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Municipal Reforms in Montreal and the Issue of Fairness

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Abstract

Municipal governance in the Montreal metropolitan region has recently undergone several phases of transformation. The first, in 2001-2002, was characterized by amalgamation and the introduction of a metropolitan governance structure. This was followed, in 2006, by a round of de-amalgamation. Using annual municipal data on residential tax base and global tax rate covering the period from 1996 to 2011 for all municipalities of the metropolitan area, the impacts of these reforms on fairness are estimated. Our findings show that amalgamation raises equity among municipalities and that de-amalgamation partly reintroduced inequity in the metropolitan area.

Keywords: urban governance, amalgamation, Montreal, equity

Résumé

La gouvernance municipale dans la région métropolitaine de Montréal a été l'objet de plusieurs transformations au cours des dernières années. Les premières réformes de 2001-2002 ont été caractérisées par une phase de fusions municipales et la mise en place d'une structure de gouvernance métropolitaine. La deuxième vague de réformes, en 2006, a quant à elle mené à une série de défusions municipales. À l'aide de données sur les assiettes fiscales et les taux globaux de taxation de l'ensemble des municipalités de la région métropolitaine de Montréal, couvrant la période 1996-2011, cette recherche vise à mesurer l'impact des réformes sur l'équité territoriale. Les résultats montrent que les fusions ont amélioré l'équité fiscale entre les municipalités, alors que les défusions ont partiellement réintroduit de l'iniquité dans la région métropolitaine.

Mot clés: gouvernance urbaine, fusions municipales, Montréal, équité

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INTRODUCTION

In the late 1990s, the Government of Quebec altered institutional structures in the Montreal metropolitan region. These changes include the creation of a regional governance body, the Montreal Metropolitan Community (MMC), in 2001, as well as the amalgamation of a number of municipalities in 2002 in central Montreal and in several major suburbs such as Longueuil, Terrebonne and Repentigny (see table 1). However, the election of a new provincial government in Quebec in 2003 initiated a de-amalgamation process, which culminated in the demerger of several municipalities in Montreal and Longueuil in 2006. As a result, agglomeration councils were created to provide services on the territory of formerly amalgamated cities, all of which were obligated to join in these structures. The main goal of the first reform was to ensure greater cohesion in the production of local public services in the metropolitan area while achieving a consolidated central city (Sancton 2003). The de-amalgamation reform resulted in an institutional structure that is almost as fragmented as it originally was. As Sancton (2005) mentions, this vacillation between opposite reforms renders Montreal's governance arrangements quite complex and unique. As such, they constitute an interesting case for further analysis.

Several studies on the economic impact of consolidation and fragmentation of local governance structures examine metropolitan areas in the United States (Hamilton, Miller & Paytas 2004; Edwards 2008; Jiminez & Hendrick 2010; Martin & Schiff 2011; Kim & Jurey 2013). Others analyse local government reforms in Northern Europe and the Middle East (Reingewertz 2012; Moisio & Uusitalo 2013). Researchers have also examined municipal consolidation in Canada (Vojnovic 2000; Sancton 2000; Reese 2004; Kushner & Siegel 2005; Schwartz 2009; Slack & Bird 2013). The case of Montreal has also been studied by Tomàs (2012) and Meloche & Vaillancourt (2015). However, the economic impact of municipal reforms has not been investigated in the specific case of Montreal. Considering the atypical nature of this case as well as the variety of reforms that have been implemented in the metropolitan area, Montreal stands to provide valuable information about the impact on equity of both amalgamation and de-amalgamation. Equity is understood as a low variation in the distribution of fiscal effort conceptualized in terms of two indicators: fiscal base and tax rate. The analysis is based on the convergence of these indicators among all municipalities in the area estimated for three periods: the pre-merger (1996-2000), the merger (2001-2005) and the post-merger (2006-2011) periods. The number of municipalities from which data is available varies from 98 in the initial period, to 61 after consolidation, and 78 after de-amalgamation.

The article is organized as follows. The first section presents the conceptual framework and the main arguments in favor of amalgamation. The second section provides more details on the specific case of Montreal and introduces the data used in the experiment. The third section focuses on the analysis of equity by way of measuring fiscal effort and convergence. The findings are discussed in the conclusion.

THE RATIONALE FOR AMALGAMATION

Municipal consolidation is usually understood as the structural merging of two or more municipal governments into one (Martin & Schiff 2011). The term amalgamation is used as a perfect synonym for city-consolidation. As stated by Edwards (2008), the process may also relate to large-scale annexation when compulsory amalgamation comprise appropriation of small suburban municipalities by a dominant central city. Reformists propose city-consolidation as a solution to problems arising from the fragmentation of metropolitan areas (Stephens & Wikstrom 2000), that is the division of a metropolitan territory into a large number of local governments, which may include overlapping jurisdictions (Hamilton, Miller, & Paytas 2004; Hendrick, Jiminez, & Lal 2011). It remains unclear whether fragmentation is a problem for metropolitan governance. Common arguments in support of consolidation include fairness and cost savings, as well as cohesion in urban and regional planning, economic development and local democracy.

The issue of fairness

In public finance, a system is considered fair when the fiscal arrangements impose equal liabilities on people who have the same ability to pay (Rosen et al. 1999). It can also mean that the tax liability is supported by those who benefit from the services provided. The concept of equity can be interpreted in many ways. For instance, equity between territories does not necessarily imply equity between individuals. The focus here is on equity between municipalities. In this context, a fair fiscal arrangement allows municipalities to provide equal services to their

citizens at equal costs. This implies that the fiscal effort should be similar for similar services. In other words, equity between municipalities in a metropolitan area should materialize through similar tax rates for similar output per consumer of public services.

A widely assumed consequence of fragmentation in local governance structures is the uneven provision of services due to the unequal capacity of local municipalities to generate fiscal revenue (Kim & Jurey 2013; Martin & Schiff 2011; Jiminez & Hendrick 2010). This is an indirect consequence of Tiebout's (1956) sorting model, in which citizens "vote with their feet" by moving from one jurisdiction to another in search of the bundle of local services and level of local taxes that match their preference. A fundamental assumption of the model, however, is that all households have the same income. Discounting this hypothesis, sorting may not be based solely on preferences, but also on financial capacity. The exclusion of poor households through zoning regulations can preserve the high fiscal capacity of some municipalities (Ulfarsson & Carruthers 2006, Rothwell & Massey 2010), which can then maintain low tax rates for higher levels of spending per capita. In these circumstances, fragmentation generates inequalities by creating space for fiscal segregation. The phenomenon does not only concern residential choices, but also applies to commercial and industrial locations.

Historically, the main rationale for large cities to annex surrounding municipalities has been to offset the fiscal implications of the migration of the middle and upper classes to the suburbs (Edwards 2008). A large part of the motivation for annexation was also to capture commercial and industrial property taxes in neighboring jurisdictions. Heim (2012) corroborates this statement, arguing that tax revenue has been a key motivation for municipal annexation in Phoenix, Arizona. Tanguay & Wihry's (2008) study of the demerger referenda in Montreal points in the same direction, as they find that voters were less likely to support de-amalgamation if they expected that this would lead to an increase in the tax-price of local public services. Reese (2004) also reports that consolidation increased equity within the Ottawa metropolitan area by improving the distribution of programs and amenities as well as fiscal effort. Similarly, Slack & Bird (2013) find that amalgamation in Toronto is likely to have contributed to the equalization of services between municipalities and the reduction of the residential property tax burden in poor neighborhoods.

