Note: The content of this document was rapidly translated from French. As time didn't allow for it, the text of some figures and maps have not been translated. I apologize for the inconvenience.

Accessing the Best Possible Neighborhood: Family Types and Residential Cross-Segregation

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Neighborhoods in a city are not equal. Some offer many job opportunities or good schools, have parks and local shops, are easily accessible by car or public transport; others do not. Some are populated by wealthy, educated and active households; others show high rates of unemployment or school dropout. And those intra-urban inequalities are on the rise: rich neighborhoods are getting richer and poor neighborhoods, poorer. In Canadian cities, this dynamic is well established (Heisz and McLeod 2004).

Under these conditions, accessing the *best possible* neighborhood becomes an important practical issue for young families. To some extent, they engaged in a competition to give their children a safe and stimulating environment, a competition for which the families are however not all equally equipped. Are single parents, for instance, systematically at a disadvantage compared to two-parent families in their search for a place to live? Do these handicaps result in the geographical isolation of certain types of families in urban space? And are the residential differences between family groups only the consequence of socioeconomic disparities, or is there a more direct association between family type and neighborhood *quality*?

Behind those questions lies the concept of residential segregation but also the ability of families to obtain a *spatial return* on their socioeconomic characteristics, a concept referred to as their *locational attainment*. As families are not homogeneous, we must regard several aspects of their identity and consider the possibility that different forms of segregation may come to intersect, combining their effects in complex patterns. Given the lack of recent studies concerned with family segregation and neighborhood inequality, especially in combination with ethnocultural issues (Fossett 2005), this study is therefore primarily exploratory in nature. Its scope is limited to the Census Metropolitan Area (CMA) of Montréal, Québec, Canada.

Apart from its substantive importance, if this study is not restricted to family types but also explores ethnocultural background, it's mainly because the tools and analytical frameworks used here are derived from a literature in which ethnicity is central. Study of racial residential segregation and spatial assimilation of immigrants, especially the United States, has generated the development of numerous indices and innovative estimation methods. Although these tools are easily adaptable to the field of family studies, they have been little used until now.

THEORETICAL BACKGROUND

At least since the Chicago School of the 1920s (Grafmeyer and Joseph 1979), it has been suggested that city-dwellers locate according to three main factors: socioeconomic status, ethnocultural identity and stage in the life cycle. Understandably very concerned about racial segregation, researchers have however been less interested in socioeconomic segregation, and even much less in demographic segregation.

Spatial Assimilation

The spatial assimilation model, first formulated by Robert E. Park (1979 [1926]) and updated in the 1980s (Massey and Mullan 1984), is a fine example of interest in the spatial dynamics of ethnicity and socioeconomic status in North American cities. The model describes a process at the end of which immigrants are able to integrate the same residential areas as majority members. Upon their arrival, these immigrants are often poor, uneducated, and inexperienced. They do not speak well the local language, they do not know the customs, etc. As a result, immigrants first settle in the inner city with other members of their community. This area is often dilapidated, but close to manufacturing jobs that require few specialized skills. As they, or their children, gain work experience, improve their income and their language and cultural skills, they're able to get away from the original immigrant enclaves and integrate neighborhoods where live majority members of the same socioeconomic status as theirs. Spatial assimilation is thus a long term process, sometimes spanning several generations, in which ethnic differences may be considered primarily as socioeconomic differences between groups.

Admittedly, however, this theoretical framework based on the experience of European immigrants, who arrived en masse in the industrial cities of northeastern America in the early twentieth century, is not appropriate for all migrant groups. African Americans, for example, who left the countryside of the american south for large northern cities, also at the turn of the twentieth century, continue to be relegated to second-class neighborhoods (Massey and Denton 1993). At equal socioeconomic status, black Americans live in neighborhoods far poorer than white Americans (Logan et al. 1996; Rosenbaum and Friedman 2001). These findings have led some authors to craft a modified version of the spatial assimilation model: the place stratification model (Alba, Logan and Bellair 1994). Here, neighborhoods and social groups are hierarchically ordered. Immaterial barriers, such as discrimination on the housing market, work to deny members of certain groups, defined by skin color or ethnicity, access to the most coveted neighborhoods, regardless of their personal socioeconomic resources.

Locational attainment transposed

Empirical models of locational attainment assess the residential advantage or disadvantage of different groups in a city. With explanatory variables measured at the individual (or family or household) level and a response variable measured at the neighborhood level, they identify the *rates of spatial returns* that people belonging to various subgroups get from their socioeconomic characteristics. These models actually use cross-sectional data to approximate a longitudinal process by assuming that the differences between cohorts reflect differences within cohorts at different points in time. This assumption being highly questionable, their usefulness is primarily descriptive; they give an image of segregative forces at work within a metropolitan area at a specific point in time. Only under this very descriptive angle can they be adapted to the study of families, by moving their focus from ethno-racial considerations to family types.

Unlike ethnic identity or skin color, the type of family in which individuals live can easily and repeatedly change over their life course. For this reason, most of contemporary family studies are conceptualized in terms of trajectories, events, and transitions, a research paradigm made operational by the relatively recent availability of longitudinal data in Canada, both retrospective (Canadian Family Survey in 1984 and General Social Surveys from 1985 on) and prospective (National Longitudinal Survey of Children and Youth from 1994 to 2009, and the Québec Longitudinal Study of

Child Development, 1998 to present). Despite the extraordinary advances brought by studies part to this movement, the relatively small sample size of Canadian longitudinal surveys makes it impossible to study anything at a geographical level smaller than that of provinces. Most of intra-provincial heterogeneity, either on a territorial basis (between regions, cities, neighborhoods ...) or an ethnocultural one (between language groups, immigrants and non-immigrants ...) is thus unfortunately masked. Only a database as large as the census currently allows the description of urban family subgroups.

It's interesting to recall that there was, in the 1980s, an substantial group of researchers that were examining the relationship between evolving family forms and urban housing, including the mismatch between existing housing stock and the needs of these new families, especially single parents. Whether in Québec (Rose and Le Bourdais 1986) or elsewhere (Bonvalet and Merlin 1988; Myers 1990), these king of studies were already becoming rarer by the early 1990s, probably washed away by the new paradigm's wave.

After two decades of research focusing mainly on individuals and their family history, *returning* to cross-sectional and spatially-based family research requires some *essentialization* of family types. In fact, it requires that the individual and his personal history be disappear behind the family it belongs to at the time of the survey. The location of an individual is no longer a direct result of his own trajectory, but becomes the reflection of current social conditions common to all families sharing the same structure. This approach is of course disputable, but it is primarily intended to complement an approach based on the analysis of individual transitions. Despite their fluidity, family types exist ontologically as distinct social categories in political (public policy targeting single parents, for example), scientific (especially demography), and legal discourse (married vs. cohabiting couples). That fact alone justifies an interest in cross-sectional family-type segregation.

