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Are Baby Boomers Likely to Retire to the City of Canada?

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Abstract. This paper explores whether baby boomers might relocate from suburban neighbourhoods to more centrally located areas as they retire. A robust approach to evaluate migrations by age groups is used to analyze Census microdata over four censuses and twenty years for Canada's six largest cities. First, an original method is developed to classify spatial units as urban or suburban, next disaggregate data on movers is analyzed graphically, then with a trend analysis and finally through the use of logistic regression. Taken all together, results do not suggest that boomers will dramatically change previous patterns and move increasingly to the city.

Keywords. Baby boomers, residential preferences, retirement migrations, household location choice.

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INTRODUCTION

The question of a potential back-to-the-city migration of retiring baby boomers has stirred lively debate in recent years. It is also considered to be an important transportation planning and sustainability issue that has been highlighted for example by the Transportation Research Board of the National Academies in the United States (TRB 2009). Not only are baby boomers remarkable because of their number (Frey 2006), but they are also considered to be "the first truly suburban generation" (Frey 2007). Baby boomers (born 1945-1964) are set to retire in the two coming decades. Since, the oldest members of this generation reached the landmark age of 65 in 2011, it still is too early to say whether and where boomers will relocate as they enter seniorhood but speculation on the question is common.

In the general press, some authors have pointed out that the rising price of gasoline, decreased mobility, and high maintenance costs might lure aging boomers away from their suburban homes (Leonard 2008). These themes have also been found in the grey literature (e.g. (Myers and Gearin 2001), (TRB 2009)). The debate so far has tended to be based on opinion and academia has had little to say about it. The ambition of this article is to remedy this by looking at recent trends in household mobility in order to envision future relocation patterns for baby boomers.

The paper begins with a literature review on the question of baby boomers and suburbanization. A section describing the methodology, another describing the data used and another describing the analysis and results follow this. The paper is finished with a conclusion outlining the major contributions and findings.

LITERATURE REVIEW

The question of a potential back-to-the-city migration of retiring baby boomers has stirred lively debates recently. Some have argued that it could result in the decay of suburbia (Leinberger 2008), while others envision opportunities for new dense developments (Fishman 2005). Discussions of these questions have been found mostly in the press or grey literature, with surprisingly little academic research. When these questions have been discussed, they have been discussed relative to three major streams: population distribution studies, migration studies and housing market studies.

Population distribution studies analyze how the spatial distribution of a specific cohort (the baby-boomers), or age group has been evolving over time. Rogerson and Kim (2005), for instance, observe the redistribution of baby boomers in the United States between 1990 and 2003. Using counties as a geographical unit of analysis, they show that concentrations of baby boomers have shifted from coastal and metropolitan areas to areas surrounding large metropolitan centers and northern parts of the country. Other authors have looked at the spatial distribution of age groups instead of cohorts. An example of this approach is Golant (1990), who studied the evolution of the distribution of the elderly (65+) within metropolitan areas between 1960 and 1988. Based on various US Census data sources and a simple spatial dichotomy (city vs. suburbs), Golant highlights the gradual suburbanization of the elderly as well as their decreasing weight in central cities. These two approaches have been coupled to link the aging of a cohort to an increase in the population of a given age group, as exemplified by Frey (2003). Studying the evolution of America's 102 most populous metropolitan areas between 1990 and 2000, Frey focuses both on the "35-and-over" age group and the baby boom generation. He finds that the population over 35 increased almost twice as fast in the suburbs as in cities and that the share of boomers in the total

suburban population increased by over 4% during the same period. Overall, studies comparing population distributions rely on aggregate census data. Because of this, they are able to give a broad picture (often national) of the distribution of different age groups and cohorts across regions, counties or metropolitan areas. The large geographical scope of such studies and aggregate nature of the data, however, make it difficult to get a fine understanding of behavior leading to these shifts.

Classic life course models in the migration literature assume that location preferences vary with life cycles and depend on several characteristics such as number of persons per household, income, or education. In his seminal work, Rossi (1955) found that housing needs (and thus mobility) were primarily determined by the composition of households and particularly by the age of their members. Building on this, Brown and Moore (1970) established that relocation decisions were caused by stressors resulting both from changes in the environment and in the characteristics of households. Further research has endorsed these theories, suggesting that intrametropolitan migrations are mainly products of housing adjustments (Clark and Onaka 1983). The back-to-the city hypothesis can be understood through this lens, as the result of two sets of stressors. First, baby boomer's housing needs are changing are they get older: for instance, empty-nesters might try to reduce their housing space so as to decrease their maintenance costs (Leinberger 2008). Second, changes in the urban environment could make dense and centrally located neighborhoods relatively more attractive to aging boomers. This is in part because the drawbacks of the auto-dependant suburban way-of-life are becoming more obvious with time: congestion and high gasoline prices, for instance, could reduce the benefits of driving (TRB 2009). It is also in part because the appeal of urban neighborhoods has increased in recent years in North-America: decreased criminality and increased urban vitality could bring

