically significant. Similarly, real average police revenue fund expenditures per household increased from $561.67 to only $566.94 post-amalgamation and this difference was not statistically significant. Nominal and real average capital fund expenditures on all protection services per household did increase significantly, from $37.17 to $48.75 current dollars and from $36.14 to $44.28 real dollars following amalgamation.[19] Over the four years immediately following consolidation, total real capital investments increased by $30,714,987.60.

[19]The real dollar increase is significant at the 5% level of significance; p-value is .009.

iii) Transportation Services

Transportation services comprise a substantial portion of Toronto's budget expenditure allocation. Indeed, the TTC alone accounts for approximately 13% of the city's operating budget, and the construction of the Sheppard Subway line (opened in November 2002) cost $557-million. Tables 3.11 and 3.12 below report current dollar per household expenditures from both the revenue and capital funds.

As expected, transit makes up the lion's share of expenditures on the provision of transportation services. Prior to amalgamation, transit was funded by the Metro tier of government. Moreover, prior to 1996, the TTC had received a 75% capital subsidy from the province. Perhaps not coincidentally, the TTC raised its fares in 2001, after the subsidy was exhausted in the previous budget. In 2002, the TTC expanded services, putting more buses on the road and increasing subway service. In addition to the fare increase in 2001, the TTC budget was reduced and ferry service to the Toronto Islands was reduced. Figures reported also include spending related to GO Transit which serves the broader GTA but is largely funded by Toronto.[20] Data reported in Table 3.12 indicate a jump in per household transit expenditures out of the capital fund from 1997 onwards. The Sheppard Subway project accounts for the bulk of these increases. Expenditures per household on roads out of both revenue and capital funds has been fairly consistent across municipalities over time.

[20]Toronto officials have contested that only 20% of GO Transit riders are Toronto residents, but the city bears the burden of 50% of the system's operating costs. *City of Toronto, 2000 Operating and Capital Budget Summaries.*

Table 3.11 Per Household Revenue Fund Expenditures on Road and Transit Services, 1994-2001, in dollars

	East York	Etobicoke	North York	Scarborough	Toronto	York	All Metro
Year	Road						Transit
1994	229	320	297	287	301	282	788
1995	221	324	279	300	238	270	795
1996	228	339	290	274	285	283	833
1997	224	325	327	292	288	310	837
1998	255	255	255	255	255	255	851
1999	191	191	191	191	191	191	978
2000	208	208	208	208	208	208	979
2001	202	202	202	202	202	202	1073

Table 3.12 Per Household Capital Fund Expenditures on Road and Transit Services, 1994-2001, in dollars

Year	East York Road	Etobicoke	North York	Scarborough	Toronto	York	All Metro Transit
1994	114	138	123	77	119	132	276
1995	141	230	159	124	128	167	323
1996	131	173	143	133	127	119	357
1997	157	160	235	140	173	146	424
1998	137	137	137	137	137	137	605
1999	110	110	110	110	110	110	613
2000	153	153	153	153	153	153	444
2001	160	160	160	160	160	160	332

.Table 3.14 Average Expenditures Per Household on Roads, 1994-2001, in dollars, by municipality

Municipality	Revenue Fund	Capital Fund
	1994-1997	1994-1997
East York	225.50	135.75
Etobicoke	327.00	175.25
North York	298.25	165.00
Scarborough	288.25	118.50

Toronto	278.00	136.75
York	286.25	141.00
All Metro 1994-1997	283.88	145.38
MegaToronto 1998-2001	214.00	140.00
P-value	.001*	.766

* denotes significance at the 5% level of significance

Table 3.14 presents summary statistics on expenditures on roads. In 1999, the megacity harmonized snow removal and these lower averages reflect savings resulting from efficiency gainsAverage revenue fund expenditures on roads for all Metro residents was $283.88 over 1994-1997, compared to $214.00 following amalgamation. This indicates a significant saving for local government in this particular area of service delivery. For capital fund expenditures on roads, the pre-amalgamation average for all residents was $145.38 versus $140.00 post-amalgamation, but this difference was not statistically significant. Converting to real dollar spending, pre- and post-amalgamation revenue fund average expenditures are $275.98 and $195.03 respectively, and the difference is slightly more significant.[21] Real average capital fund spending on roads becomes less insignificant, decreasing from $141.07 to $127.04 after 1997. [22] Total revenue fund savings on roads for the first four years of the megacity is estimated to be $305,451,873.00 in nominal dollars. In real dollars, the savings are even more substantial at an estimate of $76,362,968.25.

iv) Environmental Services

Three main environmental services comprise the bulk of municipal spending in this category:

[21]The p-value is .406.