The results are slightly different when equity is considered in terms of a fair distribution of personal income. For instance, Sacher (1993) estimates the impact of local taxes and expenditures on the distribution of income in metropolitan Washington DC in the current fragmented system and under a hypothetical metropolitan-wide regime. He finds that amalgamation has no impact on equity. Many other studies are unable to find any significant relationship between consolidation and disparities in personal or household income in a metropolitan region (Austin 1999; Morgan & Mareschal 1999; Post & Stein 2000; Martin & Schiff 2011). Although Jepson (2008) finds that ethnic poverty is less concentrated in consolidated city-counties in the United States, Jiminez (2014) nevertheless argues that race, rather than revenue, drives local population sorting in American metropolitan areas.

Behavior mimicking also influences the fiscal choices of municipal governments. The literature on tax competition (Wilson 1999) and yardstick competition (Besley & Case 1995) suggests that municipalities set their fiscal policies in response to their neighbors' choices. As a consequence, the tax rates and expenditures of municipalities in a metropolitan area should converge. Accordingly, Skidmore & Deller (2008) find convergence in local government spending per capita in Wisconsin between 1990 and 2000. As for revenue, Annala (2003) finds convergence in the average municipal property tax burden between states in the United States. To our knowledge, no study has looked precisely at the simultaneous convergence of tax base and tax rates in a metropolitan context. In a fragmented metropolitan area marked by fiscal inequality among municipalities, policy measures that favor the amalgamation of wealthy and poor communities should stimulate equity. In the extreme case of a complete merger, a single tax rate and budget would be adopted for the amalgamated territory, meaning that full mergers are tantamount to perfect equity.

Many questions arise from this discussion of the literature. What happens when consolidation includes only part of a metropolitan area? For instance, merging only rich municipalities in a single city may not have any effect on equity. If amalgamation is intended to enhance equity, what happens in cases where municipalities are allowed to demerge? Are demergers a threat to fairness? The Montreal metropolitan area offers a relevant context to investigate these questions.

The issue of cost saving

The expected impact of fragmentation on the cost of local services is not clear. The reformist view holds that smaller governments are unable to benefit from economies of scale and economies of scope (Jiminez & Hendrick 2010; Boyne 1992). A higher number of overlapping governments may also result in "overfishing" in the shared tax base, an issue known as the common pool problem (Berry 2008). As such, amalgamation should reduce the costs of delivering local public services. On the other hand, Tiebout's (1956) sorting mechanism and yardstick competition (Besley & Case 1995) may stimulate the efficiency of municipal governments in fragmented metropolitan areas. Moreover, economies of scale might not be as important as assumed by reformists (Hanes 2015). As Hirsh (1959) states, economies of scale are usually limited in the production of local government services, with the exception of water and sewage infrastructure networks. Found (2012) confirms these limits when looking at fire and police services.

Most empirical studies fail to find a significant link between horizontal fragmentation or city-consolidation and local spending (Martin & Schiff 2011; Hendrick, Jiminez & Lal 2011). For instance, Faulk & Grassmueck (2012) show that per capita expenditures in consolidated communities are not statistically different from that of other municipalities. Moisio & Uusitalo (2013) find similar results in Finland. Edwards & Xiao (2009) point that while annexation may influence spending, accompanying changes in density levels complicate the measurement of the effects. In Ontario, Kushner & Siegel (2005) and Schwartz (2009) conclude that amalgamation did not deliver the savings predicted by reformists. On the contrary, they observe significant increases in administrative expenditures. A study on municipal amalgamation in Israel (Reingewertz 2012) provides empirical support for the idea of cost efficiency gains related to amalgamation. Limited evidence is also found in Hanes's (2015) study of the Swedish municipal reform of 1952. However, his findings suggest that efficiency gains are only observed up to a limited threshold, estimated to 12,800 inhabitants.

Issues of urban planning, economic development and local democracy

Variation in planning regulations across jurisdictions is another consequence of Tiebout's (1956) sorting model in a fragmented metropolitan area. Uncoordinated planning in a fragmented region may complicate the provision of local services whose benefits or costs are not contained within municipal boundaries. These services characterized by externalities need coordination across municipal boundaries for efficient delivery. Furthermore, the use of exclusionary zoning in some municipalities may exacerbate urban sprawl (Ulfarsson & Carruthers 2006, Jiminez 2014). Jepson (2008) partially challenges this claim as he finds no significant relation between city-county consolidation and urban sprawl. Other planning benefits are also found to be unrelated to consolidation, such as central city vitality or compact urban development (Jepson 2008). Although coordination tools exist to soften the negative impacts of fragmentation on planning issues, most empirical studies suggest that it is more difficult to effectively manage planning processes in a fragmented environment (Kim & Jurey 2013).

One major argument supporting consolidation is that it facilitates economic development. As metropolitan areas compete to attract new businesses, the gathering of resources for economic promotion under a single roof may be helpful (Kim & Jurey 2013; Martin & Schiff 2011). There is however very limited empirical support for this claim (Carr & Feiock 1999, Jepson Jr. 2008). Many studies even suggest that fragmentation, rather than consolidation, is associated with economic growth (Nelson & Foster 1999; Stansel 2005; Grassmueck & Shields 2010). This lack of empirical support for the impact on economic development may be surprising since it is considered the most convincing argument to gain popular support for consolidation in the US (Leland and Thormaier 2005). It has also been a major argument put forth by provincial authorities to justify compulsory amalgamation in Canadian cities (Garcea & LeSage 2005).

Lastly, from a political point of view, it is often argued that amalgamation affects the quality of local democracy (Hamilton 2012, Denters & al. 2014). According to localists, bigger jurisdictions, which result from consolidation, are less accountable to the public, diminish participation in democratic processes and limit access to political leaders (Hamilton 2012). Some authors also argue that it may dilute the political representation of minorities (Martin & Schiff 2011). Reformists challenge these arguments, contending instead that bigger jurisdictions foster a more efficient democracy and stimulate local participation (Ostrom, 1972). Since the work of Dahl & Tufte (1973) on size and democracy, there have been several studies on the topic. Although Lassen & Serritzlew (2011) find that jurisdiction size has a "sizeable" negative effect on citizens' internal political efficacy in Denmark, most studies find weak empirical support for that claim (Denter & al. 2014). According

to Hamilton (2012), there is "enough contrary evidence" to the argument that consolidation reduces the quality of local democracy. On the other hand, the literature rarely point to any positive contribution of amalgamation to local democracy.

As described here, the rationale for city amalgamation is based on several economic and political arguments. Although we recognize that all elements are important to the understanding of amalgamation and its consequences, we restrict our empirical analysis to the public finance implications of the process, and more specifically to the issue of fairness.

FROM MERGERS TO DEMERGERS IN MONTREAL

Municipal governments account for 16 % of total provincial and local government spending in Quebec[1]. According to Shah (2006), this is a smaller share than what is usually found in most industrialized countries, including the United States. This can be attributed to relatively more limited municipal responsibilities in Quebec, which do not include social, health or education services. A third of municipal expenditures in Quebec are devoted to transportation infrastructure and services (roads and public transit). Other major budget items include public safety (police and fire protection), culture, leisure and sport, water and sewage, and garbage collection[2]. Since all municipalities are multipurpose governments and single-purpose districts are uncommon, there is less local jurisdictional overlapping in Quebec than in the United States. As such, horizontal cooperation motivates demands for consolidation rather than the elimination of overlapping services or the simplification of governance structures.