city living back in fashion (Myers and Gearin 2001). Because the baby boomers differ from previous generations in a number of ways, there are grounds for thinking that their life course trajectory could take an unprecedented turn as they retire (Frey 2005). A few studies have considered the migration of pre-elderly and elderly age groups within metropolitan areas, albeit not always as their main subject. This work has been based on individual level data such as the US Census Integrated Public Use Microdata Series (IPUMS) and the Current Population Survey (CPS) ((Frey 2006), (Engelhardt 2006)). In the grey literature, Frey (2006) and Engelhardt (2006) concur that no massive suburbs-to-city migration is happening as of yet. Engelhardt concentrates on the migration of retirement-age (50-69) homeowners. His work is based on two data sources: the 2005 Current Population Survey (CPS) and a 5% random sample from the 2000 US Census. While both of these sources contain five-year mobility measures, they are not used to identify an evolution over time, but simply to cross-check the results based on the relatively small CPS sample with the much larger Census sample. He finds that suburbanite movers mainly choose to stay in the suburbs and are as likely to move to a non-metropolitan area as to the urban core and households moving from city to suburbs outnumber those moving in the opposite direction. Despite his focus on movement to and from cities and suburbs, it is worth noting that it is not clear how he defines them. Frey's report (2006) compares the socio-economic attributes and spatial distribution of seniors and boomers. One part of his report specifically seeks to assess whether baby boomers may be moving back to central cities as they enter their senior years. Like Engelhardt's, Frey's analyses rest upon various US Census sources and the 2003 and 2005 CPS. Comparing suburban residents with their urban counterparts, Frey finds that senior flows directed to suburban counties will remain larger than flows directed to central city counties in the future. While Engelhardt and Frey reach compatible conclusions, they only give a picture of

migrations at a given point in time. They do not say anything about how these migrations are evolving *over* time. A rare academic example in the migration studies literature in this context is Morrow-Jones and Kim (2009) who used a combination of deed transfer records and a survey to examine differences and similarities in residential patterns and motivations among three different age groups. While interesting their sample was very small (about 500 observations) and only included homeowners.

Finally, the question of where baby boomers will retire has been approached in housing market studies. Whatever turn boomer housing life-course might take, the large size of this cohort could strongly unbalance specific segments of the housing market. First, should boomers leave the suburbs in retirement, the release of the predominantly suburban houses could lead to their depreciation in view of the much smaller size of the following cohort. Second, if retiring baby boomers start favouring new housing options (such as downtown condos), the presence of a "gap" between the existing stock and the new demand for this type of housing will likely bring about new developments, as demonstrated by Pitkin and Myers (2008). A report to the US Department of Housing and Urban Development (McCarthy and Kim 2005) attempts to evaluate these "gaps" by examining and projecting the demographics and housing characteristics of the elderly in the past and coming decades. Comparing data from decennial censuses, it finds that the share of older people (55 and older) in city centers has decreased in the large metropolitan areas between 1990 and 2000. Extrapolating observed trends they forecast that almost three quarters of the "gap" will be found in the suburbs. In central cities, the "gap" is expected to be quite small in large metropolitan areas, but bigger in small metropolitan areas. This analysis thus relies on comparing the shares and locations of different age groups over time, an approach that is relevant

when trying to capture demographic dynamics, but does not allow a very fine-grained or rich analysis for understanding these phenomena.

To summarize, studies comparing the spatial distributions of populations over time provide insight into the changing relative weight of different age groups and cohorts, but do not allow a very fine-grained understanding of the phenomena. Because they rely on readily available aggregate data, they produce large-scale rather than detailed results. Since housing studies have relied on similar methods to the spatial distribution studies, they suffer from the same weaknesses. In the migration studies grey literature, a few reports have addressed suburbs-to-city migration of boomers by analyzing disaggregate data, but not extensively since this was not the main purpose of the research ((Engelhardt 2006), (Frey 2006), (Frey 2007)). Moreover, these studies have not looked at migration trends over time. Finally, something that is common to the three streams of literature is that the determination of what qualifies as cities or suburbs is either quite coarse or not very well defined.

The present research intends to fill these gaps in the current literature by studying where movers have been deciding to move using disaggregate individual data, at a fine geographic scale with a systematic definition of the urban core. Moreover, the analysis will be done dynamically over the course of twenty years and four censuses.

SCOPE OF STUDY

The aim of this paper is to better understand the evolution of where people have been moving within Canadian cities in recent decades. In order to do so, Canada's six largest Census Metropolitan Areas (CMAs) are analyzed, namely: Montreal, Ottawa, Toronto, Calgary, Edmonton, and Vancouver. These cities are located across the country and have had different

development patterns both recently and historically. Altogether, the population of these six CMAs amounted to 14 million people in 2006 (1), that is to say 45% of the total Canadian population (2).

METHODOLOGY

Our intention is to consider what the historical trends of movers can tell us about where the baby boomers are likely to retire (cities or suburbs). In order to do this, an age-group approach is adopted, wherein age-groups are observed over 20 years, at four different points in time. The four observational points are the Canadian censuses of 1991, 1996, 2001 and 2006. A census was conducted in 2011, but the results were not available for this analysis.

Movers are identified as those having moved since the previous census. Heads of households are chosen as the observational units. Using census data, an "Urban Core Index" is used to classify census tracts as urban or suburban – more details on the UCI follow below. Data analysis takes place in five phases. First, a graphical analysis is done looking at the progression of the proportion of movers from each age group moving to urban census tracts across the cities, and across the four censuses. Second, a simple regression of share of movers to urban census tracts over time is done to judge the degree to which visual trends are borne out statistically. Third, logistic regressions of where movers moved are estimated. Fourth, the evolution of the 65+ mover coefficient is graphically examined. Finally, regressions of the 65+ logistic model coefficients over time are estimated to judge the degree to which visual trends are borne out statistically. The logistic regressions are used to analyze how being 65+ has been affecting the likelihood, over time of moving to the urban core, while accounting for other socio-demographic control variables.