Demographic segregation

In addition to ethnic considerations, Chicago School authors also developed theoretical models to explain the spatial distribution of individuals according to their stage in the life cycle and their socioeconomic status. The concentric pattern of population distribution stated by Ernest Burgess (1967 [1925]) emphasizes the relationship between distance from the central business district (CBD) and socioeconomic status. On average, the greater the distance from the CBD, the wealthier the population is. With time, it became clearer that this concentric pattern also applied to the distribution of households by family status (Balakrishnan and Jarvis 1991; White 1987). Guest (1972), for example, attempted to describe the location of various categories of households and identifies the distance from the CBD as a major element. In his analysis, he clearly distinguishes young married couples without children, married young families with children, old married families with children and old married couples without children. Two additional categories regroup all other non-family and family households, including cohabiting families and single parents. He finds that young married families with children, and to a lesser extent old married families with children, are less centralized than other household types. But with his obsolete family typology it is difficult to identify the relationship between distance from the CBD and the non-marital family forms that have since become much more common. The traditional take on demographic segregation often leaves little room for family forms that do not match the conventional life cycle.

Cross-Segregation

Still, using modified Guest models, researchers highlighted the greater centralization of single-parent families compared to two-parent families (Cook and Rudd 1984; Roncek, Bell and Choldin 1980). But in those models, racial and economic issues are brought to the surface and confuse the interpretation of the results. In the United States, single-parent families are disproportionately poor and black and Blacks are disproportionately poor and centralized. It is therefore unclear whether the average single-parent family lives in a poor central neighborhood because it is a single-parent family or because a large portion of those families are black and poor.

This problem of interaction between family type and ethno-racial identity makes apparent the existence of a *cross-segregation* that affects particular subgroups of families. A recent phone survey on discrimination in Toronto's rental market provides an excellent example of this cross-segregation in Canada (CERA 2009). With a methodology relying on pairs of individuals differing only on a particular element, the authors of the study find that 15 % of single mothers have experienced moderate or severe discrimination during their search for housing, while it was the case of only 2 % of the control group's married mothers. But single mothers with a strong "black Caribbean" accent were significantly more often victims of discrimination (31 %) than single mothers with a "Canadian" accent. Discrimination based on family type and ethnicity combine to create very special situations for those families, situations that are too often ignored. Do White, Hispanic, Chinese, Indian or Arabic single-parent families, for instance, are as much segregated and centralized than Black single-parent families? And into what kind of area are thus channeled the various family subgroups?
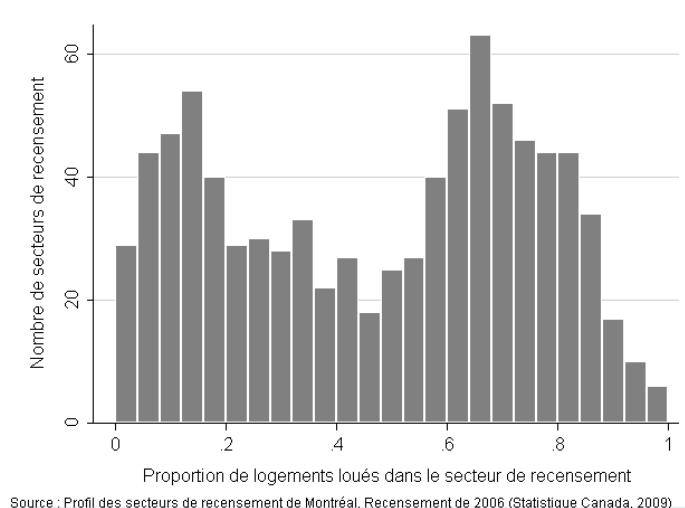
Cohabitation

Interest in the spatial distribution of families with children is often limited to married and single-mother families. Much less is known of the differences between, married and cohabiting families on the one hand, and between single-mother and single-father families, on the other hand.

In spatial terms, the major difference between married and cohabiting families comes from their different propensity to own. In the 1980s, French researchers (Audirac and Chalvon-Demersay 1988) noted that cohabiting couples rejected homeownership along the same ideological lines than marriage, because both were seen as an intrusion of law and order in their private lives. More pragmatically, however, the authors associated this devaluation of ownership with cohabiting couples' "<economic frailty"> which did not allow them to become homeowners. But even in a society where socioeconomic differences between married and cohabiting couples are virtually eliminated, the gap in homeownership rate remains. In 2006, young Canadian cohabiters, with or without children, were two and a half times less likely than their married counterparts to be homeowners (Turcotte 2007).

Owner and renter households are not distributed evenly throughout the city. The distribution Montréal's census tracts according to their proportion of rented dwellings illustrates this issue. While the proportion of rented dwellings is near 50 % in the CMA as a whole, the bimodal shape of the histogram in Figure 1 shows a frank dichotomization of census tracts between those where renting dominates and those where ownership is most common, few areas exhibit an egalitarian distribution. Moreover, there is a very close relationship between the proportion of owned housing and household median income. In Montréal in 2006, this correlation was 0.67. Because access to homeownership is easier for people who have accumulated a large financial reserve

Figure 1 : Census Tract Distribution by Proportion of Renting Households, CMA of Montréal, 2006

Source : Profil des secteurs de recensement de Montréal, Recensement de 2006 (Statistique Canada, 2009)

or who have stable and high income, homeowners are generally wealthier than renters, and consequently the neighborhoods of homeowners, wealthier than neighborhoods of renters. Thus, solely because of their different ownership rates, cohabiting families are likely to live in different, and poorer, neighborhoods than married families.

Single Fathers

The two main arguments usually put forward to explain the lack of interest in male lone-parent families are their small numbers and their relatively privileged economic position compared to female-headed families. Recent developments in both matters no longer justify the setting aside of and the analytical vacuum surrounding single fathers. Between the 1981 and the 2006 Canadian censuses, the fact that fathers were increasingly awarded child custody resulted in a drop of the femininity ratio of single parenthood. Among families with only children under 6 years old, this ratio fell from 10.5/1 to 5/1. For children of all ages, male-headed families now account for 19.9 % of single parent families in Canada (Milan, Vézina and Wells 2007). If women remain much more likely than men to be single parent in cross-sectional data, in longitudinal data the sex gap is much narrower. In the 1990 GSS, 35 % of women had experienced an episode of single parenthood, while it was the case for 23 % of men (Desrosiers, Juby and Le Bourdais 1999). Single fathers are certainly better off in terms of income, but their relative advantage is declining. Between the late 1970s and the late 2000s, along with the increasing labor market activity of women, the average income of single-mother families remained relatively stable at around 43 % that of the average two-parent family income. For single-father families, this relative measure dropped from 80 % to 62 % (Statistique Canada 2011).