Municipal government autonomy is relatively high in Quebec. Transfers from provincial and federal governments account for only 16 % of total revenue, or 20 % when considering transfer payments in lieu of taxes.[3] This means that 80 % of municipal revenue is self-sourced. Equalization grants exist, but only amount to 60 million $CAD for all municipalities, which represents 0.3 % of total municipal spending in the province. Thus, equalization policy is very weak while municipal autonomy is high in Quebec.

A brief historical overview

Several rounds of restructuring have altered the governance of the Montreal metropolitan region since 2000, as analyzed by Sancton (2003), Latendresse (2005) and Hamel & Rousseau (2006). A historical overview of these reforms is presented below to provide context for the study.

Pierre Bourque, mayor of Montreal from 1994 to 2001, played a significant role in the process as one of the only municipal leaders in a city targeted for amalgamation to support the idea. On the other hand, suburban opposition remained steadfast, as the sensitive issue of language was brought into the debate, particularly in the western part of the Island of Montreal. Despite these protests, the Parti Québécois government used its parliamentary majority to adopt Bill 170, a provincial law that imposed amalgamation on a number of municipalities. Then-premier Lucien Bouchard pointed to the benefits of equalized taxes and services across the new city as a central motivation (Sancton, 2003). This first reform was implemented on January 1st, 2002.

The impact of the mergers in Montreal was tempered by the fact that several services had already been regionalized long before amalgamation. The Montreal Urban Community (MUC) had managed services such as policing and public transit since the 1970s[4]. A similar regional entity also existed in Quebec City, but not in the other merged municipalities.

The April 2003 provincial elections led to a change in government. During the campaign, the newly elected Liberal Party promised, among other things, to hold consultations on the territorial reorganization in order to allow for the de-amalgamation of consolidated municipalities, under certain conditions. The first condition was that 10% of the registered voters within the former municipal borders had to sign a register requesting a vote on demerger. If this condition was met, a referendum would be held in which, as a second condition, a majority vote in favor of de-amalgamation had to represent at least 35% of all registered voters in order to trigger a demerger. Even though 27 municipalities organized a referendum in the metropolitan area in 2004 after having met the first condition, and 26 voted in favor of demerging, only 19 met the second condition and regained their independent status on January 1st, 2006: 15 on the Island of Montreal and 4 around Longueuil. No other municipality has demerged since.

De-amalgamation was only partial though, as the Government of Quebec created agglomeration councils, new political structures that encompass the territory of former amalgamated cities. In Montreal, the

Agglomeration Council is very similar to the previous Urban Community, with the important distinction that the mayor of the City of Montreal now holds more power. Demerged municipalities are now called "tied municipalities", as they must operate within the constraints of, and are thus tied to, the Agglomeration Council despite having regained a level of autonomy[5]. Agglomeration councils were created for all cities that experienced demergers. Consequently, there are two agglomeration councils in the metropolitan area: one for Montreal and one for Longueuil[6].

As the mayor of Montreal stated in the late 1990s, the goal of the mergers was to rebalance the financial relationship between his city and its suburbs (Sancton 2005). It is then relevant to consider the evolution of fiscal disparity through the structural changes that occurred in the Montreal metropolitan region between 1996 and 2011, and how these changes have affected municipal spending. While the Montreal experiment is not assumed to be typical, it provides an interesting arena to explore the impact of municipal governance reforms since it is one of the rare instances where a metropolitan area has experienced both consolidation and fragmentation in a relatively short timeframe.

Data for the analysis

The municipal reforms in the Montreal metropolitan region provide an opportunity to study the impact of city-consolidation during three distinct periods from 1996 to 2011. The first comprises the initial situation, during which no municipality had merged or demerged (1996-2001); the second encompasses a period when several municipalities were amalgamated to consolidate the central city and major suburbs (2002-2005), and the last covers a phase of limited fragmentation, as a number of municipalities de-amalgamated while a majority remained consolidated (2006-2011). Since we are interested with the impact of mergers and demergers on short term trend, we have chosen to include the five years before mergers and the five years after demergers in our analysis. This allows us to take into account effects that can take more than one year to happen after demergers and to avoid that our conclusion rely only on an unusual year like the one just before mergers where some municipalities may have already modify their financial behavior. In total, it gives us a 15 year period of municipal financial data[7].

The database used in this study includes financial data collected from the Quebec Ministry of Municipal Affairs, Regions and Land Occupancy (MAMROT) and financial reports produced by municipalities that are part of the territory of the Montreal Metropolitan Community (MMC). As of 2013, the MMC encompasses 82 municipalities, 3.7 million residents and an area of over 4,360 square kilometers.[8] Its largest city, Montreal, accounts for nearly 1.7 million inhabitants. The data for the research was collected on an annual basis from 1996 to 2011.

The number of municipalities in the MMC varies in the three study periods. There were 106 municipalities in 1996 within actual MMC limits, but four were merged prior to 2001. Among other municipalities, three have incomplete financial data, and one has been discarded as an outlier. Consequently, of the 102 municipalities of table 1, a total of 98 municipalities presents complete financial data for the analysis. A total of 61 municipalities are in the same situation during the merger period and 78 after de-amalgamation. Table 1 provides a complete list of municipalities that were part of the MMC in 2001, the year prior to amalgamation with their population. Municipalities that were merged in 2002 are identified with an M, while municipalities that de-amalgamated in 2006 are identified with a D.

THE QUEST FOR EQUITY

Conceptual Framework

As mentioned, the definition of equity used in this study refers to fairness in the distribution of fiscal effort among municipal governments. A fair distribution of the fiscal effort is observed when municipalities have similar tax rates to finance similar expenditures. This situation is usually found when the tax base is proportionally distributed among municipalities. Based on this conception, two indicators guide our analysis. The first is the distribution of the tax base. In Quebec, municipalities rely mainly on property tax to finance their expenditures. It is their only tax revenue and it represents more than 50 % of total revenues, including grants. The property tax is based on assessed property values. The assessment roll is maintained by municipal authorities and is updated

Table 1 Population of municipalities of the Montreal Metropolitan Community in 2001 and status change in 2002 and 2006