DATA

The data used in this research come from the four Canadian censuses identified above. Canada's long-form census has traditionally been administered to 20% of the country's households. It contains detailed information on the characteristics of individuals and households, such as total income, type of dwelling, or census tract of residence. It also identifies individuals who changed their place of residence in the last five years. Data used in this research comes from census microdata (the confidential long-form data file containing complete individual records). Other census data required for the categorization of census tracts as urban or not come from aggregate census tract level data. Census tract boundary files were also necessary to conduct the analysis.

The boundaries of census tracts are relatively stable across censuses, allowing spatial comparisons over time. While the perimeter of some CMAs has expanded during the period of this study (by addition of new tracts), the spatial perimeter used in this analysis remains constant. That is, observations in tracts that were added after the base year (1991) were not considered.

URBAN CORE INDEX

Various approaches for classifying neighborhoods as being either 'urban' or 'suburban' have been developed in the literature. Some authors have used relatively simple definitions. Bunting, Walks and Filion (2004) define the inner city as those census tracts containing over 1.5 times the CMA average of dwellings built before 1946, while suburbs have 1.5 times the CMA average of dwellings built after 1946. Others have rejected the city/suburbs dichotomy altogether in favor of multi-dimensional, continuum-based approaches (Bagley, Mokhtarian et al. 2002). Unsatisfied with very simple classifications, but subject to data availability constraints, a multidimensional index was developed to classify census tracts dichotomously, i.e. as "urban core" or suburban.

The index developed is called the Urban Core Index. Its main benefit is that it is based on quality data readily-available and comparable across metropolitan areas and over time.

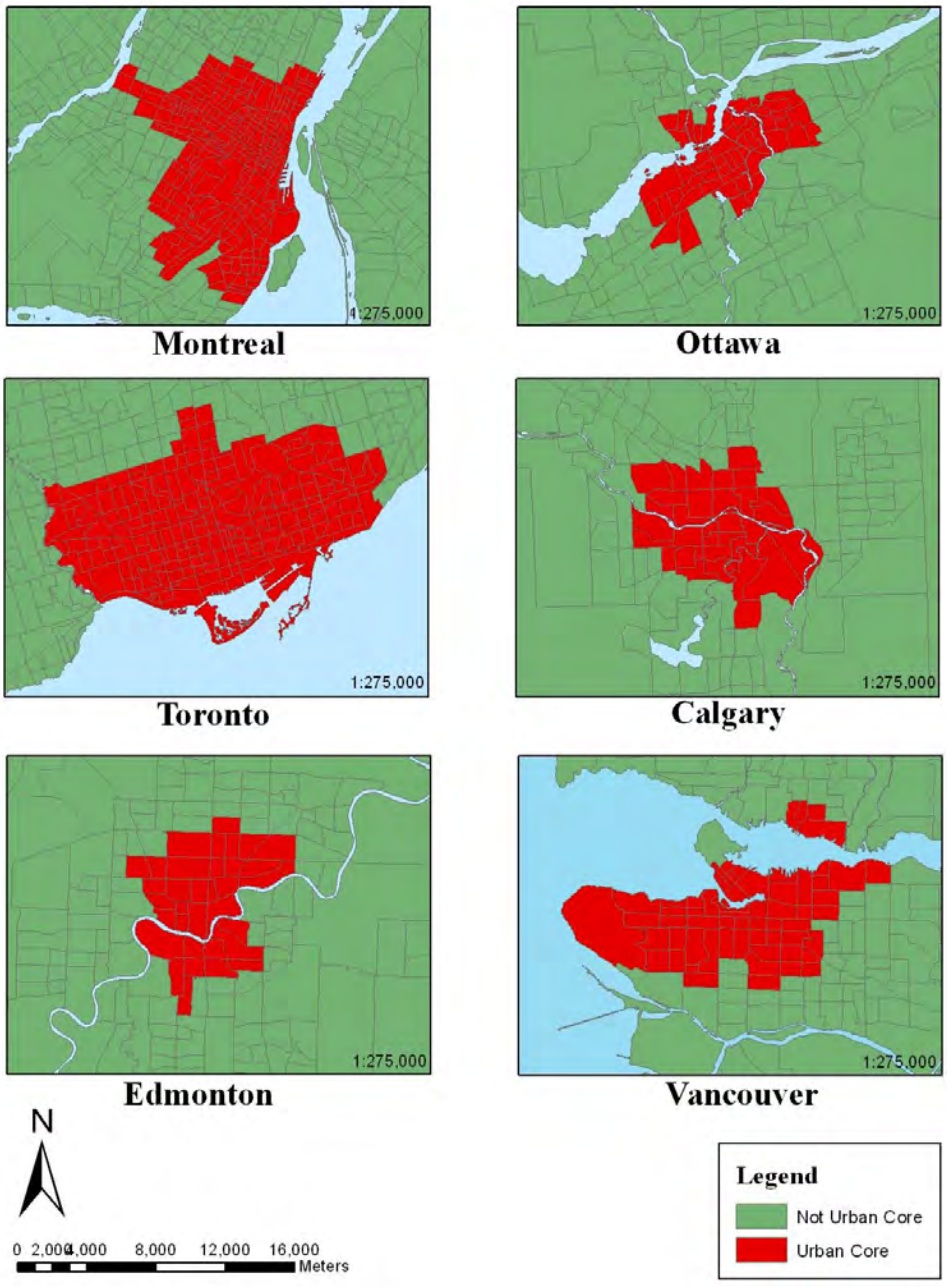

Figure 1 – Areas identified as Urban Core according to the Urban Core Index

The Urban Core Index (UCI) is based on three variables available in the census: 1) share of dwellings in a tract built before 1945, 2) share of non single-detached dwellings in a tract, and 3) share of transit and active modes in a tract. The share of dwellings built before 1945 provides a clear indication of where the historical center of a city is located. The share of non single-detached dwellings in a tract is a good indicator of level of urbanity as well as of population density. Active and transit mode share is included as a proxy for accessibility to transit. Similar variables have been used in the literature in the context of city/suburbs classification, although with different methodologies (e.g. (Bagley, Mokhtarian et al. 2002)).

