Ren Thomas

www.renthomas.ca   MA (Planning) PhD Student (Planning)
University of British Columbia

Context Specific: Immigrant Housing and Transportation Choices in Toronto

1.0 Introduction

Individual housing and transportation choices have a considerable impact on the urban structure and built form of our towns and cities. Single-family residential housing in suburban locations is still the most culturally acceptable housing choice for the majority of Canadians; likewise, driving is the most acceptable transportation choice. In our largest cities, suburban areas are also the most affordable; unfortunately, they are also poorly served by public transit, which means that most households must own at least one car. Increasingly, suburban areas appeal to new immigrants, who are responsible for the majority of population growth in Canada's major cities. Many studies have shown how suburbanized the immigrant population is in both Toronto and Vancouver (Hou and Picot 2004; Hulchanski 2007; Murdie 2007). These trends have put tremendous pressure on suburban municipalities, most of which are growing at much higher rates than inner cities. When combined with structural changes, infrastructure priorities, and demographic shifts, the pressure to grow outwards has resulted in sprawling, polycentric cities with long travel distances, decreased housing choice, housing and income disparities, and decreased transportation choice.

As per the guidelines for the School of Community and Regional Planning and the recommendations of the Supervisory Committee, this Comprehensive Examination essay will discuss three substantive areas:

- Housing choice and spatial settlement patterns
- Transportation choice, the home-work link, and the travel behaviour of specific demographic groups
- Methodological approaches to these questions

These three substantive areas of literature will ground the paper in the theory and policy context of planning, geography, and sociology. Geographers and sociologists have done a substantial amount of research on immigrant settlement patterns. Some have focused on nation-wide trends, or at least trends in Canada's three largest cities; they are particularly interested in how immigrants are faring in terms of income, home ownership, social and economic integration. Other researchers have concentrated on social, rather than structural, factors behind immigrant settlement patterns. However, studies focusing on the transportation choices of immigrant or ethnocultural groups are few and far between. There is some research that begins to bridge the gaps between

housing and transportation, but as yet, Canadian researchers have not studied the links between these two areas. Understanding sustainable and unsustainable choices is crucial in the development of planning policies that inform housing and transportation choice. Canadian municipalities and regions have shown some progress in addressing housing and transportation choice in planning policy by encouraging sustainable growth patterns, complete communities, and a variety of transportation options. Research bridging the two areas is essential if we want to encourage this type of balanced growth in our cities and regions.

2.0 Research Question(s)

Researchers usually study housing choice and transportation choice independently of each other. A tremendous amount of research has been devoted to issues around immigrant integration in Canadian cities, most of it in time for the 30th anniversary of the multiculturalism policy in 2006. Immigrants' home ownership, income disparity and residential spatial patterns differ from the Canadian-born population, particularly for those who arrived in Canada after 1980 (Haan 2005). The ambivalence of housing choice in the context of income disparity and tight housing markets has been raised in recent work (Hulchanski 2007). Less energy has been devoted to researching immigrants' transportation choices, travel patterns or behaviour in Canada. American research on women's travel patterns (Hanson and Pratt 1988, TRB 2006) and the links between home and work (Wyly 1999, Kwan 1999) have begun to bridge the gap between housing and transportation research in the US. Reconnecting America, and its Center for Transit-Oriented Development and Center for Neighbourhood Technology, has also made some progress on the transportation-housing link.

While some general housing and transportation trends have been identified and some social factors accepted as influencing residential spatial patterns, there are still many areas that are yet to be studied:

- The connection between housing and the location of employment and training opportunities for new immigrants
- The influence of immigrants' housing history on their housing choices in Canada
- The connection between transportation infrastructure and housing choice (the role of public transit in the housing search process, the impact of housing decisions on transportation choice)
- The barriers to using public transit and to buying a family car

I propose that housing choice and transportation choice are intricately linked, and that one choice has implications on the other. These choices are particularly evident in the recent immigrant demographic (those who arrived in Canada less than ten years ago), whose choices are constrained by economic and structural factors. Given the gaps in existing research, and the major contribution of immigration to population growth, the following research questions apply:

- How do immigrants make housing and transportation choices in the Toronto Census Metropolitan Area (CMA)?
- How does transportation choice fit into larger structural patterns of immigrant settlement, suburbanization, transportation infrastructure, and employment opportunities in the Toronto CMA?