	Municipalities	Population in 2001	Merged in 2002	Demerged in 2006		Municipalities	Population in 2001	Merged in 2002	Demerged in 2006
1	Richelieu	4,851			52	Côte-Saint-Luc	30,244	M	D
2	St-Mathias-sur-Richelieu	4,149			53	Hampstead	6,974	M	D
3	Chambly	20,342			54	Mont-Royal	18,682	M	D
4	Carignan	5,915			55	Dorval	17,706	M	D
5	Saint-Basile-le-Grand	12,385			56	L'Île-Dorval[1]	0	M	D
6	McMasterville	3,984			57	Pointe-Claire	29,286	M	D
7	Otterburn Park	7,866			58	Kirkland	20,434	M	D
8	Saint-Jean-Baptiste	2,704			59	Beaconsfield	19,310	M	D
9	Mont-Saint-Hilaire	14,270			60	Baie d'Urfé	3,813	M	D
10	Beloeil	19,053			61	Ste-Anne-de-Bellevue	5,062	M	D
11	St-Mathieu-de-Beloeil	2,236			62	Senneville	970	M	D
12	Brossard	65,026	M	D	63	Dollard-des-Ormeaux	48,206	M	D
13	Saint-Lambert	21,051	M	D	64	Saint-Mathieu	1,961		
14	Boucherville	36,253	M	D	65	Saint-Philippe	3,892		
15	St-Bruno-de-Montarville	23,843	M	D	66	La Prairie	18,896		
16	Longueuil	128,016	M+		67	Candiac	12,675		
17	Greenfield Park	16,978	M		68	Delson	7,024		
18	LeMoyne	4,855	M		69	Sainte-Catherine	15,953		
19	Saint-Hubert	75,912	M		70	Saint-Constant	22,577		
20	Sainte-Julie	26,580			71	Saint-Isidore	2,371		
21	Saint-Amable	7,278			72	Mercier	9,442		
22	Varennes	19,653			73	Châteauguay	41,003		
23	Verchères	4,782			74	Léry	2,378		
24	Calixa-Lavallée	495			75	Beauharnois	6,387	M+	
25	Contrecoeur	5,222			76	Maple Grove	2,628	M	
26	Charlemagne	5,662			77	Melocheville	2,449	M	
27	Repentigny	54,550	M+		78	Les Cèdres	5,128		
28	Le Gardeur	17,668	M		79	Pointe-des-Cascades	913		
29	Saint-Sulpice	3,343			80	L'Île-Perrot	9,375		
30	L'Assomption	15,615			81	N-Dame-de-l'Île-Perrot	8,546		
31	Terrebonne	43,149	M+		82	Pincourt	10,107		
32	Lachenaie	21,709	M		83	Terrasse-Vaudreuil	2,047		
33	La Plaine	15,673	M		84	Vaudreuil-Dorion	19,920		
34	Mascouche	29,556			85	Vaudreuil-sur-le-Lac	893		
35	Laval	343,005			86	L'Île-Cadieux[1]	127		
36	Montréal-Est[2]	3,547	M	D	87	Hudson[1]	4,796		
37	Montréal	1,039,534	M+		88	Saint-Lazare	12,895		
38	Anjou	38,015	M		89	Saint-Eustache	40,378		
39	Lachine	40,222	M		90	Deux-Montagnes	17,080		
40	LaSalle	73,983	M		91	Ste-Marthe-sur-le-Lac	8,742		
41	Montréal-Nord	83,600	M		92	Pointe-Calumet	5,604		
42	Outremont	22,933	M		93	Saint-Joseph-du-Lac	4,882		
43	Pierrefonds	54,963	M		94	Oka - Municipalité	3,194		
44	Roxboro	5,642	M		95	Boisbriand	26,729		
45	Saint-Laurent	77,391	M		96	Sainte-Thérèse	24,269		
46	Saint-Léonard	69,604	M		97	Blainville	36,029		
47	Sainte-Geneviève	3,278	M		98	Rosemère	13,391		
48	Verdun	60,564	M		99	Lorraine	9,476		
49	L'Île Bizard	13,861	M		100	Bois-des-Filion	7,712		
50	Westmount	19,727	M	D	101	Ste-Anne-des-Plaines	12,908		
51	Montréal-Ouest	5,172	M	D	102	Mirabel	27,330		

Note: M=Merger, M+= city gained territory D=Demerger. (1) Municipalities not considered in our analysis due to missing financial data; (2) Extreme outlier not included in the analysis: very small population in a large industrial area. Source: MAMROT

every three years following a uniform methodological standard. Since all municipalities do not update their roll on the same year, the Quebec Ministry of Municipal Affairs produces a "standardized" property assessment value (SPA). This data yields global property assessments that are comparable on a yearly basis for all municipalities.

Larger municipalities have a larger tax base. As such, size should not be a criterion to evaluate disparity. To overcome the size effect, it is expected that the distribution of the tax base among municipalities should be similar to the distribution of consumers of local public services (or local needs). Since we do not have data on local needs, the match between fiscal base and needs is hard to validate. To manage this problem, we use two different imperfect measures of tax base. The first one is a measure of SPA per capita, which is based on the assumption that local needs are correlated to population. In main employment or consumption centers, however, local needs may also be associated to commuters from neighboring communities. In that case, SPA per capita will overestimate the wealth of these municipalities. The second measure of municipal tax base we use is linked to the residential part of the tax base only. The residential SPA per capita (RSPA) represents in this view a measure of the tax capacity as perceived by residents only, assuming that revenues from taxes on commercial, industrial and institutional properties will strictly be used to finance non-residential needs. Since some municipalities finance residential services with non-residential taxes, this measure underestimates their fiscal wealth. In the end, both of our municipal tax base measures are biased, but their biases operates in opposite directions. If we can draw the same conclusions from both measures, we will consider them as robust.

Since we are interested in the differences in per capita property value assessment between municipalities, and not in its evolution over time, an index is computed based on the yearly average of SPA and RSPA measures. The index is calculated as follows:

$$SPA\ index_{it} = \frac{\frac{SPA_{it}}{p_{it}}}{\frac{\sum_{i=1}^{n} p_{it} SPA_{it}}{P_t}}, \qquad (1)$$

where p_{it} is the population of municipality i for year t and P_t is the total population of the metropolitan area for year t. By definition, the weighted average SPA index equals 1 in every year. Municipalities with an index over 1 are considered wealthy, as their tax base is larger than their population share. Municipalities with SPA index under 1, on the other hand, are considered relatively poor. The same index is built with the RSPA.

The second indicator of municipal disparities is the tax rate, which refers to what the Ministry of Municipal Affairs calls the standardized global tax rate (SGTR), computed as the total tax revenues divided by the SPA. The relation between the tax rate and the tax base in not straightforward. On an equity point of view, we expect that, all else being equal, a smaller tax base will lead to larger tax rate. Consequently, disparities in the distribution of the tax base should lead to disparities in tax rates. Many factors may affect this relation though. For instance, municipalities with a smaller tax base may choose to lower expenditures in order to maintain their tax rate at a competitive level. Some municipalities may choose to rely more on fees or charges to lower their tax rate. Transfers from upper levels of government can also influence municipal tax rate. For all those reasons, we don't expect our tax rate indicator to tell the exact same story as our SPA and RSPA indexes.

The tax rate indicator has been converted to an index to make it comparable. The index of the SGTR is divided by the weighted average SGTR in the metropolitan area as follows:

$$SGTR\ index_{it} = \frac{SGTR_{it}}{\frac{\sum_{i=1}^{n} p_{it} SGRT_{it}}{P_t}}. \qquad (3)$$

Our goal is to measure the impact of municipal reforms in Montreal on fiscal fairness. Assuming that amalgamation has a positive impact on equity, as is theorized, the fiscal effort gap between wealthy and poor municipalities should decrease. In other words, convergence should be detected. The measure of convergence used here is σ-convergence (Quah 1993), which is based on the evolution of the coefficient of variation (ratio of standard deviation to the mean). The coefficient of variation is directly proportional to the spread of the distribution around the mean. Therefore, a year-to-year decrease indicates convergence. As amalgamation occurred in 2002, we expect to see a breakpoint in σ -convergence at that time. The inverse is also expected with demergers in 2006.