[22]The p-value is .000.

sewage, water supply and solid waste removal. Only 2.6 cents out of every tax dollar collected from property owners goes toward the funding of these services and they do not constitute a large portion of government spending. At the same time, these services may affect consumers more readily than any others. For this reason, we consider each component group separately. In addition, capital expenditures made toward the provision of these services is not insubstantial and an examination of these is also included.

As data in Table 3.13 report, revenue fund expenditures on sewage facilities remained consistent across municipalities both prior to and following amalgamation..

Table 3.13 Per Household Revenue Fund Expenditures on Sewers, 1994-2001 in dollars

Year	East York	Etobicoke	North York	Scarborough	Toronto	York
1994	225	247	246	215	288	232
1995	222	254	262	215	242	237
1996	227	270	263	230	280	247
1997	223	273	266	223	280	249
1998	228	228	228	228	228	228
1999	271	271	271	271	271	271
2000	280	280	280	280	280	280
2001	281	281	281	281	281	281

Table 3.14 Average Sewer Revenue Fund Expenditures Per Household in dollars, by municipality

Municipality	1994-1997
East York	224.25
Etobicoke	261.00
North York	259.25
Scarborough	220.75
Toronto	272.5

York	241.25
All Metro 1994-1997	246.50
MegaToronto 1998-2001	265.00
P-value	.140

The expenditure on water supply services are consistently higher from 1998-2001, as reported in Tables 3.15 and 3.16.

Table 3.15 Per Household Revenue Fund Expenditures on Water Services, 1994-2001 in dollars

Year	East York	Etobicoke	North York	Scarborough	Toronto	York
1994	106	197	229	160	197	149
1995	103	207	189	164	175	156
1996	105	201	222	171	176	216
1997	105	215	233	186	168	170
1998	190	190	190	190	190	190
1999	220	220	220	220	220	220
2000	211	211	211	211	211	211
2001	207	207	207	207	207	207

Table 3.16 Average Water Revenue Fund Expenditures Per Household in dollars, by municipality

Municipality	1994-1997
East York	104.75
Etobicoke	205.00
North York	218.25
Scarborough	170.25

Toronto	179.00
York	172.75
All Metro 1994-1997	175.00
MegaToronto 1998-2001	207.00
P-value	.126

As with water service delivery expenditures, most former municipalities saw an increase in per household spending on solid waste removal services. What is interesting is that garbage collection was harmonized in 1999, realizing estimated savings arising from efficiency gains of $4.2-million, but in 2000, garbage hauling costs increased by $5.8-million.[23] In 2001, cuts to garbage collection frequency in North York and parts of Etobicoke and litter cleanup around parked cars were made. The revenue fund expenditures, however, peak in that year, likely the result of a further increase in waste haulage contract costs of $12.9-million that were not offset by a savings of $0.94-million in increased waste tonnage at transfer stations.[24]

Table 3.17 Per Household Revenue Fund Expenditures on Solid Waste Removal Services, 1994- 2001, in dollars

[23]City of Toronto, *2000 Operating and Capital* Budget Summaries.

[24]City of Toronto, *Operating Budget 2001 Details.*

Year	East York	Etobicoke	North York	Scarborough	Toronto	York
1994	130	137	149	122	216	132
1995	108	144	136	126	160	124
1996	102	108	129	120	166	111
1997	104	115	129	116	174	100
1998	142	142	142	142	142	142
1999	162	162	162	162	162	162
2000	132	162	162	162	162	162
2001	191	191	191	191	191	191

Table 3.18 Average Solid Waste Services Revenue Fund Expenditures Per Household in dollars, by municipality

Municipality	1994-1997
East York	111.00
Etobicoke	128.00
North York	135.75
Scarborough	121.00
Toronto	179.00
York	116.75
All Metro 1994-1997	131.58
MegaToronto 1998-2001	156.75
P-value	.092**

** denotes significance at the 10% level of significance

Capital expenditures in each of sewage, water and solid waste removal services is insubstantial, but taken together, they represent a significant capital outlay for the megacity. As Tables 3.19 and 3.20 below report, post-amalgamation average outlays increased across the maegacity. For all consumers, average capital fund expenditures increased from $107.96 prior to amalgamation to $173.75 afterward; this increase is statistically significant at the 5% level of significance.. In real dollars, the increase is less substantial - from $104.74 to $158.01 - but still statistically significant.[25] The total increase in capital outlays is estimated to be $62,062,009.65 in current dollars or $50,251,455.45 in real dollars.