For each CMA, the z-score for each variable was calculated and summed together to create the Urban Core Index (UCI). The higher the score of a tract, the more urban it was considered. After testing several thresholds, it was decided that the urban core would be composed of tracts having a UCI score of 1 or above. Summing normalized values instead of raw percentages makes it possible to use the same threshold for every CMA since the UCI score of a tract is relative to the CMA it belongs to.

Tracts were classified with this methodology using 1996 data. The results were mapped and slightly adjusted (e.g., a single "suburban" tract in the middle of the urban core would be reclassified as belonging to the urban core, even if its UCI score were below 1). The perimeter of the urban core remains constant across the years. That is, if a tract belongs to the urban core in 1991, it is classified as urban through 2006, even though its characteristics might have evolved over the years. This is done to preserve perimeter comparability in time. Figure 1 provides maps of the "Urban Core" for each of the cities in the analysis.

RESULTS

Analysis proceeds in five stages. It starts with a graphical analysis of the aggregate share of movers to the urban core data and continues with a regression analysis with time trends. Logistic regressions on the likelihood of moving to the urban core are then estimated and the 65+ mover coefficient from these models is analyzed graphically and then using a time trend analysis.

Graphical Analysis of Aggregate Data

Figure 2 shows the share of movers from an age group moving to the urban core for the six cities. The progression of the share of all movers and of 65+ movers has been highlighted. The share for all movers is represented as a hatched line, whereas the line for 65+ movers is a dotted line.

Looking at all movers, there appears to be an overall trend of increasing suburbanization, but that trend is not as pronounced as one might imagine. Movers in Calgary and Edmonton appear to be suburbanizing faster and more obviously than those in the other CMAs, which is consistent with fast population growth (since these two CMAs have been growing much faster than the others) in these cities. Indeed, since the urban core is made up of mostly developed land, new developments triggered by population growth are more likely to happen at the periphery than in the center. For the other CMAs, no massive suburban exodus seems to have happened over the last 20 years. The decrease in the share of movers to the urban core has been very slow (a couple of percent in two decades). For Vancouver, the overall trend even seems to be one of more movers to the urban core. It is important to note we have to be cautious in our overall interpretations here since this only includes heads of households. Since, households moving to the suburbs are likely to be larger than households moving to the city, there is no guarantee that

these graphs describe overall population trends. It is therefore more relevant to look at differences across age groups than absolute trends for one city or one age group.

Considering the different age groups, the 35-54 year old movers have the least distinctive mobility pattern. The trend for this age group generally reflects the evolution observed for all movers. This is partly because this age group is the biggest of all three, making up about 40% of all movers in our samples. Under 35s tend to be at the top of graphs. That is under 35s almost always (all cities and all years) have the highest proportion of movers to the urban core – this is systematically the case of under 25s. The pattern is not quite as clear cut for over 55s or the 65+. The most interesting for this analysis is 65+ movers. While they are not systematically at the lower extreme, in all cities they show a pattern of moving less frequently to the urban core over time. In all cities (except Vancouver) 65+ movers have changed their position relative to other, younger age groups. For example, in Montreal in 1991, 65+ movers moved more frequently to the urban core than any other age groups except under 25s. By 2006, they were the least likely to move to the urban core. Montreal is the most extreme case for the change in relative probability of moving to the urban core, but the pattern is observed in all cities. In some cities, despite little change in their relative position, there are what look like trends to move away from the urban core.