Figure 1


No Data
Wealthiest municipalities
Wealthy municipalities
Poor municipalities
Poorest municipalities
0
10
20 km
N
Mirabel
Oka
Saint-Joseph-du-Lac
Saint-Eustache
Les Cèdres
Saint-Lazare
Vaudreuil-D
Melocheville
Beauharnois
Boisbriand
Blainville
Sainte-Anne-des-Plaines
Terrebonne
La Plaine
Laval
Pierrefonds
Île-Perrot
Île-Bizard
Beaconsfield
Pointe-Claire
Dorval
Saint-Laurent
Mercier
Châteauguay
Saint-Isidore
Lachine
LaSalle
Montréal
Anjou
Mascouche
Lachenaie
Le Gardeur
Repentigny
Assomption
Saint-Sulpice
Saint-Constant
Saint-Mathieu
Candiac
Saint-Philippe
La Prairie
Brossard
Longueuil
Saint-Hubert
Boucherville
Varennes
Saint-Amable
Verchères
Calixa-Lavallée
Contrecoeur
Carignan
Saint-Bruno
Sainte-Julie
Saint-Mathieu-de-Beloeil
Beloeil
Chambly
Saint-Basile
Saint-Mathias-sur-Richelieu
Richelieu
Mont-Saint-Hilaire
Saint-Jean-Baptiste

Figure 2

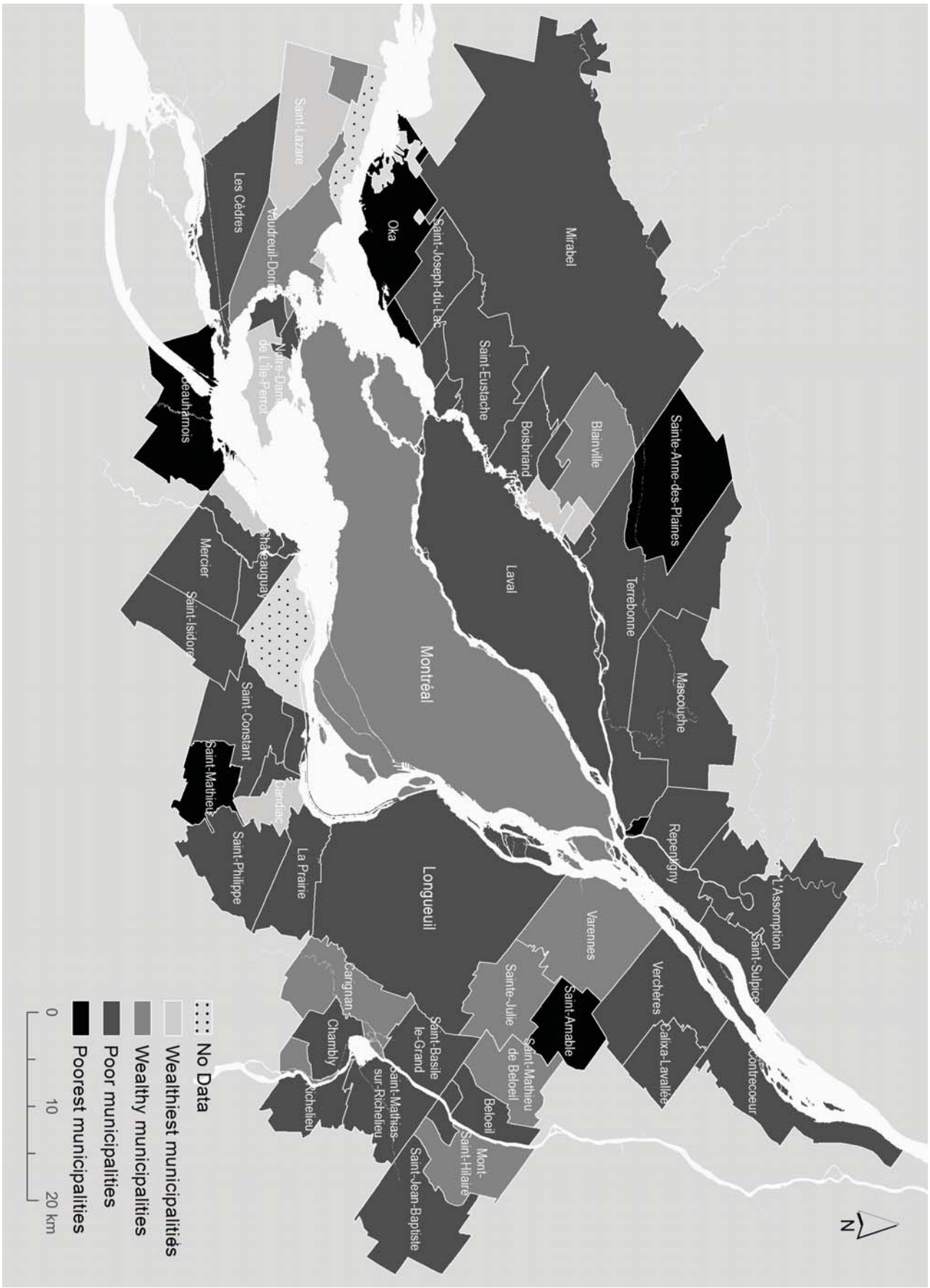

Saint-Lazare
Les Cèdres
Oka
Mirabel
Saint-Joseph-du-Lac
Saint-Eustache
Boisbriand
Blainville
Sainte-Anne-des-Plaines
Terrebonne
Mascouche
Laval
Montréal
Beauharnois
Mercier
Châteauguay
Saint-Isidore
Saint-Constant
Saint-Mathieu
Candiac
Saint-Philippe
La Prairie
Longueuil
Repentigny
L'Assomption
Saint-Sulpice
Varennes
Saint-Amable
Sainte-Julie
Saint-Mathieu-de-Beloeil
Beloeil
Verchères
Calixa-Lavallée
Contrecoeur
Carignan
Chambly
Richelieu
Saint-Basile-le-Grand
Saint-Mathias-sur-Richelieu
Mont-Saint-Hilaire
Saint-Jean-Baptiste
N
No Data
Wealthiest municipalities
Wealthy municipalities
Poor municipalities
Poorest municipalities
0
10
20 km

Figure 3


Mirabel
Oka
Saint-Joseph-du-Lac
Saint-Eustache
Boisbriand
Blainville
Sainte-Anne-des-Plaines
Terrebonne
Mascouche
Repentigny
L'Assomption
Saint-Sulpice
Contrecoeur
Varennes
Verchères
Calixa-Lavallée
Saint-Amable
Sainte-Julie
Saint-Mathieu de Beloeil
Beloeil
Saint-Jean Baptiste
Saint-Jean-Baptiste
Saint-Mathias sur Richelieu
Saint-Basile
Chambly
Richelieu
Carignan
Saint-Bruno
Boucherville
Longueuil
Brossard
La Prairie
Saint-Philippe
Saint-Mathieu
Candiac
Saint-Constant
Saint-Isidore
Mercier
Châteauguay
Westmount
Mont-Royal
Montréal
Dorval
Pointe-Claire
Laval
Notre-Dame de-L'Île Perrot
Vaudreuil-Dorion
Les Cèdres
Saint-Lazare
Beauharnois
N
No Data
Wealthiest municipalities
Wealthy municipalities
Poor municipalities
Poorest municipalities
0
10
20 km

Table 2 Evolution of SPA and RSPA indexes over the three periods of the study for merged and demerged municipalities in Montreal and Longueuil