Table 3.19 Per Household Capital Fund Expenditures on Total Environmental Services, 1994-2001, in dollars

Year	East York	Etobicoke	North York	Scarborough	Toronto	York
1994	68	57	126	106	105	95
1995	88	66	128	150	81	104
1996	102	74	149	134	77	106
1997	159	91	154	158	117	96
1998	156	156	156	156	156	156
1999	170	170	170	170	170	170
2000	221	221	221	221	221	221
2001	148	148	148	148	148	148

[25]The p-value is .002.

Table 3.20 Average Total Environmental Services Capital Fund Expenditures Per Household in dollars, by municipality

Municipality	1994-1997
East York	104.25
Etobicoke	72.00
North York	139.25
Scarborough	137.00
Toronto	95.00
York	100.25
All Metro 1994-1997	107.96
MegaToronto 1998-2001	173.75
P-value	.001

* denotes significance at the 5% level of significance

v) Health and Social Services

Apart from expenditures made in the area of public health, generally expenditures were made by the Metro tier of government prior to amalgamation. In 1999, public health services across the megacity were harmonized. The bulk of government spending on health and social services is made from the revenue fund; capital expenditures are therefore not included in this survey.[26]

[26]For example, average per household capital expenditure in public health by the megacity over 1998-2001 is $3. *Author's Compiled Data.*

Public Health includes such programs as, but not limited to, a vaccine program, dental services, early child development programs, needle exchange and health education. In Toronto, Public Health is a special purpose body (as is the TTC, Toronto Public Library and GO Transit, among others; roughly 2.1 cents of every tax dollar collected is spent on public health programs.[27] Tables 3.21 and 3.22 report data for revenue fund expenditures in this area.

Table 3.21 Per Household Revenue Fund Expenditures on Public Health Services, 1994-2001 in dollars

Year	East York	Etobicoke	North York	Scarborough	Toronto	York
1994	184	147	164	148	265	157
1995	179	142	158	148	206	163
1996	171	133	154	144	198	143
1997	175	135	152	142	183	141
1998	166	166	166	166	166	166
1999	189	189	189	189	189	189
2000	241	241	241	241	241	241
2001	267	267	267	267	267	267

Table 3.22 Average Public Health Services Revenue Fund Expenditures Per Household in dollars, by municipality

Municipality	1994-1997
East York	177.25
Etobicoke	139.25
North York	157.00
Scarborough	145.50
Toronto	213.00
York	151.00

[27]City of Toronto, *2000 Operating and Capital* Budget Summaries.

All Metro 1994-1997	163.83
MegaToronto 1998-2001	215.75
P-value	.005

* denotes significance at the 5% level of significance

As Table 3.22 demonstrates, average public health expenditures rose following amalgamation. Noteworthy is that the former municipal expenditures rose to approximately the level of spending made by pre-amalgamation Toronto. This observation is consistent with Kushner's (1996:11) argument that when service levels are equalized across a newly consolidated municipality, they are equalized upward to the standard set by the highest quality service community.[28] Indeed, the rise in spending coincides with the initial harmonization of public health services in 1999 and reflected in the following year's budget. Moreover, in 1998, the province entered a new partnership agreement with the megacity to share 50 percent of the city's costs for its public health program; this would provide additional funding for additional spending. The total increase in spending over the period 1998-2001 in nominal dollars was $195,911,812.80.

[28]Kushner's argument also seems to be substantiated by the levelling up of revenue fund expenditures on fire, sewage, water and solid waste removal services, but not as precise as this case. Please see the appropriate tables.

Table 3.23 reports data and summary statistics for the spending areas of general assistance, elderly assistance and assistance to children. Whereas public health was funded by both the municipality and Metro, these areas were funded from Metro-level revenues. General assistance includes the provision of funds for food, shelter and clothing, prescription drugs, eyeglasses and school and dental allowances for children, among other things, under the Ontario Works Act. In the megacity, there are currently 14 community based offices to deliver assistance. This category also includes the provision of temporary shelter for the homeless. [29]Elderly assistance includes homes for the aged and services designed to enable people to remain in their own homes as long as they can. Today, the megacity is responsible for 10 directly-operated long-term care facilities, housing roughly 2600 senior citizens. Assistance to children includes subsidies to child care, including directly-operated child care facilities and private home day care. Additionally, funding is made available for summer camps, children with special needs, resource centres and other programs.