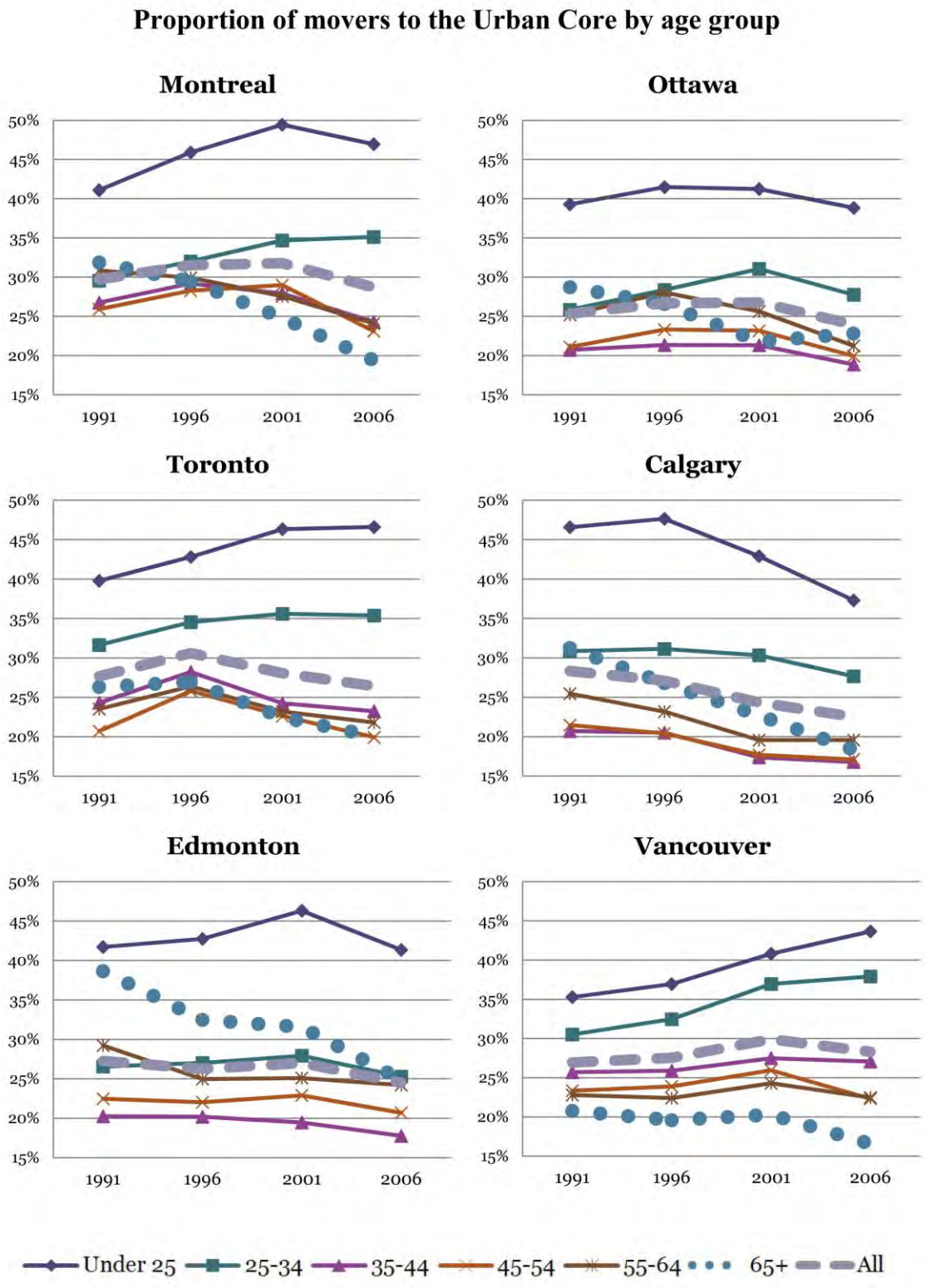

Figure 2 – Proportion of movers to the Urban Core by age group

Time Trend Analysis of Aggregate Data

Graphical analysis suggests 65+ movers are increasingly (and at faster rates) moving to non-urban core areas. These trends will now be analyzed statistically. Analysis here focuses on two categories – under 65 movers, and 65+ movers. The time trend analysis consists of OLS regressions where the dependent variable is the proportion of movers to the urban core, and the independent variable is years since 1991.

Table 1 shows the results of two sets of seven regressions. The first set of regressions is for 65+ movers and the second set for under 65 movers. Starting with the 65+ movers, it can be seen that in three cities (Montreal, Calgary and Edmonton) the coefficient on years since 1991 is statistically significant at 5%, and one at 10% (Toronto). In all of the cities, the coefficient is negative. This means that there is an estimated downward trend of 65+ movers to move to urban cores over time. The coefficients for the city regressions vary from city to city. For the case of Calgary (strongest trend) the coefficient implies that 65+ movers are choosing less often to move to the urban core by close to 1% per year (8.6% over 10 years). It is also worth noting that despite few observations, the models result in surprisingly high adj. R-squares (0.495 for Vancouver - 0.999 for Calgary). Weighted regressions taking all cities together (not included here) were also run and revealed an average 6% decrease over ten years. These results are driven by the cities with the stronger trends – when regressions of the cities with weaker trends (Ottawa, Toronto and Vancouver) are run, the coefficient on year is insignificant. They suggest a significant time trend of 65+ movers choosing to move away from the urban core for at least Montreal, Calgary and Edmonton.

Over-65 Movers						
	MTL	**OTT**	**TOR**	**CAL**	**EDM**	**VAN**
Year coeff.	-8.40E-03*	(-4.50E-03)	-4.65E-03**	-8.56E-03*	-8.46E-03*	(-2.38E-03)
Std Err.	9.74E-04	1.57E-03	1.40E-03	9.03E-05	1.57E-03	1.20E-03
Const.	3.27E-01*	2.83E-01*	2.74E-01*	3.12E-01*	3.82E-01*	2.11E-01*
Std Err.	9.11E-03	1.47E-02	1.31E-02	8.45E-04	3.82E-01	1.12E-02
Obs.	4	4	4	4	4	4
Adj. R^2	0.9607	0.7071	0.7683	0.9997	0.9032	0.4952
Under-65 movers						
	MTL	**OTT**	**TOR**	**CAL**	**EDM**	**VAN**
Year coeff.	(2.45E-04)	(-5.55E-04)	(-9.52E-04)	-3.75E-03*	(-1.10E-03)	(1.61E-03)
Std Err.	1.59E-03	1.51E-03	1.71E-03	4.17E-04	7.78E-04	1.00E-03
Const.	3.07E-01*	2.62E-01*	2.92E-01*	2.84E-01*	2.67E-01*	2.79E-01*
Std Err.	1.48E-02	1.41E-02	1.60E-02	3.90E-03	7.27E-03	9.35E-03
Obs.	4	4	4	4	4	4
Adj. R^2	-0.4824	-0.4055	-0.2997	0.9638	0.2481	0.3476

* identifies statistical significance at 5% ** identifies statistical significance at 10%

Table 1 - Time trend regression results

The second part of Table 1 shows the results for under-65 movers in the six cities. In these models, only Calgary has a statistically significant coefficient for year. The coefficients are insignificant for all other models. In the case of Vancouver, although insignificant, its sign is positive. Three of the models even have negative Adj. R-squares, suggesting that the model does not help to explain the progression of the proportion of under-65 movers moving to the urban core whatsoever. Altogether, the results suggest a fairly strong case that while 65+ movers appear to be moving increasingly to the suburbs in some cities, this is not the case for under-65

movers taken as a whole. It also suggests that if these patterns continue, baby-boomers are set to increasingly move to the suburbs in retirement.