Of the residential distribution of single fathers and their children, we know close to nothing. At best, we note that European fathers who get custody of their children after a divorce retain the original marital home much more often than do mothers who get custody. As this marital home was acquired during a period when the family

counted two parents, it is probably located in a more affluent neighborhood than would be a new residence acquired after separation. From this simple fact, we can conclude that European single fathers probably have a residential advantage over single mothers (Eggerickx, Gaumé and Hermia 2002; Festy 1988). But since the practical arrangements following divorce appear to be reversed in the United States (South, Crowder and Trent 1998), it is difficult to establish which alternative prevails in Montréal. We do know that single fathers are more likely to own their homes than are single mothers. But as is the case of income, this gap also tends to narrow.

Families' Locational Attainment
In existing locational attainment models, authors consider the various family structures as a factor that needs to be controlled for because there are wide structural variations between the various ethnic groups. Despite the presence of categorical family variables in most locational attainment models, this control-variable status means that little attention is placed in their elaboration, much less in their interpretation. Even in recent studies, the most often used family variables simply oppose households headed by married couples to all other households (Alba and Logan 1991; Friedman and Rosenbaum 2007), a typology reminiscent of the 1970s' models discussed earlier. The use of household or, in Canadian studies, *economic families* as unit of analysis also causes some complications in this regard. Single parents who share their home with a related adult (brother, mother, adult son ...) find themselves categorized as a two-adults-with-children family as are *real* two-parent families (Fong and Hou 2009; Myles and Hou 2004).

Only in Howden's (2005) study of Houston, Texas, are households headed by married couples and single-mothers clearly identified in separate categories. She concludes from her models that family type does have an impact on neighborhood quality, but that this impact is rather low compared to that of race. By taking into account the interaction between race and family type her research also highlights the fact that the disadvantage of single-parent families is greater among White families than among Black or Hispanic families. Unfortunately, her sample does not include any cohabiting nor single-father family. In addition, the models she uses have only three very basic predictors: family type (married couples / single mothers), poverty status (poor / non-poor) and race (White / Black / Hispanic). The lack of control, among other things, for education level or tenure stems partly from the fact that like most American researchers, but unlike Canadian researchers, she does not use real census microdata, but rather pseudo-individual data simulated from correlations matrices of aggregate and individual data (Alba and Logan 1992).

Montréal
The field of family neighborhood research is not completely new in Québec, but studies are still very sparse. Single-mother families were mostly found within poor central areas in the 1970s while they became more common in the suburbs closer to the CBD during the 1980s (Rose and Le Bourdais 1986). What happened during the next 25 years is less clear because not much work have been done since the 1980s. On the one hand, it is likely that the continued rise in the number and percentage of single-parent families has accelerated this process of intraurban dispersion of single-parenthood, thereby reducing the gap between the neighborhood quality of two-parent and single-parent families. On the other hand, however, it has also been noted that the association between distance from the CBD and "family status" (read two-parenthood) has increased during the period (Charron 2002). That was paralleled, as in the traditional

pattern of concentric distribution of households, by migration of young families from inner city to suburbs. After a lull in the late 1990s, net migration of children and young adults is now and again largely negative on the Island of Montréal, which is mainly occupied by the City of Montréal. Young families are still massively moving away from inner city's apartments to single family houses with private courtyard in the suburbs.

As for family structure variation among ethnic groups, they don't seem to have been the subject of many studies in Canada. Unlike the U.S. Census Bureau, which publishes clear tables of family types according to racial categories, Statistics Canada publishes information that is difficult to interpret. As families with children are not clearly identified in immigrant status, visible minority group or language tables, we cannot know what proportion of families belong to various family types. At best, one may find that cohabitation is more prevalent among Francophones, Whites and non-immigrants and that single-parenthood seems more common in subgroups such as Blacks and immigrants from Latin-America, but less common in such other groups as Arabs or Asian immigrants.

Addressing the issue of family-type segregation in metropolitan Montréal means, initially, to determine whether the different family types are distributed evenly across the urban space or if, as expected, there is a spatial heterogeneity within the larger group of families with children. This investigation will be conducted using data aggregated at the neighborhood level and with tools traditionally used in the study of segregation, segregation indices. If they can highlight the residential structure of a city in a simple and effective manner, these indices are however unable to consider more than one aspect of family identity at a time. Moreover, they can't describe the areas where segregated populations live. By using census microdata and multivariate models of locational attainment, we will try, in a second step, to isolate the relationship between family type and neighborhood quality, while considering possible interactions among various facets of family identity such as socioeconomic status and ethnocultural characteristics.

DATA, MODELS AND VARIABLES
Units of analysis
The somewhat vague concept of neighborhood is delineated here by census tracts (CTs). These are small geographical units whose boundaries are established by Statistics Canada in cooperation with local authorities, in order to respect the administrative boundaries of higher level (districts, municipalities, counties, etc.) and the socioeconomic homogeneity of circumscribed populations (Statistique Canada 2010). The 863 CTs inhabited by families in the Census Metropolitan Area of Montréal contain an average population of 4200. CTs are the smallest geographic areas identified in the census microdata files (20 % of Canadian households) that were used in this study.

Families we are interested in are a subset of Statistics Canada *census families* which correspond roughly to nuclear families. Ours have at least one child under 18 and are led by a single parent or an opposite-sex couple. Families headed by same-sex couples are too few and too geographically concentrated to be taken into account in the limited framework of this project, but they would certainly deserve a more specific study. Although, most authors use households or, in Canada, *economic families* (i.e. all related individuals living in the same household) in their locational attainment models, the classification difficulties they encounter suggest that the census family is a more appropriate unit of analysis. To refine family categories and distinguish between

nuclear families living alone in their homes and those who share it, two variables have been created that specify if other people (related or not to the family) are present in the household.

Four major types of families have been identified: two-parent families headed by a married couple (50.9 %), two-parent families headed by a cohabiting couple (24.9 %), single-mother families (19.5 %) and single-father families (4.6 %). Like its predecessors, but unlike its successor, the 2006 Canadian census does not distinguish so-called *intact families* from *blended families*. Thus, when analyzing the results for married and cohabiting families, one as to be aware that the latter group contains many more blended families than the first (Lapierre-Adamcyk and Marcil-Gratton 1999).

Segregation indices

The dissimilarity index assess whether two distinct groups are evenly distributed throughout the metropolitan area. It ranges from 0 to 1 and can be interpreted as the proportion of individuals that would have to move for the distribution of the two groups to be uniform. It is calculated using the following equation:

$$D = \frac{1}{2} \sum_{i=1}^{n} \left| \frac{x_i}{X} - \frac{y_i}{Y} \right|$$

where x_i and y_i are, respectively, the proportion of group X and group Y in the neighborhood i, while X and Y are the proportion of X and Y throughout the CMA.