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Table 3.23 Per Household Revenue Fund Expenditures on General Assistance, Assistance to the Elderly and Assistance to Children in dollars, All Metro Municipalities

Year	General Assistance	Elderly Assistance	Children's Assistance
1994	1513	181	225

[29]Currently, departmental restructuring has resulted in new divisions such as the Social Services Division (to administer the welfare program), the Shelter, Housing and Support Division to assist the homeless and various other committees and task forces.

1995	1464	169	230
1996	1131	158	221
1997	1061	153	235
1998	1163	148	213
1999	1094	151	249
2000	1198	178	328
2001	1060	160	269
Average, 1994-1997	1292.25	165.25	227.75
Average, 1998-2001	1128.75	160.00	264.75
P-value	.218	.580	.178

Table 3.24 suggests that average revenue fund expenditures in two of the three assistance areas have decreased since amalgamation, but these reductions are not statistically significant. This is somewhat surprising. In 1998, Ontario substantially reduced its contributions to social assistance, family benefits allowances and daycare and eliminated funding for housing, increasing the fiscal responsibility of the megacity. At the same time, by 2001, the welfare caseload had been reduced from 77,000 to 65,000 cases. The rise in children's assistance spending was partially spurred by an increase in user fees for children's recreational programs and some summer camps in 2001. Since these changes in expenditures are not significant, no analysis in real terms is undertaken

vi) Recreation and Culture

The two main components of recreation and culture from an expenditure perspective are parks and recreation and libraries. Prior to amalgamation, included in this category are the Toronto Zoo, theatres, Exhibition Place, local arenas and museums. Post-amalgamation, these expenditures are recorded separately. For consistency, we only consider the former two

components, as those are the only two for which corresponding figures are available. Tables 3.24 and 3.25 therefore report data and summary statistics for revenue fund expenditures on parks and recreation and libraries.

Notice that per household spending is consistently larger on parks and recreation than it is on libraries, and varies across former municipalities. Certainly, spending generates in the communities in which facilities are located, regardless of any externalities accruing to non-resident users of those facilities. It makes economic sense that post-amalgamation, expenditures should even out to approximately the average level of expenditures prior to consolidation of the former municipalities. Indeed, this was the case. Factors affecting both these spending areas include increased funding to parks and recreation programs in 2000, increasing Sunday library service in 2000 followed by a library budget cut in 2001 and increased user fees for golf courses, swimming pools ice time and stadium usage in 2001, allowing for additional spending.

. From 1994-1997, average per household expenditures on parks and recreation was $305.58; from 1998-2001, it was 339.00. This suggests an estimated total increase in spending of $126,105,022.80. In real dollars, the increase in spending is estimated to total $51,015,556.80, not as large as the current dollar estimate. Regardless, the difference in either set of averages is not statistically significant.[30] Similarly, for library spending, the pre-amalgamation all-Metro average level of expenditure was $194.83 versus $151.75 for an estimated total government savings of $162,555,487.20 in nominal dollars. These savings become even greater in real terms, estimated at a total of $187,572,731.40. In both cases, these average levels of library spending are statistically significant.[31]

Table 3.24 Per Household Revenue Fund Expenditures on Parks and Recreation (PR) and Library Services (L), 1994-2001, in dollars

East York	Etobicoke	North York	Scarborough	Toronto	York

[30]The p-value is .719 for real dollar estimates.

[31]The p-values is .054 for real dollar estimates (significant at the 10% level of significance).

Year	PR	L	PR	L	PR	L	PR	L	PR	L	PR	L
1994	266	154	366	179	326	243	246	178	518	325	243	151
1995	251	158	360	180	313	248	239	184	377	250	230	150
1996	250	154	356	176	319	245	244	179	369	244	222	148
1997	269	152	360	174	336	242	254	176	376	239	244	147
1998	339	130	339	130	339	130	339	130	339	130	339	130
1999	279	129	279	129	279	129	279	129	279	129	279	129
2000	321	207	321	207	321	207	321	207	321	207	321	207
2001	417	141	417	141	417	141	417	141	417	141	417	141

Table 3.25 Average Recreation and Culture Revenue Fund Expenditures Per Household in dollars, by municipality

Municipality	Parks & Rec	Library
	1994-1997	1994-1997
East York	259.00	154.50
Etobicoke	360.50	177.25
North York	323.50	244.50
Scarborough	245.75	179.25

Toronto	410.00	264.50
York	234.75	149.00
All Metro 1994-1997	305.58	194.83
MegaToronto 1998-2001	339.00	151.75
P-value	.384	.096**