- How do established models of urban structure, urban growth and transportation choice influence our understanding of immigrants housing and transportation choices in the Toronto CMA?

How can such complex questions be answered? This paper frames the dissertation research in four sections. First, a summary of key models of urban structure, urban growth, and transportation choice will be presented in Section 2.0, with an analysis of their applicability to Toronto. An understanding of these models becomes crucial in Section 3.0 of the paper, a discussion of the literature on immigrants' housing choices and settlement patterns and its methodological approaches. The models will also be used in Section 4.0, which will outline the literature on transportation choice and its methodological approaches. Finally, Section 5.0 will analyze the methods used in these two separate fields of study in order to determine which methods might be most useful in answering the research questions.

2.0.1 Terminology

A few terms should be defined before reviewing the literature on housing and transportation choice. Canadian research uses the term "immigrants", to mean everyone who was not born in Canada, regardless of their time of arrival. The category is often further broken down into "recent immigrants" (those who arrived less than five years ago) etc., depending on their immigration period, which is often used in studies that evaluate immigrant integration. Immigrants are often compared to the "native-born" which means everyone born in Canada, regardless of "ethnocultural group". This term denotes ethnic and cultural groups, and addresses groups as diverse as Jewish, Chinese, Italian, and Indian, who are then compared to the White population. Sometimes, Aboriginal peoples are included in this term, particularly in older research. However, recent research includes Aboriginal peoples as a separate group outside of ethnocultural categories. The change reflects changes and refinements in the Canadian Census as well as societal acknowledgement of Aboriginal peoples as separate nations. Canadian government publications also use the term "visible minorities" to mean persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour, which is the Employment Equity definition. Furthermore, in Canada, there is a tendency to assume that all immigrants are members of ethnocultural groups. This may stem from Canada's immigration history. The increasing proportion of immigrants from non-European countries since 1961, and the sustained high number of immigrants to Canada, may contribute to perceptions that ethnocultural and immigrant identity are one and the same. However, the distinction between "ethnocultural groups" and "immigrant groups" is useful in studies of housing choice and spatial settlement patterns, where immigrants may choose to live amongst others of their ethnocultural group because of language barriers.

In the US, the term "immigrant" has the same definition as in Canada, and researchers use similar breakdowns such as "recent immigrants." However, in the US, there are very few ethnocultural categories: "race" is defined as Black or White, and "ethnicity" is defined as Hispanic or Non-Hispanic Other. Despite the fact that scientists now agree that "race" is a socially constructed concept that does not reflect biological differences, American researchers still use the term, as it still appears on the US Census and other major studies such as the National Household Transportation Study (NHTS). The limited ethnocultural focus is characteristic of American research, and many would argue it is appropriate given the dominance of the African American and Hispanic American

groups in most US cities. Unlike Canadian research, American research is very clear about the use of the term "immigrants".

This paper summarizes research on immigrant, ethnocultural, visible minority and "racial" groups in the US and Canada. Throughout this paper, I will use the categories defined by the researchers in each particular study when referring to methods or data.   Outside of these specific instances, I will use the term "ethnocultural" when summarizing the research because it encompasses groups whose common bond is culture, religion, or country of origin, regardless of immigrant status. Given the discriminatory overtones of the term "race", it will be avoided in this paper where possible.

3.0 Classic models of urban structure, urban growth, and transportation choice

Most housing researchers have acknowledged the importance of the spatial characteristics of cities on housing location and choice, including the location of the central business district, the growth of cities along transportation corridors, and the influence of post-industrial employment trends. These researchers invariably refer to models of urban structure and urban growth, a few of which exert a remarkable influence upon research questions, assumptions, and methodologies. Their lasting influence contrasts with their unique geographical, economic, social, and political contexts. These unique characteristics should influence their ready application to any North American city. In particular, these models were all developed in the United States, so their applicability to Canadian cities can be questioned.

Transportation researchers rely less on these models, using their own models involving rational choice. However, some of the key assumptions in aggregate and disaggregate models are influenced by the classic urban structure and growth models.