The interaction index measures the degree of exposure of group X to group Y and can be interpreted as the average proportion of group Y in the neighborhood of an average member of group X. An interaction index of 0.4 for example means that 40 % of an average group X member's neighbors belong to group Y. The isolation index measures the exact same thing, but focuses on the exposure of group X members with members of their own group. They are obtained by these formulas:

$$_xP_y^* = \sum_{i=1}^{n} \left(\frac{x_i}{X} \right) \left(\frac{y_i}{t_i} \right)$$

$$_xP_x^* = \sum_{i=1}^{n} \left(\frac{x_i}{X} \right) \left(\frac{x_i}{t_i} \right)$$

where t_i is the total population in tract i and where the other elements have the same meaning than in the dissimilarity index formula. These exposure indices, even more than the index of dissimilarity, are sensitive to group size in the CMA and must thus be interpreted in parallel with the CMA group proportion.

The location quotient (LQ) is not really an index of segregation but as it produces an individual value for each neighborhood it is a very useful cartographic tool. It is simply:

$$LQ_i = \frac{\left(\frac{x_i}{t_i} \right)}{\left(\frac{X}{T} \right)}$$

i.e. the ratio of the proportion of group X in the neighborhood to the proportion of group X in the entire CMA. An LQ of 1 means that the proportion of X in neighborhood i is identical to that of the CMA, while a quotient below or above 1 indicates respectively under-representation and over-representation.

Multivariate models

Since our multivariate models apply equally to single and two-parent families, the characteristics of both parents cannot be considered simultaneously in the analysis. Mother's education level, for example, is missing for male lone-parent families and vice versa. In addition, the strong assortative mating of two-parent families affects the interpretation of each spouse characteristics. The traditional approach to overcome both of these difficulties is to use only the characteristics of the householder (Rosenbaum and Friedman 2001), the primary economic family maintainer (Myles and Hou 2004) or a randomly selected parent (Alba and Logan 1991). Yet, coming back to our example, one can think that the *effect* of having a father with a university education will not be the same if the mother is also a university graduate or if she has not completed high school. For this reason, we approach the problem in an alternative way by combining information from both parents in a single variable that we can compare directly with information from single parents.

In locational attainment models, all families living in the same neighborhood share a common value at the response-variable level. The assumption of independence of OLS estimation's residuals is consequently violated. This form of spatial autocorrelation should not, theoretically, bias the estimated coefficients themselves, but their variance may be underestimated. Since the results of hypothesis tests for coefficients are a function of this variance, they are flawed. The strategy employed here to limit this problem is to pretend that our data come from a complex-sample survey, even if, in fact, long-form census data are obtained by random sampling. By treating the census tracts as if they were sampling clusters, the variance estimation takes into account the fact that responses of people inhabiting the same tract are more correlated than the responses of people in two different tracts. This subterfuge, using the *vce(cluster)* procedure in STATA, has the effect of significantly expanding the confidence intervals of estimators. The magnitude of this expansion ranges from very low to 500 or 600 %. This method has the advantage of greatly reducing the possibility of Type I error and allowing a more assertive interpretation of fewer statistically significant results.

Dependent variables

For reasons both substantive and practical, a single tract level indicator will be used in this study: the median annual income of all households in the neighborhood. This is one of the most frequently used variables in locational attainment models and in studies of neighborhood effects. By choosing *median* neighborhood income, we avoid the linear relationship that binds the family income to the *average* neighborhood income. Note that in the regression the variable underwent a logarithmic transformation because of its original right-tailed distribution.

Independent variables

Demographic characteristics of families are represented by the mean age of parents, the age group of children and two dummy variables indicating the presence of related or unrelated people in the household. The number of children is not included in the models because we use a family income that was adjusted for family size. Along with income, parental education and labor market activity describe the current socioeconomic status of families. Housing is addressed through residential mobility and tenure. A single composite variable takes into account the numerous ethnocultural characteristics of families. Since the variables *language(s) spoken at home, country of birth, year of immigration* and *visible minority group* are all strongly correlated in Montréal, the construction of a composite variable allows for the identification of major archetypes

while avoiding problems of strong multicolinearity. Such a categorization clearly over-looks the heterogeneity of birth regions or visible minority groups, but the exploratory nature of our approach and the inclusion of interaction terms between ethnocultural, demographic and socioeconomic aspects of family identity dictate to some extent this (over)simplification.