Logistic Regressions and Trend Analysis for 65+ Mover Coefficients

The third part of the analysis involves the comparison of the evolution of age group coefficients in a logistic model of moving to the urban core. While the previous analysis allowed us to examine the overall trends of age groups of movers to the urban core, using a logistic modeling approach allows us to examine the effect of belonging to an age group on the choice of moving to the urban core, while controlling for other variables. As such, six different logistic models (one for each city) were estimated including the data for each of the census years. As a result, each model involves a cross-sectional time series.

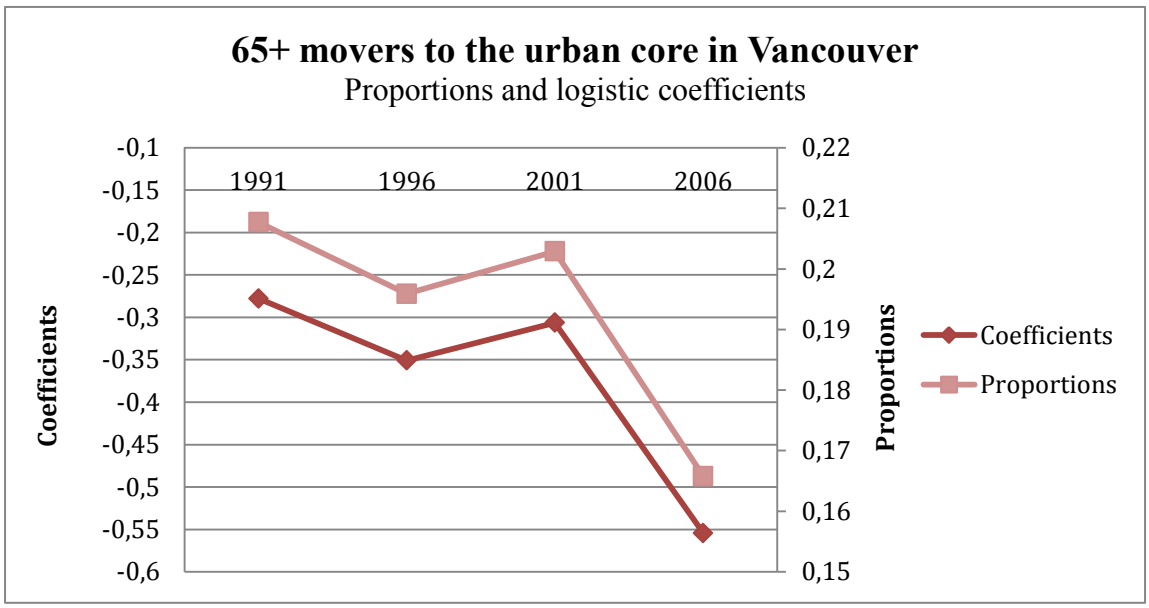

Figure 3 – Proportions of 65+ movers to the Urban Core in Vancouver and estimated logistic coefficients with only age groups

Typically, a model using cross-sectional time series data would include one omitted category for each categorical (qualitative) variable and include a dummy variable (except in the base year) for each year of data. In the particular case of age groups, this would involve having one omitted age group category for each year in the regression. Such an approach makes it difficult to compare the evolution of coefficients over time because for each year, the included age-group coefficients represent their impact relative to the omitted category, whose implicit value is 0. The problem is that the effect of the omitted category is likely to change from one year to the next and so the coefficients of all the age groups are not directly comparable. To overcome this problem, the models estimated for this analysis, have only one omitted category for age groups – the 1991 omitted category, 35-44 age group. In order for the model to be identified, year dummies are not included and for all the other categorical variables, there is one omitted category per year. The overall results of such a model are the same as the traditional approach (all diagnostics are the same) and only the coefficient estimates of age groups are affected. This allows us to compare the evolution of the age-group coefficients over time.

When such a logistic model is estimated with only the age group coefficients, the pattern of values of the age group coefficients reproduces the patterns seen in Figure 2. An example of this for Vancouver is shown in Figure 3. In this figure, the top line represents the evolution of the proportion of 65+ movers moving to the urban core. The bottom line represents the coefficients from a model that only includes the age group variables. As can be seen, the patterns are virtually identical. Below we will consider the evolution of these coefficients when considering control variables.

Thanks to the richness of the micro-census data, it is possible to control for many variables. All variables that characterized the movers and that were found to be statistically

significant in at least one of the years, in at least one of the cities were included. This was done to ensure the same omitted categories across all years and regressions. Some available variables were not included in the models. In particular, variables related to the movers' households or residences were not included – variables such as the number of rooms or children. While these variables could play a role in decisions about whether to move to the urban core or not, they are also likely endogenous and their inclusion would lead to biased coefficient estimates. As such, the variables included in the models were the following: age group (six categories); educational attainment (two categories – university education or not); family status (five categories); income quintile; a low-income dummy variable; whether the mover was an immigrant; occupational type (ten categories); gender; marital status (five categories); whether the mover received a pension; total household income (five categories); whether the mover was a visible minority; and employment status (four categories). Given all of these variables and categories as well as the four years of data, each of the models included 171 estimated coefficients. As a result of the large number of coefficients in each model, only the coefficients for 65+ movers are presented below.