The use of these models in the current literature indicates researchers' desire to relate their research questions and findings to the planning and growth of urban areas. Are they are still valid, and should they be used in this dissertation? This will be determined after reviewing the literature in both housing and transportation choice.

3.1 Urban structure and growth models

This section outlines five classic urban structure and urban growth models and highlights their use in current research on housing choice and spatial settlement patterns. A preliminary examination of these models is key to understanding and critiquing the current research. Many of these models assume individuals, or households, make rational housing choices. They often do not acknowledge inequities such as housing market discrimination or the entrenched poverty of specific demographic groups, which is particularly important when considering immigrant housing patterns. Finally, in part because of their age and reliance upon rational choice models, the models do not consider the impacts of sustainability or the desire of municipalities and households to make more sustainable housing choices. Yet, they are often used as benchmarks against which urban growth patterns and immigrant integration are measured.

Context Specific: Immigrant Housing and Transportation Choices in Toronto

3.1.1 The concentric model

As Robert Murdie (1969) points out, the concentric spatial form was recognized in ancient cities. The first modern scholar to write about concentric patterns in cities was Charles Booth (1902), who identified several patterns in his research into life and labour in London. The concentric, sectoral and multiple nuclei forms of urban growth and spatial structure he discussed would be echoed by other researchers decades later.

E.W. Burgess (1925) further developed the concentric model, arguing that socio-economic status increased towards the edges of the city. Burgess' concentric zones were the financial and office district, central retail district, wholesale and light manufacturing zone, heavy manufacturing zone, zone of workingmen's homes, residential zone, and commuters' zone, moving from city center to periphery. As a member of the Chicago School of sociology and human ecology, Burgess believed that the physical environment shaped human behaviour. Since the reform era, poverty and overcrowding had become linked to juvenile delinquency, crime, and immorality; human ecologists only added fuel to the fire by quantifying these tendencies. In 1920s Chicago, the poorest areas of the city were adjacent to the inner city industrial and manufacturing districts, while the richest were those located in rail and streetcar suburbs, a good distance from the industrial city center. Chicago's ethnocultural groups (mainly Italian, Chinese, and African American) lived in the "workingmen's zone", and their movement over time likely inspired Burgess' ecological model of assimilation (below). A key assumption of the model is that the periphery was a more desirable area to live, since only the elite could afford to live there. It was assumed that the middle and lower classes would have the same aspirations.

Although widely dismissed as too simplistic, the concentric model is often referenced in current research, indicating its remarkable endurance. Homer Hoyt criticized the model in 1939 in his development of the sectoral model. Only a decade after Burgess' model was introduced, manufacturing and industrial land uses had begun to move outward from the center. Hoyt argued that the relocation of industry to the periphery of Chicago and other cities directly influenced the location of workers' housing, as did growing car ownership and mobility. The highest land values, and highest rents, were not always located in the city center, where downfiltering of elite housing to lower classes occurred in an uneven pattern.

3.1.2 The assimilation model

Burgess' assimilation model (1925) states that the rising socioeconomic status of a group leads to its progressive spatial assimilation. Initially, if the social distance between an incoming migrant group and the native-born is great, the neighbourhood gradually becomes host to more migrants than native-born. The neighbourhood becomes a migrant enclave, and if immigration continues, other areas are incorporated into the enclave by succession. But over time, acculturation and socioeconomic mobility reduce the social distance between a migrant group and the majority of the population, so that the entry of a migrant group into native-born neighbourhoods no longer sparks residential succession (Massey and Bitterman 1985). This method of explaining immigrant assimilation is clearly tied to Burgess' concentric conception of the industrial city: assimilation into the native-born neighbourhoods happened as one moved outwards towards the edges of the city, where the most desirable and expensive housing was located. The model is directly linked to the fastest transportation options available at the time: streetcars and railways. These enabled the most elite suburbs to locate the furthest from industrial city centers.

The impact that increased automobile use and decentralizing highways had on the concentric model was noted as early as 1939.