Our first ethnocultural group consists of families who only speak French at home, who do not belong to any visible minority group and who are not immigrants. To simplify, we will refer to them as *Francophones* from now on, even if many French-speaking families are not part of this group. Similarly, by *Anglophones* we mean White and non-immigrant families who speak only English at home. The third group, *Visible Minorities*, includes all non-immigrant families belonging to any visible minority group, no matter their home language. Although the size of this group is not very large, it is interesting to isolate it to be able to compare its spatial assimilation to that of other groups. Under the label *Old Immigrants*, we regroup families who immigrated in 1996 or earlier and who are not part of a visible minority group. The next group, *Recent Immigrants*, is more representative of what is often called the *new* immigration: immigrants who arrived after 1996 and are part of a visible minority group. The sixth and final group includes all families that are not circumscribed by the above criteria. Note that in two-parent families, the definition criteria apply equally to both parents; exogamous couples are as a result relegated to this last category, *Others*.
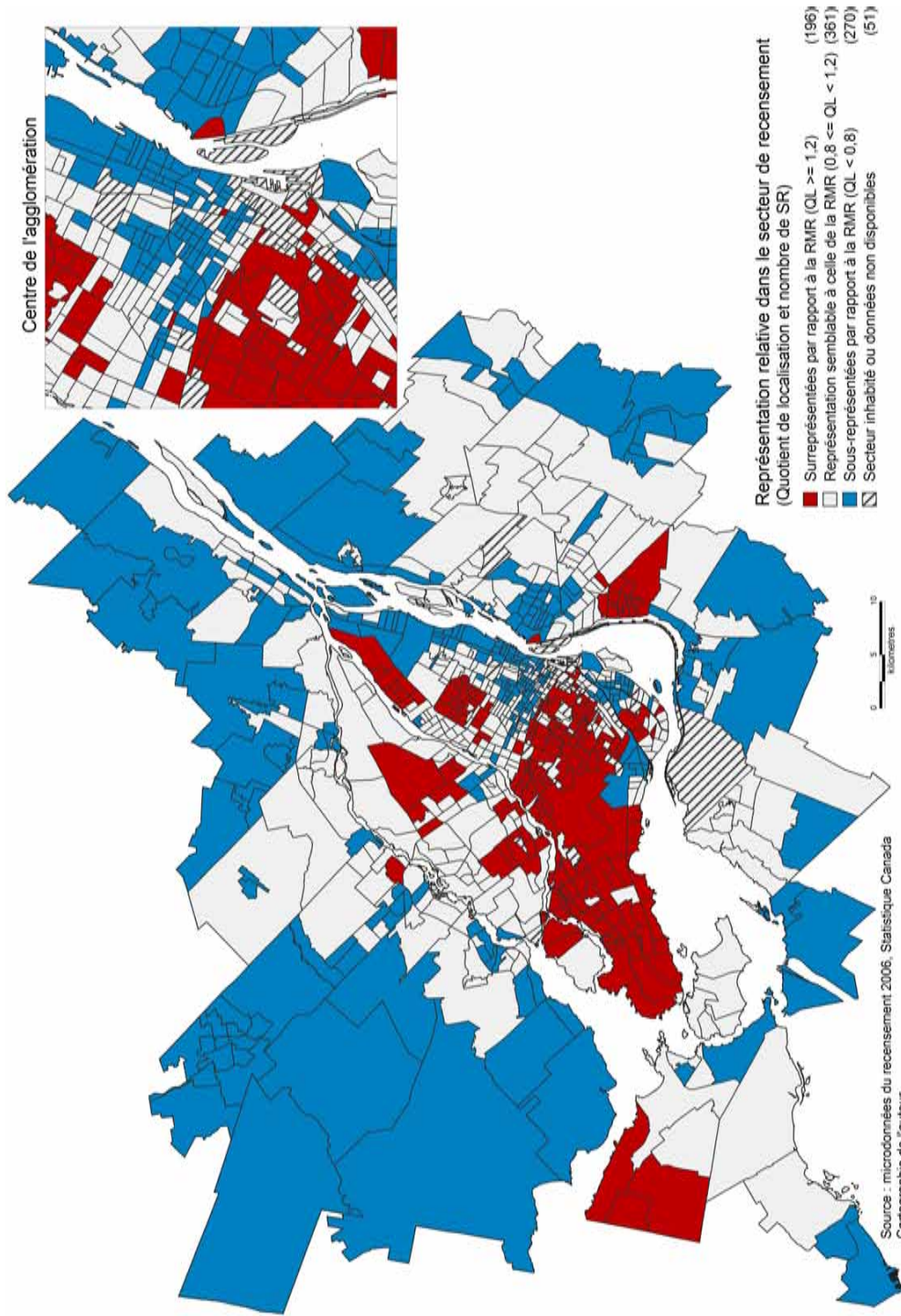
RESULTS

Family type segregation

Maps 1, 2, and 3 respectively present the spatial distribution of married, cohabiting and single-parents (men and women combined because of small numbers in some census tracts) families in Montréal's CMA. In opposition to what we had projected, we find that married families are over-represented (in red) in neighborhoods that are not directly in the city center but that are close to it. They are under-represented (in blue) in the most peripheral areas. Why is that so? Very roughly, the distribution of married families can be compared to the known distribution of English-speaking (Apparicio and Seguin, 2002) and immigrant (Apparicio et al., 2006) populations.

Map 2, which displays the same indicators for cohabiting families, is almost the exact opposite of the previous map. Neighborhoods where these families are overrepresented are mostly situated in quite distant suburbs, although they're also found on the Island of Montréal, along a main subway line. Again, this distribution is easily comparable with that of the French-speaking population (Apparicio and Seguin, 2002).

The spatial distribution of single-parent families (map 3) is less easy to categorize along ethnic lines. If they are obviously over-represented in the inner city, we also find them much further, in the center of some suburban municipalities. However, they are underrepresented in wealthier areas of the city center (Westmount, Town of Mount-Royal, etc.), in most of the English-speaking West Island, and in the periphery. What has not changed in 25 years is that the spatial distribution of single-parent families continues to resemble that of the low-income population (Apparicio et al., 2008).

If these maps seem to indicate very large spatial differences, the dissimilarity index at the top of Table 1 reminds us that family-type segregation levels are altogether moderate. With values around 0.30, these indices are close to values obtained for children of single parents in 1980s' U.S. cities (White 1987). They are obviously well below the levels seen in 2000 in American cities for segregation, compared to Whites, of Asians (0.40), Hispanics (0.48) and Blacks (0.68) (Charles, 2003).

Map 1 : Married Families' Location Quotients, CMA of Montreal, 2006

Centre de l'agglomération

Représentation relative dans le secteur de recensement
(Quotient de localisation et nombre de SR)

- Surreprésentées par rapport à la RMR (QL >= 1,2) (196)
- Représentation semblable à celle de la RMR (0,8 <= QL < 1,2) (361)
- Sous-représentées par rapport à la RMR (QL < 0,8) (270)
- Secteur inhabité ou données non disponibles (51)

Source : microdonnées du recensement 2006, Statistique Canada
Cartographie de l'auteur

Map 2 : Cohabiting Families' Location Quotients, CMA of Montreal, 2006

Centre de l'agglomération

Représentation relative dans les secteurs de recensement
(Quotient de localisation et nombre de SR)

Surreprésentées par rapport à la RMR (QL >= 1,2)   (321)

Représentation semblable à celle de la RMR (0,8 <= QL < 1,2))   (187)

Sous-représentées par rapport à la RMR (QL < 0,8)   (319)

Secteur inhabité ou données non disponibles   (51)

Source : microdonnées du recensement 2006, Statistique Canada
Cartographie de l'auteur

Map 3 : Single-Parent Families' Location Quotients, CMA of Montreal, 2006

Centre de l'agglomération

Représentation relative dans les secteurs de recensement
(Quotient de localisation et nombre de SR)

■ Surreprésentées par rapport à la RMR (QL >= 1,2)   (318)
☐ Représentation semblable à celle de la RMR (0,8 <= QL < 1,2)) (244)
■ Sous-représentées par rapport à la RMR (QL < 0,8)   (265)
▨ Secteur inhabité ou données non disponibles   (51)

Source : microdonnées du recensement 2006, Statistique Canada
Cartographie de l'auteur

Although no single pair of family types stands out, note that the most dissimilar spatial distributions are those of married and cohabiting families (0.34). More than a third of these families would have to change neighborhood to even their distribution across the city. The pair made up of both types of single-parent family shows the lowest dissimilarity (0.26).