	MTL	OTT	TOR	CAL	EDM	VAN
65+ movers 1991	-0.1501*	(-0.0907)	-0.5110*	-0.3910*	-0.1844*	-0.7251*
Std Err.	0.0171	0.0363	0.0203	0.0430	0.0384	0.0249
65+ movers 1996	-0.1056*	-(0.0496)	-0.3224*	-0.4558*	-0.2328*	-0.6354*
Std Err.	0.0333	0.0657	0.0357	0.0729	0.0676	0.0469
65+ movers 2001	-0.2605*	-0.4398*	-0.4376*	-0.3228*	-0.1487*	-0.6480*
Std Err.	0.0335	0.0657	0.0365	0.0723	0.0657	0.0474
65+ movers 2006	-0.6083*	(-0.0380)	-0.3394*	-0.5358*	-0.2451*	-0.5060*
Std Err.	0.0354	0.0671	0.0365	0.0728	0.0672	0.0480
Model Diagnostics						
Obs.	434021	134949	466935	134657	128950	246093
LR: Chi^2 (171)	359976	99581	403599	133901	120920	211723
Prob. > Chi^2:	0	0	0	0	0	0
Control variable coefficients omitted due to large number (171 all together)						
* identifies statistical significance at 5% ** identifies statistical significance at 10%						

Table 2 – 65+ mover coefficients

The estimated 65+ mover coefficients from each of the models are provided in Table 2. The omitted age group category (and therefore the category to which these coefficients are relative) is age group 3 (35-44) in 1991. The choice of omitted category does not affect the relative pattern of coefficients, although it might affect the statistical significance of the coefficients. It was chosen because it is the age group that tends to resemble overall trends for all age groups the most. That a coefficient is insignificant simply means that there is no statistical evidence to suggest that it is any different than age group 3 in 1991. What is of interest here is the pattern and progression of the coefficients.

Starting with Montreal, we can see all of the 65+ mover coefficients are statistically significant at 5%. This means that the effect of being 65+ is always different than being 35-44 in 1991 with respect to the likelihood of moving to the urban core. The sign of the coefficients are also always negative, implying that being 65+ always results in a lower likelihood (relative to 35-44 movers). In particular, the coefficient of -0.1501 in 1991, means that being 65+ reduced the odds of moving to the urban core relative to 35-44 year old movers in 1991 by 14% ($e^{-0.1501}$=0.860584904). The rest of the coefficients are interpreted in the same way. In every case, the coefficient for 65+ movers is negative and in every case except for two in the case of Ottawa, this difference is statistically significant. To evaluate the evolution of these coefficients, it is easier to represent them graphically.

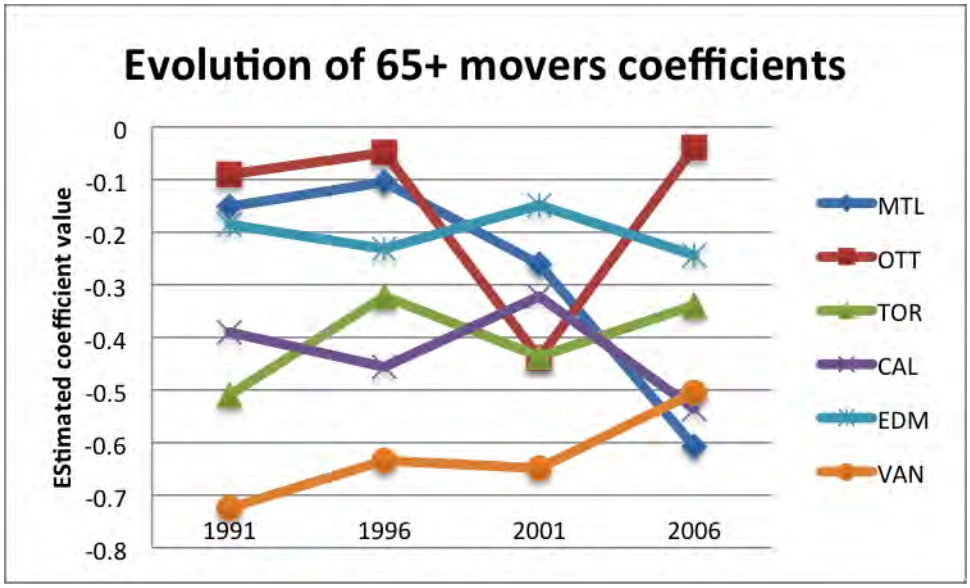

Figure 4 – Evolution of logistic model coefficients for 65+ movers

Figure 4 graphs the evolution of the coefficients for 65+ movers in the six models across the 4 census years. The coefficients are not directly comparable between the cities but are across the years for the same city. The purpose of undertaking this analysis was to see if, given observed trends in 65+ movers moving away from the urban core, and when controlling for other factors, the same or similar trends would be observed. As it turns out, for some cities it seems to be the case while for others it is not. Montreal shows the most dramatic example of how the coefficient for 65+ movers has been trending downwards over time. In other words, it shows that after controlling for all other characteristics of the movers, being a 65+ mover in Montreal shows a pattern of decreasing likelihood of moving to the urban core. While not as dramatically, the other two cities to show a negative evolution of the 65+ coefficients are Calgary and Edmonton. These three cities (Montreal, Calgary and Edmonton) also happen to be the ones showing the most pronounced time trends, all with similarly sized coefficients for year in Table 1 (ca. -0.008). As for the other cities, they appear to have no real trend (Ottawa) or are even increasing (Toronto and Vancouver).