	Population in 2001	SPA index*			RSPA index*		
		1996-2001	2002-2005	2006-2011	1996-2001	2002-2005	2006-2011
Longueuil area	**382,838**						
Brossard	66,110	0,94		0,92	1,11		1,05
Saint-Lambert	21,761	1,21		1,17	1,65		1,53
Boucherville	37,581	1,35		1,27	1,34		1,27
Saint-Bruno-de-Montarville	24,392	1,21		1,22	1,30		1,27
*Longueuil***	*131,017*	*0,76*	*1,08*	*0,70*	*0,85*	*0,98*	*0,79*
Greenfield-Park	17,681	0,77			0,86		
Le Moyne	5,132	0,55			0,67		
Saint-Hubert	79,164	0,72			0,84		
Island of Montreal	**1,792,434**						
*Montreal***	*1,029,828*	*0,95*	*1,23*	*1,05*	*0,89*	*1,04*	*0,97*
Anjou	37,758	1,10			1,00		
Lachine	40,053	1,05			0,89		
LaSalle	73,316	0,79			0,87		
Montréal-Nord	82,188	0,60			0,74		
Outremont	21,825	1,51			2,07		
Pierrefonds	54,502	0,75			1,01		
Roxboro	5,574	0,76			1,04		
Saint-Laurent	76,342	1,51			1,03		
Saint-Léonard	71,891	0,85			0,95		
Sainte-Geneviève	3,302	0,64			0,83		
Verdun	60,521	0,77			0,96		
L'Île-Bizard	13,895	1,10			1,43		
Westmount	19,922	2,68		2,83	3,32		3,49
Montréal-Ouest	5,088	1,26		1,32	1,74		1,73
Côte-Saint-Luc	28,937	1,17		1,11	1,54		1,45
Hampstead	6,605	1,81		1,94	2,77		2,75
Mont-Royal	18,100	2,34		2,19	2,62		2,45
Dorval	17,300	2,29		2,08	1,30		1,21
Pointe-Claire	28,823	1,64		1,46	1,35		1,30
Kirkland	19,894	1,32		1,35	1,55		1,55
Beaconsfield	18,906	1,29		1,33	1,85		1,80
Baie-d'Urfé	3,731	2,23		2,28	2,26		2,17
Sainte-Anne-de-Bellevue	5,076	1,58		1,30	1,12		1,00
Senneville	930	3,44		3,39	3,61		3,42
Dollard-des-Ormeaux	48,127	0,85		0,90	1,12		1,16

Notes: (*) Average value for each period. (**) Central cities to which other municipalities were merged in 2002 or from which they have demerged in 2006.

Tax Base Disparities

The evolution of the RSPA index in the metropolitan area is mapped in figures 1, 2 and 3, each presenting a single timeframe. The wealthiest municipalities (or inversely the poorest) have an index that is one standard deviation above (or below) the average for all municipalities in all periods. A wealthy municipality (or poor) has an index that is above (or below) the average by less than one standard deviation[9].

Figure 1 displays the initial situation. The majority of the wealthiest municipalities between 1996 and 2001 are located on the Island of Montreal as well as around Longueuil. Many poor municipalities are also located on the Island of Montreal and around Longueuil. The City of Montreal and the City of Longueuil both have a poor endowment in terms of property assessment in this period. These observations lend credence to the argument of fairness sustaining municipal reforms. Not only are major municipalities such as Montreal and Longueuil, considered poor, trying to capture higher property values outside their borders, but the initiated reforms are specifically targeting some of the wealthiest municipalities of the metropolitan area. From that point of view, the impact on fairness seems obvious.

Figure 2 shows the situation after consolidation. The Island of Montreal now forms a single municipality. During this period, the new City of Montreal is therefore wealthy, while Longueuil, despite improvement, remains poor. Unfortunately, the number of poor and very poor municipalities remains still in the metropolitan area during this period. This raises a question about the new distribution of wealth. In agglomerating the wealthiest municipalities, have municipal reforms left poor municipalities to fend for themselves? The impact on fairness may not be as clear as it seems.

The situation changes again after the demergers, as seen in figure 3. Montreal has returned to the poor category. The motivation for demerger seems clear. Of the 13 municipalities that have demerged from Montreal and for which we have information, 10 were classified among the wealthiest after demergers, two were wealthy and only one was poor. In Longueuil, of the 4 municipalities that recovered their autonomy, 3 ranked among the wealthiest and one among the wealthy. According to these observations, demergers are also expected to have a significant impact on equity in the metropolitan area.

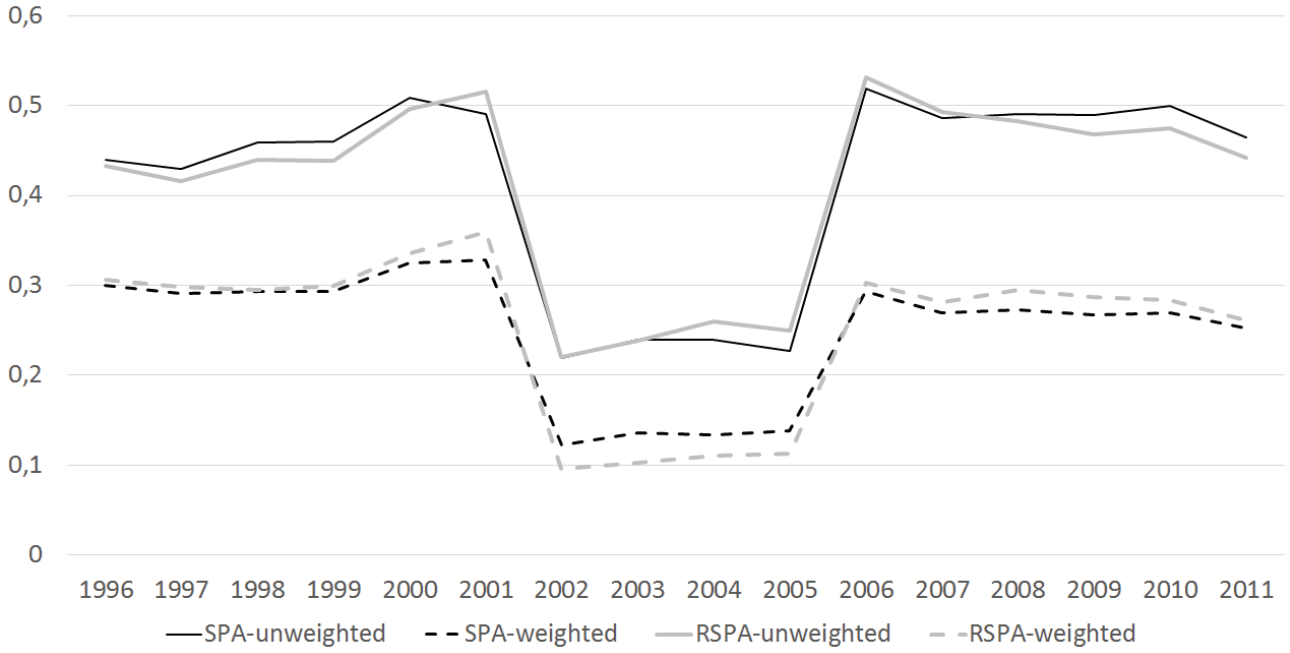
As we have mentioned already, RSPA index underestimate the wealth of central cities like Montreal. Using SPA index in figures 1, 2 and 3 would have moderated our conclusions, but not necessarily changed the picture. Details of SPA and RSPA indexes for merged and demerged municipalities on the Island of Montreal and around Longueuil appear in table 2. We can see that that the SPA index for Montreal is higher than the RSPA index. The inverse is observed however for Longueuil. On the Island of Montreal, during the period before municipal reforms (1996-2001), all municipalities were wealthier in terms of RSPA than the central City of Montreal, with the exceptions of LaSalle, Montréal-Nord and Sainte-Geneviève. Looking at the SPA, we observe that Pierrefonds, Roxboro, L'Île-Bizard, Côte-Saint-Luc and Dollard-des-Ormeaux were also poorer that Montreal before mergers. Amalgamation still improved the fiscal situation of 13 of the 26 municipalities involved in the merger of Montreal for which we have information when considering SPA and 10 out of 26 when considering RSPA. These municipalities account for nearly 85 % of the population in 2001 for both cases. This means that a very high proportion of resident have seen the fiscal situation of their municipality improved by mergers on the Island of Montreal. With the exception of Outremont, all municipalities where residents saw their fiscal position deteriorate with mergers in 2002 on both indexes have chosen to demerge in 2006. In the period following demergers (2006-2011), these municipalities all have higher SPA and RSPA scores than the City of Montreal. With the exception of Côte-Saint-Luc and Dollard-des-Ormeaux, there was a fiscal gain in all demergers (as for these two exceptions, the fiscal gain was only observed with the RSPA index).