3.1.3 The sectoral model

Homer Hoyt (1939) proposed a more complex model during his research of 142 American cities for the Federal Housing Administration. Using census data, aerial photos, insurance records, city histories and historical records, Hoyt refuted the concentric model:

> It is clearly apparent that the concentric circle theory of city structure is defective…In none of the cities does the high rent area occupy more than one quarter of the concentric circle on the periphery of the city…in every city the low rent character is extended from the center to the periphery in one or more sectors of the city. (1939, p76)

Hoyt showed that the unique topography and transportation of each city, its rate of growth, social and class composition created much richer patterns of land use than the concentric model could explain. He argued that cities experienced axial growth along main roads and railway lines, central growth in interstitial areas, and the development of isolated nuclei on the periphery enabled by rail or automobile travel. Some cities experienced all three forms of growth, while in other cities one type would predominate. As Hoyt was primarily concerned with the location and movement of high-rent areas, he used these to develop a theory of sectoral growth. He found that over time, the high-rent areas moved outwards from the city center in a sectoral pattern along the fastest transportation lines, towards higher ground that was safe from flooding, non-industrial waterfronts, and the residences of city leaders. Banks, stores, and office buildings followed the high-rent districts. Commercial growth proceeded along main roads from the central business district, at the convergence of two main roads or suburban rail lines, at subway or railway stations. Isolated neighbourhood stores, or clusters of stores on thinly traveled arterials, were also present. Industrial growth was increasingly at the city's periphery along belt railway lines, where large one-story buildings could be easily built at low cost and low tax rates.

Hoyt also noticed rapid rent transitions between high-and low-rent areas in many cities, often linked to differences in ethnicity:

> There was a more rapid [rent] transition in northern and Midwestern industrial cities that attract unskilled immigrants from other countries or Negroes [sic] from the South than in southern or western cities where the added population was largely of the same race and nationality as the first residents. (1939, 88)

He acknowledged that African Americans were remarkably segregated in many of the cities he studied, often living in the oldest structures in the poorest condition, and in the lowest areas of the city. However, he did not discuss housing market discrimination or racism as factors, as the Federal Housing Administration was relatively unconcerned with the concentration or movement of poorer households in the process of urban growth. They were however, concerned with the identification of poor neighbourhoods for the purposes of mortgage risk assessment and urban renewal projects in the decades after Hoyt's study was completed.

Context Specific: Immigrant Housing and Transportation Choices in Toronto

Hoyt's model is not commonly used in research on housing choice and settlement patterns. However, it may be the most applicable model of urban structure and urban growth in a study of the housing and transportation choices of immigrant groups. It acknowledges a number of barriers to the spatial assimilation of immigrant groups, such as the persistence of high-rent areas near natural features and rapid transit infrastructure, which will likely prove useful in the Toronto context.

3.1.4 The housing career model

The housing career model has perhaps influenced residential location more than any other, particularly during the postwar years when the Federal Housing Administration (US) and Canada Mortgage and Housing Corporation (CMHC) had such a profound influence on urban structure and growth. Home ownership is considered to be more stable and socially acceptable than renting, and there has been a substantial public and private influence on housing policies favouring home ownership since WWII. Since then, housing has also been considered a valuable consumer product, and a strong housing market has been perceived as aiding the economy, hence the reliance of researchers on the term "the ideal housing consumer" in their discussions of the model. It is believed that home ownership "plays a fundamental role in determining the social and economic well-being of families" (Haan 2005, 2191). The pressure to own a home in North America is constant, encouraging many to borrow beyond their means, as seen in the 2007 US subprime mortgage crisis and ensuing home foreclosures and economic meltdown. The crisis was in part created by the pressure from political leaders and economists to keep the economy buoyant after the September 11 attacks in 2001, after which lenders revised their mortgage lending requirements to allow high-risk individuals to purchase homes. Like the concentric model, the housing career model assumes constant growth for the foreseeable future.