** denotes significance at the 10% level of significance

Data for capital fund expenditures are only available for total expenditures; these are reported in Table 3.26 below. The year 1996 is an anomaly, as the Metro tier of government kicked in $156 per household; otherwise, the average Metro contribution for 1994, 1995 and 1997 was roughly $44.[32] If we control for this anomaly, none of the estimated decreases in average municipal capital fund expenditures are statistically significant. Even without this control, the average pre-amalgamation expenditure level of $130.38 when tested against the post-amalgamation average level of $80 is statistically insignificant. For this reason, no estimates, current or real dollar, of total government savings are reported.[33]

Table 3.26 Per Household Total Capital Fund Expenditures on Recreation and Culture, 1994-2001, in dollars

[32]Author's compiled data.

[33]Author's compiled data and estimates.

Year	East York	Etobicoke	North York	Scarborough	Toronto	York
1994	35	46	83	69	120	32
1995	91	84	144	111	143	84
1996	266	207	264	209	266	199
1997	98	95	193	107	118	65
1998	93	93	93	93	93	93
1999	80	80	80	80	80	80
2000	72	72	72	72	72	72
2001	75	75	75	75	75	75

vii) Planning and Development

The majority of expenditures for urban planning and development are made from the revenue fund; hence, no capital fund data are reported. Figures reported in Table 3.27 indicate that in 1998 and 1999, per household expenditures on planning were uncharacteristically high. Not surprisingly, these were the years in which the megacity prepared its bid for the 2008 Olympic Games. The average all-Metro level of spending was $62.42 prior to 1998.; from 1998 onward, this average was $235.50. This difference is significant if we assume equal variances over both time frames; clearly, they are not.[34] Assuming unequal variances, the average spending level differences are not statistically significant.

[34]The p-value assuming equal variances is .001.

Table 3.27 Per Household Total Revenue Fund Expenditures on Planning and Development, 1994- 2001, in dollars

Year	East York	Etobicoke	North York	Scarborough	Toronto	York
1994	32	46	42	47	218	40
1995	30	44	40	46	179	38
1996	28	41	38	41	162	33
1997	32	33	36	44	167	41
1998	432	432	432	432	432	432
1999	404	404	404	404	404	404
2000	43	43	43	43	43	43
2001	63	63	63	63	63	63

Table 3.28 Average Planning Services Revenue Fund Expenditures Per Household in dollars, by municipality

Municipality	1994-1997
East York	30.50
Etobicoke	41.00

North York	39.00
Scarborough	44.50
Toronto	181.50
York	38.00
All Metro 1994-1997	62.42
MegaToronto 1998-2001	235.50
P-value	.200

3. And the Winners Are...

The determination of who gained as a result of the amalgamation of Metro Toronto is not only complicated but tenuous at best. Since we cannot determine which former municipalities were made better off in the Tiebout Pareto-optimal sense, the only "contestants" are the residents writ large and the government of Ontario who aimed to rationalize local government and reduce municipal expenditures. Nonetheless, some generalizations can be made.

In only six expenditure areas were there statistically significant changes in average per household spending on service delivery: capital fund spending on protection increased by 31.2 percent; revenue fund spending on roads decreased by 24.6 percent; revenue fund spending on waste removal just increased by 19.1 percent; capital fund spending on all environmental services increased by 60.9 percent; public health revenue fund spending increased by 31.7 percent; finally, revenue fund spending on libraries decreased by 22.2 percent. According to Tiebout, amalgamation has not been Pareto-optimal. Residents whose preferred tax/services

bundles were weighted towards library or road services would have been made worse off to the benefit of those who strongly preferred improvements in waste removal, for example.

More informative may be statistics regarding revenues and expenditures at the aggregate level. First, average revenue fund revenues available to be spent per household have increased by 6.26 percent since amalgamation. However, average revenue fund expenditures made per household have increased by 8.12 percent. Of revenue funds available, the contribution from property taxes has increased, post-amalgamation, by 7.49 percent.[35] The net effect is that the increase in expenditures on the delivery of services in the megacity outweigh the increase in property taxes paid by residents. From this perspective, residents' tax dollars have gone even further since Metro consolidated, suggesting that consumer-voters "win" from amalgamation to a small extent. That expenditures have increased suggests that the province did not succeed in rationalizing Metro in at least some areas. If amalgamation had been Pareto-optimal, everyone would have "won" across the board.

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[35]The p-values for these increases are .065 (significant at the 10 percent level of significance), .022 and .016, respectively.

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