Data on the Longueuil area tells a similar story. From the 8 municipalities involved in the merger in 2002, 4 improved their RSPA position and 5 improved their SPA position with the reform. These 5 municipalities account for 78 % of population in 2001. Therefore, a majority of residents saw the fiscal situation of their municipality improved with amalgamation (61 % when measured with the RSPA index). All municipalities that worsen their RSPA position have also opted to demerge in 2006. They all show higher RSPA index score than that of the City of Longueuil for the 2006-2011 period, suggesting that fiscal gain was a major determinant of demerger in Longueuil as well. The only exception is Brossard, which has not improved its SPA index position with demerger.

The computed σ-convergence of SPA and RSPA indexes for the 1996-2011 period appears in figure 4. Two forms of each measures are presented in this figure, one built with weighted means and standard deviations and

one with unweighted means and standard deviations. The weights used refer to the proportion of population. As expected, all measures show a sharp decline in the coefficient of variation after 2001, as municipal amalgamation came into effect. Thus, municipal consolidation made the distribution of the tax base more equitable for both indexes. The inverse effect is noted in 2006 due to de-amalgamation, since municipalities that successfully demerged are, in most cases, among the wealthiest.

Figure 4



Looking at the tax base only, the impact of municipal reforms on equity is obvious. The 2002 reform forced the merger of many of the wealthiest municipalities in the metropolitan region with major cities like Montreal and Longueuil, considered fiscally poor. The new distribution of municipal tax base among the population is clearly more equitable after mergers. Inversely, in 2006, the demerger allowed some of the wealthiest municipalities to regain control over their tax base. Figure 4 shows that disparities after demergers in the metropolitan area reached a similar level as the situation prevailing before the reforms.

Tax rate disparities

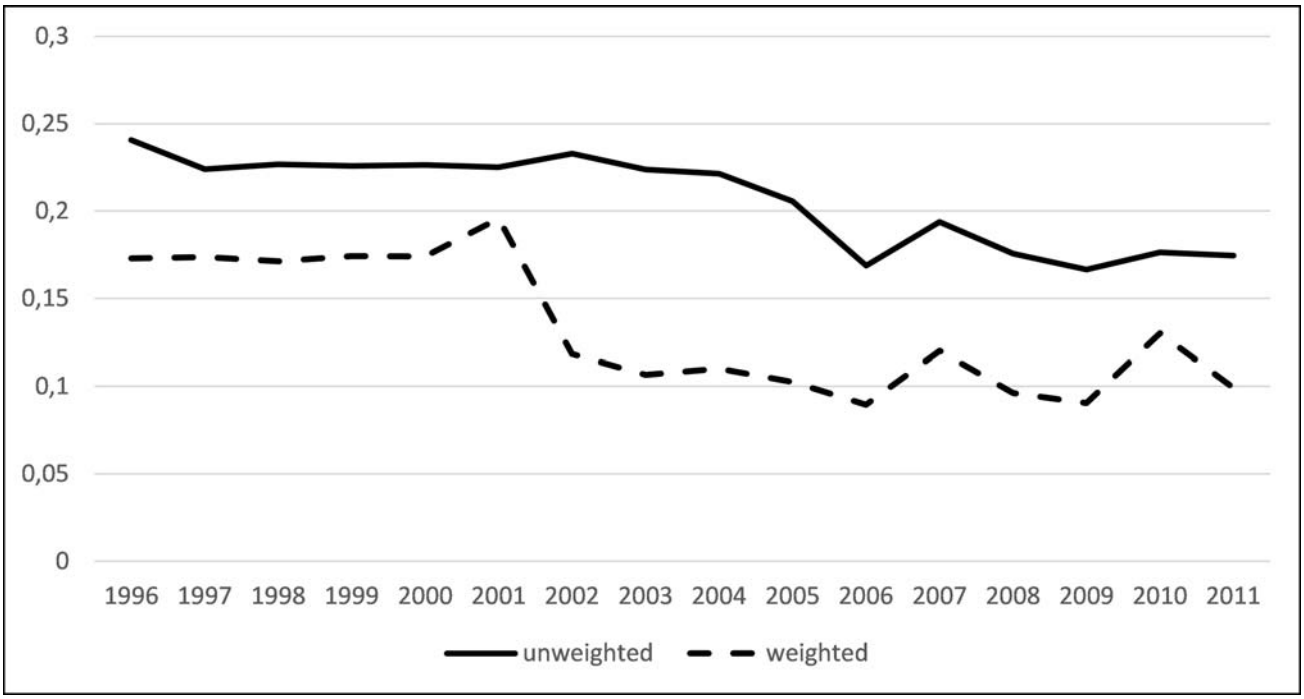
The tax rate indicator paints a slightly different picture. Measures of σ-convergence for the SGTR index appear in figure 5. These measurements were computed twice: once with weighted means and standard deviations and once with unweighted means and standard deviations. Looking at the weighted curve, a clear breakpoint in the evolution of convergence that coincides with the 2002 reform is visible in the data, as expected. This means that mergers not only contributed to a more equitable distribution of the tax base, but also to convergence in tax rates. What makes the unweighted curve interesting though is not the impact of mergers on fairness, but the impact of demergers. Despite several of the wealthiest municipalities regaining control over their tax base in 2006, disparities in tax rates were not affected. Gains in terms of equity as measured with tax rate seem to endure over time, even after demergers. The creation of agglomeration councils is one potential explanation for this situation. As mentioned, demerged municipalities only recovered part of their autonomy after 2006. They were henceforth considered "tied municipalities" since they are obligated to contribute financially to agglomeration councils in which they have very weak political representation. These agglomeration councils produce nearly 45 % of all municipal services on their territory and serve as a tool to use the tax base of de-amalgamated municipalities to finance major infrastructure projects and operation in central cities.

Table 3 Evolution of the SGTR index over the three study periods for merged and demerged municipalities in Montreal and Longueuil

	Population in 2001	SGTR index*		
		1996-2001	2002-2005	2006-2011
Longueuil area	**382,838**			
Brossard	66,110	0,76		0,93
Saint-Lambert	21,761	0,63		1,01
Boucherville	37,581	0,72		0,90
Saint-Bruno-de-Montarville	24,392	0,61		0,89
*Longueuil***	*131,017*	*0,88*	*0,83*	*0,95*
Greenfield-Park	17,681	0,85		
Le Moyne	5,132	0,89		
Saint-Hubert	79,164	0,98		
Island of Montreal	**1,792,434**			
*Montreal***	*1,029,828*	*1,19*	*1,03*	*0,99*
Anjou	37,758	0,86		
Lachine	40,053	0,92		
LaSalle	73,316	1,03		
Montréal-Nord	82,188	0,99		
Outremont	21,825	0,75		
Pierrefonds	54,502	1,05		
Roxboro	5,574	0,94		
Saint-Laurent	76,342	0,81		
Saint-Léonard	71,891	0,97		
Sainte-Geneviève	3,302	1,00		
Verdun	60,521	1,10		
L'Île-Bizard	13,895	0,80		
Westmount	19,922	0,65		0,90
Montréal-Ouest	5,088	1,08		1,31
Côte-Saint-Luc	28,937	0,93		1,15
Hampstead	6,605	1,04		1,13
Mont-Royal	18,100	0,69		0,85
Dorval	17,300	0,81		0,97
Pointe-Claire	28,823	0,88		1,09
Kirkland	19,894	0,91		1,02
Beaconsfield	18,906	0,89		1,12
Baied'Urfé	3,731	0,64		0,83
Sainte-Anne-de-Bellevue	5,076	0,77		1,06
Senneville	930	0,59		0,79
Dollard-des-Ormeaux	48,127	1,04		1,06

Notes: (*) Average value for each period. (**) Central cities to which other municipalities were merged in 2002 or from which they have demerged in 2006.