Table 1 : Segregation Indices by Family Type, Montréal's CMA, 2006

a) DISSIMILARITY INDEX

	Two-parent		Single-parent	
	Married	**Cohabiting**	**Female**	**Male**
Two-parent married	—	—	—	—
Two-parent cohabiting	0,34	—	—	—
Single-parent female	0,28	0,32	—	—
Single-parent male	0,31	0,27	0,26	—

b) INTERACTION/ISOLATION INDEX[a]

Exposure group	Two-parent		Single-parent	
	Married	**Cohabiting**	**Female**	**Male**
Two-parent married	0,561	0,446	0,470	0,463
Two-parent cohabiting	0,218	0,318	0,239	0,267
Single-parent female	0,179	0,187	0,241	0,208
Single-parent male	0,042	0,049	0,049	0,063
CMA Proportion	0,509	0,249	0,195	0,046

[a] The shaded diagonal corresponds to isolation indices, i.e. interaction with one's own group.

As the index of dissimilarity, the indices of interaction and isolation of Table 1 do not indicate an intense family-type segregation. Of course, a family generally lives in a neighborhood where same-type families are overrepresented, while the other family types are underrepresented. But levels of interaction witnessed do not suggest that families of different types are isolated in absolute terms. An average married family, for instance, whose group represents 50.9 % of the CMA's families, lives in a neighborhood where 56.1 % of all families are also married, 21.8 % are cohabiting families (24.5 % in the CMA as a whole), 17.9 % are single-mother families (19.5 % in the CMA) and 4.2 % are single-father families (4.6 % in the CMA). All exceptions to this rule concern single-father families. These families are slightly more exposed to cohabiting and single-mother families than their proportion in the CMA would suggest. Note also that cohabiting families are the ones least exposed to married families which confirms the results of the dissimilarity index and mapping.

There is apparently a significant, though not extreme, heterogeneity in the spatial distribution of families with children in the CMA of Montréal. At this stage of the research however, it is not clear whether this heterogeneity arises from family type per se or stems from compositional differences. We have yet to identify family and neighborhood characteristics, and to isolate the influence of multiple factors by a locational attainment analysis.

Table 2 : Family Characteristics by Family type, CMA of Montréal, 2006 (in percentage unless otherwise stated)

	Two-parent		Single-parent		Total
	Married[a]	Cohabiting	Female	Male[b]	
Neighborhood income ($)	57 977	58 139	48 741***	*52 901***	55 982
Mean age of parents (years)	41,0	37,7***	39,0***	*42,8***	39,9
Age group of children					
All < 6 y.o.	23,1	35,3***	17,3***	*13,0***	24,5
Some < 6 y.o., some ≥ 6 y.o.	17,2	16,6*	10,4***	*5,4***	15,2
All ≥ 6 y.o.	59,7	48,2***	72,3***	*81,7***	60,3
Presence of a related person					
At least one	6,2	4,0***	12,4***	12,3***	7,2
Presence of an unrelated person					
At least one	0,7	0,7	6,2***	*8,9***	2,2
Adjusted family income ($)	35 862	36 793***	20 504***	*27 779***	32 727
Parents' education					
Low	4,7	5,5***	18,2***	*16,3***	4,9
Intermediate	28,3	36,9***	41,9***	42,8***	31,1
High	67,1	57,6***	39,9***	40,9***	64,0
Parents' labor market activity					
Low	7,3	3,5***	23,6***	*12,0***	6,1
Intermediate	21,6	15,2***	13,8***	*6,3***	19,5
High	71,1	81,2***	62,6***	*81,7***	74,4
Tenure					
Homeowners	72,9	73,9*	36,0***	*52,7***	65,0
Residential mobility					
Same address for at least 5 years	55,5	45,7***	43,1***	*48,5***	50,3
Old mobility (> 1 year but < 5 years)	33,7	40,5***	39,0***	*35,9*	36,5
Recent mobility (≤ 1 year)	10,8	13,8***	17,9***	15,6***	13,1
Ethnocultural group					
Francophones	32,7	75,0***	53,3***	*63,3***	48,7
Anglophones	6,8	1,6***	5,6***	5,1***	5,2
Visibles Minorities	0,3	0,3	3,3***	*2,4***	1,0
Old Immigrants	5,5	0,5***	5,0†	5,3	4,1
Recents Immigrants	8,9	0,6***	6,5***	*3,8***	6,1
Others	45,8	22,0***	26,3***	*20,2***	34,9
N	224 315	109 815	85 840	20 335	440 305

*** p < 0.001 ; ** p < 0.01 ; * p < 0.05 ; † p < 0.1

Note : Percentage totals for a variable categories might be slightly different from 100 % since proportions were calculated from rounded cell counts.

[a] Married families are the baseline category for statistical significance tests represented as stars.

[b] Italicized single-father parameters are significantly different (p < 0,05) from single-mother's.

Sample Description
Although they are quite spatially separated, married and cohabiting families live in neighborhoods where the median household income is on average about the same (58 000 \$). Surprisingly enough, they achieve this same average while having very dissimilar profiles. Married families are older (41 vs. 37.7 years old) and live more often with relatives than cohabiting families. They are better educated, but somewhat less affluent and less active in the labor market. They are also less mobile and slightly less likely to be homeowners. The latter result is quite unexpected given the rates previously discussed for France and Canada, but it Is entirely explained by ethnocultural differences. Within each ethnocultural group (not shown), cohabiting families are less likely to be homeowners than their married counterparts. Differences between married and cohabiting families are most pronounced at the ethnocultural level. Less than a third of married families belong to the Francophone group, while it's the case of three-quarters of cohabiting families! In other cultural groups, cohabiting families are less well represented than married ones, except in the Visible Minority group that comprises only a small proportion of both types of families.

Taken together, the two types of single-parent families live in poorer neighborhoods than two-parent families. They have older children, live more often with related and unrelated individuals, they are poorer, less educated and less active on the labor market. They are also less likely to own and are more mobile than two-parent families. Their ethnocultural composition is midway between that of married and cohabiting families. There are however several elements that distinguish the female-headed families from male-headed ones. The former live in much poorer neighborhoods (48 741 \$ i.e. 84 % that of two-parent families) than the latter (52 901 \$; 91 %). Female heads have significantly lower income, labor market activity, and homeownership rate than male heads. In terms of ethnocultural composition, we find that single mothers are less likely to be Francophones, but more likely to be Recent Immigrants or Visible Minorities than single fathers. Interestingly, single mothers and fathers are disproportionately part of the Visible Minority group. This imbalance in what is the first *large* generation of non-White families born in Québec is not unlike the situation of African-Americans.

Reference was made earlier to the lack of interest, often because of small sample size, in the ethnocultural differences in contemporary Canadian family research. As is apparent from Table 2, ethnocultural composition of family types in Montréal and – just by the demographic weight of the CMA – in all of Québec varies dramatically. Family-type-based analysis that do not control for ethnocultural differences are therefore likely to confuse effects related to family types with effects related to ethnic groups. In the next section we will make an attempt to disentangle those factors.