The results for these latter three are certainly surprising. Attempts were made to understand these counter-intuitive results by estimating models with different combinations of variables. The idea was to see if other variables could be explaining what appears to be the negative evolution of the overall proportion of 65+ movers choosing to move to the suburbs. Unfortunately, no obvious pattern emerged. Instead, it appeared that the 65+ coefficient was being affected by a complex interaction of a number of variables and in particular whether the individual received a pension, family, marital and employment status.

The final step in the analysis is a time-trend analysis of the logit coefficients themselves. In order to do this, the same type of analysis as for the aggregate data was performed, except that in this

case, it is the coefficient values themselves that are the dependent variable. As such, we are testing whether there is statistical evidence that trends in these coefficients are actually observed. The results of these six models are presented in Table 3.

The trends observed graphically are more or less borne out in the coefficient estimates: Montreal, Calgary and Edmonton have negative coefficients; Toronto and Vancouver have positive coefficients. As it turns out, although not obvious from the graphical analysis, Ottawa has a negative coefficient. When we consider statistical significance, however, we find that none of the coefficients, except Vancouver, is statistically significant. As a result, we have to conclude that in the case of all cities, except Vancouver, there is not a statistically significant trend in the evolution of the 65+ logit coefficients. In other words, there is no evidence that the effect of being 65 or over on choosing to live in the urban core is changing over time.

In the case of Vancouver, however, there is evidence that this effect is changing over time. Moreover that effect is positive and suggests that in 40 years, the effect of being 65 or older on moving to the urban core will be the same as the effect of being 35-44 in 1991. At the same time, in 1991, only 25% of 35-44 year old movers were moving to the urban core. In other words, even though it appears that 65+ movers may be growing less averse to moving to the urban core, the rate at which they are doing so is not likely to suggest an explosion in 65+ movers to downtown.

Age group 6 (65+ movers)

This table presents the results of regressions run for each city to test the effect of 'years' on 'age group coefficient'.

	MTL	OTT	TOR	CAL	EDM	VAN
Coef.	-0.0305854	-0.0046449	0.0079933	-0.0060307	-0.0019597	0.0128928
Std Err.	0.0124085	0.0207229	0.0078544	0.009006	0.0046784	0.0039887
Signif.	§	§	§	§	§	**
Const.	-.0517263	-.1197069	-.4625435	-.3811189	-.1880609	-.725317
Std Err.	.1160707	.1938453	.0734714	.0842434	.0437628	.0373112
Signif.	§	§	*	*	*	*

* statistically significant at 5% ** statistically significant at 10% § not statistically significant (over 10%)

Table 3 - Trend analysis of logit coefficients

Discussion of Results

According to the aggregate data, it appears that there is evidence to support the claim that 65+ movers are increasingly choosing to move to suburbs over the urban core in Montreal, Calgary and Edmonton. As for Ottawa, Toronto and Vancouver, the results are not so clear. While the graphical analysis might lead us to think that similar trends can be seen for Ottawa, Toronto and Vancouver, there does not seem to be statistical evidence to support this. When looking at the evolution of 65+ logistic coefficients, the statistical evidence suggests that in only one city (Vancouver) does there appear to be a trend in how being 65 or older influences moving to the city. Interestingly, this trend is positive, but at the same time relatively small.

Unfortunately then, the results are not as conclusive as would have been wished. It appears that any phenomena related to 65+ movers choosing to move to the urban core or otherwise are different in different regional contexts, and on how we examine the data. In Montreal, Calgary

and Edmonton it seems quite clear that with respect to the aggregate data, 65+ movers are increasingly moving to the suburbs. This trend is not obvious for Ottawa, Toronto and Vancouver. Once we estimate the effect of being 65+ on moving to the city, while controlling for other socio-demographic characteristics, only in Vancouver is there evidence for a trend – and that trend is slightly positive. Taken as a whole, it does not appear that senior movers are becoming more likely to move to the urban core at a rapid rate.

CONCLUSION

This paper has sought to contribute to the paucity of academic literature on the evaluation of whether the retirement of the baby boomer generation is likely to result in an urban renaissance. It has done so by using census microdata on movers in Canada's six largest cities over twenty years.

The paper itself has made several contributions. First, it has developed a systematic approach that is comparable across cities and uses readily available census data, to identify what is called the urban core. Second, the five stages of analysis of "65+ mover" trends have provided a rigorous and innovative (in the case of the comparison of logistic regression coefficients) examination of where retirement aged movers have been choosing to move over time. As a result, it has provided a solid methodology to evaluate trends in where retirement aged movers are likely to move. Third, it has found that in three of the cities (Montreal, Calgary and Edmonton), aggregate trends suggest 65+ movers are increasingly choosing to move to the suburbs. When estimating the effect of being 65+ on moving to the city, while controlling for other factors, however, these trends are not so obviously observed. In two of the other cities (Ottawa and Toronto), these trends are by no means clear. For one city (Vancouver), there are no

statistically significant trends when considering the aggregate data, but once controlling for other factors, it appears that 65+ movers are becoming slightly less averse to moving to the city.

These results imply first that any attempt to undertake such analyses need to be done at the regional level since there seems to be a fair bit of variation between urban regions and the degree to which "65+ movers" are choosing to move to the urban core. Finally, the analyses taken as a whole do not suggest that the boomers are likely to dramatically change previous patterns and move increasingly to the city in Canada.

NOTES

(1) Source : http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/hlt-fst/pd-pl/Table-Tableau.cfm?LANG=Eng&T=201&S=3&O=D&RPP=150

(2) Source : http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/hlt/97-550/Index.cfm?TPL=P1C&Page=RETR&LANG=Eng&T=101

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