Figure 5



Conclusions on the convergence of tax rate are not as clear as with tax base. Even if the weighted measure of σ-convergence in figure 5 shows a clear decline in tax rate disparities occurring with mergers in 2002, the unweighted measures does not follow the same path. To be clear, the unweighted curve displays convergence over time, but without a sharp drop in 2002. What explains this difference?

Table 3, which details the SGTR index for merged and demerged municipalities on the Island of Montreal and around Longueuil, gives insight into this divergence. We see that the City of Montreal's pre-merger tax rate was much higher than that of any other municipality on the Island of Montreal. In fact, it was the second highest tax rate in the whole metropolitan area at that time. Municipal reforms improved this relative situation, driving Montreal's tax rate closer to the metropolitan average. Most of the municipalities merged with Montreal had a tax rate closer to the unweighted average in the 1996-2001 period. A small number of municipalities, such as Westmount, Mont-Royal, Outremont, Sainte-Anne-de-Bellevue and Senneville, had very low tax rates, far below the average. In this context, the mergers have only brought a limited number of municipalities closer to the average, but these municipalities encompassed large populations. That explains why the weighted impact is clear while the unweighted effect remains insignificant.

On the Island of Montreal, the mergers improved the relative tax rate of 4 municipalities out of the 26 involved in the reform and for which we have data, but these municipalities account for 65% of the population. As such, it is evident that amalgamation was mainly beneficial to the City of Montreal. Even after demergers, that City's tax rate remained slightly under the average. Inversely, all municipalities opting for demergers on the Island of Montreal have set their tax rate at a higher level after 2006, making their post-merger position worse relative to their pre-merger standing. Of the 13 municipalities that have de-amalgamated, only 5 have been able to set tax rates lower than the City of Montreal after demergers.

The same situation is seen in Longueuil, but in a context where tax rates were already catching up to the metropolitan average. The merger improved the relative position of 4 of the 8 municipalities involved in the reform, representing 61 % of the population. The SGTR index for the City of Longueuil increased significantly after 2006, but still moderately in comparison to its newly demerged neighbors. Nevertheless, 3 of 4 demerged municipalities were able to set a tax rate lower than the City of Longueuil's after demergers.

All in all, we observe that following de-amalgamation, the wealthiest municipalities, which make up the bulk of demerged municipalities, set higher tax rates after 2006 compared to before the reforms. In this sense, we can conclude that a higher level of fiscal fairness persists even after the demergers.

CONCLUSION

The main objective of this research is to evaluate the impact of amalgamation and de-amalgamation in the Montreal metropolitan region on fiscal fairness between 1996 and 2011. By definition, amalgamation improves equity. In a context of partial implementation, the impact on equity is dependent upon the specific municipalities that are consolidated. In the case of Montreal, because the reforms were specifically targeting some of the wealthiest municipalities, our results clearly show that mergers have improved equity. The impact of de-amalgamation on fairness, on the other hand, is not straightforward. Our results show that disparities in tax base have increased with demergers, while tax rates were still converging.

A major assumption upon which our analysis is founded also appears to be weak. Our definition of fairness is based on the supposition that a large amalgamated municipality applies a consistent tax rate for the same bundle of services on its entire territory. This may not be the case since inequalities may persist within a city after amalgamation, as Meloche & Vaillancourt (2015) find in Montreal. More than ten years after amalgamation, disparities between the boroughs of the City of Montreal still reflect some of the pre-merger conditions. In this context, amalgamation may not be sufficient to foster fairness among local governments in a metropolitan area.

Our findings strengthen some of the economic arguments that justify the compulsory amalgamation of large metropolitan areas. As Denters & al. (2014) argued, as long as there is a democratic cost to amalgamation, although small, benefits in terms of equity must be significant in order to justify this course of action. In this case, advantages will be significant if fiscal segregation represents a threat to fiscal sustainability, as well as when amalgamation results in the merger of wealthy municipalities with the deprived ones. Otherwise, the focus of municipal reforms may be better oriented on other issues than the creation of consolidated municipal governments.

Acknowledgments

We would like to thank François Vaillancourt for his comments on previous drafts of this paper. We are also grateful to Patrick Kilfoil for his helpful assistance. This research was funded by the Quebec Research Fund FRQ-SC.

Notes

[1] In 2012, total municipal spending in Québec was 18 billion $CAD (Ministry of Municipal Affairs) and the provincial government's total consolidated spending was 90 billion $CAD (Government of Quebec, 2012-2013 Budget).

[2] Government of Quebec, Ministry of Municipal Affairs (MAMROT).

[3] Government of Quebec, Ministry of Municipal Affairs (MAMROT). These numbers refer to 2012 financial reports.

[4] The Montreal Urban Community (Communauté urbaine de Montréal) was a regional government with jurisdiction over the territory of the Island of Montreal (including Ile-Bizard and Ile-Dorval) from 1970 until the end of 2001. Elected officials from associated municipalities sat on the administrative board of the Community. Since the City of Montreal controlled the majority of seats on the board, decisions needed a double majority to be adopted (majority of votes and majority of municipalities). The Community was mainly responsible for transit, police and water services.

[5] See the previous footnote for details on the Montreal Urban Community. The Agglomeration of Montreal is a regional government with the exact same borders as the Urban Community and with very similar responsibilities (with fire services added). The major difference is that although Montreal holds the same number of seats on the administrative board as tied municipalities, it controls 87 % of the votes (equal to its population weight). No double majority is required. The Mayor of Montreal assigns all the seats for the City of Montreal. The City of Montreal provides all public services for the Agglomeration.

[6] Considering that central cities like Montreal and Longueuil are divided into boroughs as they are part of agglomeration councils and part of the Montreal Metropolitan Community, we can say that there are four tiers of government in the metropolitan area. Boroughs represent a very week tier in Longueil however and the Metropolitan Community have very few responsibilities. Most municipalities in the Metropolitan Community are not part of an agglomeration, neither are they divided into boroughs. This situation is idiosyncratic

to Montréal and Longueuil. Meloche and Vaillancourt (2015) provide more details about this peculiar governance structure of Montreal.

[7] We have also chosen a period that correspond to census years in Canada in order to be able to cross some municipal financial data with socio-economic data if needed. This eventuality was not required for the analysis presented here however.

[8] 2013 data. Montreal Metropolitan Community (www.cmm.qc.ca). The Montreal Metropolitan Community was created in 2001. It is a weak form of metropolitan government with a territory similar to the census metropolitan area. Responsibilities of the Metropolitan Community are limited to regional planning. The administrative board is composed of mayors from associated municipalities.

[9] We use weighted averages and weighted standard deviations. Doing so, municipalities are distributed around the average situation of a standard consumer and not the average situation of all municipalities. Since poor municipalities tend to be larger in size, we find more municipalities above the average in 1996-2001 and 2006-2011. The inverse is observed during the 2002-2005 period.

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