Neighborhood income
Locational attainment results are presented in Table 3, where, we recall, the dependent variable has underwent a logarithmic transformation. In model 1, which contains only the family type variable, cohabiting families live in slightly more affluent neighborhoods than married families [1]. These are followed by single-fathers and single-mothers. Family type alone explains only 3 % of the total variance.

The second model introduces control variables corresponding to demographic, socioeconomic, housing and ethnocultural characteristics. Compositional differences

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[1]The difference between both family types is significant in model 1 whereas it was not in Table 2. This is due to the transformation undergone by the neighborhood income variable.

Table 3 : Locational Attainment Models for Neighborhood Median Household
         Income

	Model 1	Model 2	Model 3
Intercept	10,895***	11,005***	11,021***
Family type			
[Married][a]	—	—	—
Cohabiting	0,024*	-0,022***	-0,033***
Single-mother	-0,160***	0,001	-0,021**
Single-father	-0,078***	-0,003	-0,023**
Mean age of parents		-0,002***	-0,002***
Age group of children			
All < 6 y.o.		-0,040***	-0,038***
Somme < 6 y.o., some ≥ 6 y.o.		-0,007	-0,006
[All ≥ 6 y.o.]		—	—
Presence of a related person		-0,019***	-0,018**
Presence of an unrelated person		-0,002	-0,005
Parents' education			
Low		-0,061***	-0,069***
Intermediate		-0,020***	-0,024***
[High]		—	—
Parents' labor market activity			
Low		-0,011	-0,011
Intermediate		0,016**	0,013**
[High]		—	—
Adjusted family income		0,122***	0,090***
Adjusted family income (squared)		0,026***	0,030***
Tenure			
[Owner]		—	—
Renter		-0,307***	-0,305***
Residential mobility			
[Same address for at least 5 years]		—	—
Old mobility (> 1 year but < 5 years)		0,032***	0,033***
Recent mobility (≤ 1 year)		0,048***	0,050***
Ethnocultural group			
[Francophones]		—	—
Anglophones		0,045*	0,027
Visible Minorities		-0,042**	-0,024
Old Immigrants		-0,084***	-0,106***
Recents Immigrants		-0,172***	-0,179***
Others		-0,067***	-0,088***
Family type X Ethnocultural group			
Cohabiting X Anglophones			0,004
Cohabiting X Visibles Minorities			-0,023
Cohabiting X Old Immigrants			0,046
Cohabiting X Recent Immigrants			0,001
Cohabiting X Others			0,045***

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Table 3 : Locational Attainment Models for Neighborhood Median Household Income – CONTINUED

	Model 1	Model 2	Model 3
Single-mother X Anglophones			0,028
Single-mother X Visibles Minorities			-0,020
Single-mother X Old Immigrants			0,022
Single-mother X Recent Immigrants			0,063***
Single-mother X Others			0,015
Single-father X Anglophones			0,002
Single-father) X Visibles Minorities			-0,058
Single-father X Old Immigrants			0,052†
Single-father X Recent Immigrants			0,034
Single-father X Others			0,045**
Family type X Ethnocultural group X Family income			
Married X Anglophones			0,040
Married X Visibles Minorities			0,074†
Married X Old Immigrants			0,034†
Married X Recent Immigrants			0,062***
Married X Others			0,074***
Cohabiting X Francophones			-0,025**
Cohabiting X Anglophones			0,009
Cohabiting X Visibles Minorities			0,095†
Cohabiting X Old Immigrants			0,072*
Cohabiting X Recent Immigrants			0,046†
Cohabiting X Others			0,010
Single-mother X Francophones			-0,006
Single-mother X Anglophones			0,045†
Single-mother X Visibles Minorities			0,026
Single-mother X Old Immigrants			0,013
Single-mother X Recent Immigrants			0,073***
Single-mother X Others			0,040**
Single-father X Francophones			-0,013
Single-father X Anglophones			-0,008
Single-father X Visibles Minorities			-0,022
Single-father X Old Immigrants			0,010
Single-father X Recent Immigrants			0,105*
Single-father X Others			0,091***
R^2	0,0342	0,3418	0,3464
N	440 080	440 080	440 080

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; † $p < 0.1$
[a] The baseline category of each variable is in *[italics]*.

seem to explain fully the neighborhood income gap between married and single-parent families found in the first model. The sign of cohabiting parents' coefficient is reversed when compared to Model 1; with equal characteristics, they appear to live in slightly poorer neighborhoods than married families.

As expected, the coefficients of ethnocultural variables are all significant and their values are quite high. Anglophones are the most advantaged, followed by Francophones, Visible Minorities, Old Immigrants, and far behind by Recent Immigrants. As the Others group consists of multilingual natives, exogamous couples and various categories of immigrants, it is appropriate that its coefficient lies between those of non-immigrant and immigrant groups.

Since Model 2 does not contain any interaction terms, we're making the assumption that family type differences are constant regardless of other variables' values. Reality being inevitably more complex then that, we will try to approach it further by introducing interaction variables between family type, family income and ethnocultural group in the third model.

In Model 3, coefficients of variables not involved in an interaction remain essentially the same as in the previous model. As for the three interacting variables, their coefficients become pretty unintelligible this tabular format. Their interpretation is better served by a comparison of predicted values. Income being the only continuous variable of these interactions, predicted neighborhood income may take the form of a curve. Model 3's interactions are equivalent to giving each of the 20 subgroups [2] formed at the meeting of family type and ethnocultural group, an intercept and a slope in the relationship between family and neighborhood income.

Figure 2 presents these curves by dividing them into five graphs, one for each ethnocultural group. The vertical axis of each graph represents the neighborhood income and the horizontal axis, the family income. All predicted values are valid only for families with mean-aged parents and baseline characteristics. As all graphs in Figure 2 are on the same scale, it is easy to see that, although there are some differences in *spatial returns* between family types, the largest gaps come from ethnocultural differentiation. Few curves within each graph are in fact significantly different from each other. That is to say that between family types of the same ethnocultural group, location attainment disparities are low. For Francophones, whose numbers are greater, most of the differences are however statistically significant. Francophone married families are more likely than other Francophone family types to capitalize on their income to settle in affluent areas, single-parent families are less able to do so. More surprising is the finding that cohabiting families are the least advantaged among Francophones families. Among Recent Immigrants, the single-mother family advantage over cohabiting and married families is also statistically significant. Anglophone single-mothers do as well as married anglophone families. In fact, their *performance* is so high that it significantly exceeds that of married francophone families.

When comparing the various ethocultural groups among the same family types, we see that Anglophones live in the city's most affluent neighborhoods, followed by Francophones, Visible Minorities, and finally Old and Recent Immigrants. This corresponds pretty well with the order that would be predicted by spatial assimilation theory, except for the inequality between both groups of White natives that is more in

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[2]The curves of the four subgroups corresponding to the ethnocultural group *others* have not been traced.

Figure 2 : Predicted Neighborhood Income for 20 Family Subgroups, by Ethno-
cultural Groups
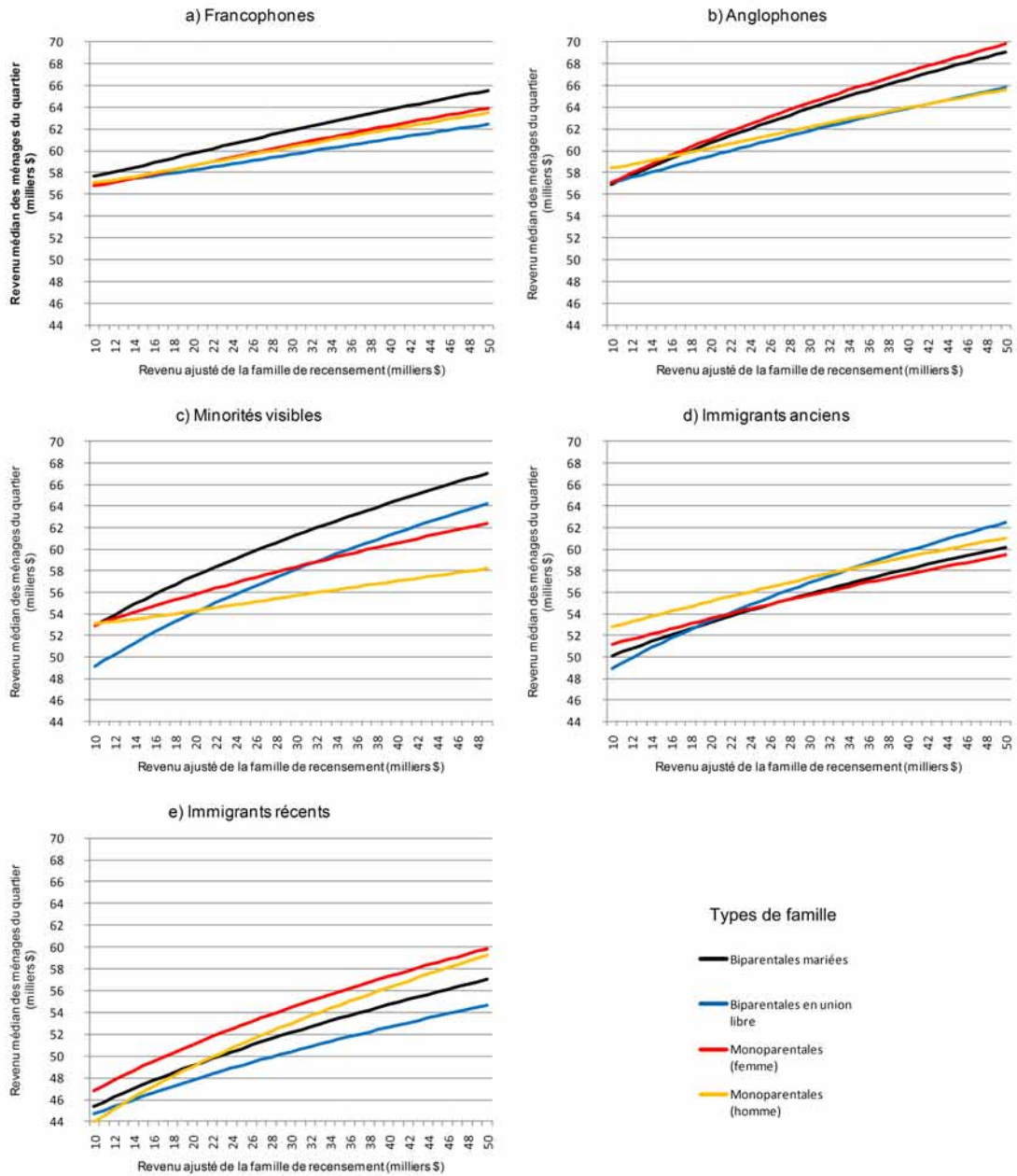
line with place stratification. The difference between Anglophones and Francophones is significant at the 0.05 alpha level for married families and single-mother families, and at the 0.10 level for cohabiting families.

It seems clear, especially from Figure 2, that the locational attainement of family types do not follow any logic that would transcend cultural groups. There is a strong interaction between family types, and ethnocultural and socioeconomic factors, at least for the neighborhood median household income. While there is no doubt that ethnocultural categories play a key role, the *net effect* of family type is more difficult to define.

CONCLUSION

In sum, although the differences between family types are not extremely deep, the conclusions of the locational attainment models lead us to relativize the generalizations that are usually made about the spatial distribution of families. Based on the results of this exploratory analysis, it seems clear that one cannot speak of two-parent or single-parents families as if they were homogeneous groups. Social changes introduced by the *Second Demographic Transition* (van de Kaa 1987), the ethnic diversification of the population, and the increasing polarization of social classes and neighborhoods lead us to question the conclusions of family studies that ignore them. Marital status of the parental couple, the sex of the single parent, socioeconomic status, and particularly ethnocultural identity are essential factors to consider.

But the mere fact of *controlling* for ethnocultural group or income in a multivariate analysis of family types is probably not always sufficient. The existence of interactions between those three variables, that is to say a cross-segregation, can lead to erroneous conclusions. Without the inclusion of interaction variables (Model 3), we would have concluded from Model 2 that married and single-parent families are able to attain the same locations with similar socioeconomic characteristics. In the majority group and among Recent Immigrants, at least, this conclusion is not justified. In terms of spatial assimilation, it would have also been impossible, to witness the locational improvement of high earner Visible Minorities.

By distancing ourselves more from this specific work, we can also see how its scope is limited and how it raises broader issues than the ones it does answer. In addition to a chronological study that would describe the transformation of the relationship between city and family over several consecutive censuses, we must also consider comparative synchronic studies. Some of the most interesting observations presented here were made about cohabiting families, but we know that the significance of cohabitation differs widely from one country to another (Dumas and Bélanger, 1997; Kiernan, 2001; Heuveline and Timberlake, 2004). As Québec, with Scandinavian countries, is a pioneer in this area one could want to know how types of two-parents families fare in societies where cohabitation has not yet reached the same *stage*: Buenos Aires, Philadelphia or even Toronto? And in societies where its character is similar: Stockholm, Oslo or Reykjavik?

Finally, although the scope of this study is limited in terms of indicators, time and space, some of its observations go beyond the strict idea of a relationship between cities and families. They apply more broadly to all contemporary family research. Disparities highlighted in the descriptive statistics of our sample continue to exist no matter if the focus of a study is on residential areas, family disruption or children well-being. If this study demonstrates anything, it is that it's important not to consider family types as homogeneous, acultural or aspatial entities.

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