The housing career model is based upon the idealized human life cycle, which includes pre-child, childbearing, childrearing and launching, post-child and later life stages. The idea of rational choice is implicit: families choose the most appropriate type of housing. The model is linear and progressive; families are assumed to move upward towards single-family home ownership and then to downsize when they are older. William Alonso emphasized the economic assumptions of housing choice in his classic text, *Location and Land Use: Toward a General Theory of Land Rent*:

> An individual who arrives in a city and wishes to buy some land to live upon will be faced with the double decision of how large a lot he should purchase and how close to the center of the city he should settle. In reality he would also consider the apparent character and racial composition of the neighbourhood, the quality of schools in the vicinity, and a thousand other factors. However, the individual in question is an "economic man", defined and simplified in a way such that we can handle the analysis of his decision making. He merely wishes to maximize his satisfaction by owning and consuming the goods he likes and avoiding those he dislikes. (1970, 18)

Haan admits that the concept of the "median housing consumer" is "somewhat limiting as a conceptual ideal-type" (2005, 2193). He writes that the housing career model may be somewhat outdated because today, we

have more diversity in life cycles (e.g. single parent families, couples without children). Nevertheless, the ideal of homeownership is implicit in most of the research surrounding immigrant and ethnocultural housing choice.

3.1.5 The spatial mismatch model

As Hoyt had noted decades earlier, John F. Kain (1969) confirmed that African Americans were remarkably segregated in many cities. In Kain's view, a major reason behind the segregation of African Americans was the increasing tendency of employers to locate in the suburbs, and the inability of African Americans to live in the suburbs because of housing market discrimination:

> Geographic limitations on the residential choices of non-whites insures that blacks can reach many jobs only by making time consuming and expensive journeys-to-work…Faced with these difficulties, they may accept low paying jobs near the ghetto or no job at all, choosing leisure and welfare as rational alternatives to low pay and poor working conditions. (1975, 27)

He summarized that "racial prejudice, deep rooted discriminatory practices, real and imagined fears by blacks, and subtle forms of collusive behaviour" were the principle causes of racial segregation in American cities (ibid, 35). Although Hoyt had hinted at this, Kain's work was one of the first to acknowledge housing market discrimination for African Americans and link it to decreased employment opportunities. Despite this analysis as unique to African Americans due to the systemic racism they face, Kain's concept of the "spatial mismatch" between poor inner city residents and suburban jobs has persisted, particularly in the American context (Deka 2003, Blumenberg 2006). The model seems to be used more in transportation research than housing research, but its legacy can be seen in the "HOPE VI: Moving to Opportunity" project. This national demonstration project, operated by the US Department of Housing and Urban Development since 1994, relocated inner city residents to the suburbs in an effort to improve their employment opportunities and decrease their exposure to crime and violence. Mittie Davis Jones (2008) described Cleveland, one of the cities participating in the project, as one of the most racially segregated cities in the US.

In direct contrast to this model is Wei Li's "ethnoburb" concept. The ethnoburb is a mix of residences and businesses that is dominated by people of various ethnicities. Modelled on older inner city ethnic neighbourhoods, ethnoburbs offer people the opportunity to live and work in the same area, meaning there is no spatial mismatch. The vast majority of Chinese ethnoburban residents in Los Angeles in Li's1990 study were white-collar workers, with low-paying manufacturing jobs playing a minor role (1998, 486).

One reason that the spatial mismatch model has persisted is that cities are now polycentric, with more than one employment center. With increased mobility, household members often live and work in different areas of the city, creating longer travel distances and a mode shift favouring the car over walking, cycling, or public transit. In this context, spatial mismatch no longer has an ethnic connotation; women, those with the highest incomes, and those with professional or managerial jobs tend to travel the furthest (Kwan 1999, Shearmur 2006).

Context Specific: Immigrant Housing and Transportation Choices in Toronto

3.1.6 Application of the five classic models to Canadian cities

These five models of urban residential structure and growth are alternately accepted and refuted by current housing researchers. The concentric, assimilation, housing career, and spatial mismatch models continue to exert a lasting influence on our understanding of cities and housing choice. The sectoral model, as noted earlier, is not usually referenced in the current research. Often, researchers treat the models as fact rather than theory. These assumptions are dangerous, particularly in the adoption of American models to the Canadian context.

Today's postindustrial cities show the complete opposite of Burgess' concentric model: the manufacturing and industrial land uses are located on the periphery, retail and commercial uses are scattered in different areas rather than in the core, and residential rents are often highest in the core. In David Hulchanski's examination of income disparity in Toronto from 1970-2000, the inner city neighbourhoods were found to have the greatest increases in income over the thirty-year period, while the outer-most ring of suburbs had the greatest decreases in income. He wrote that postwar suburban housing in Toronto "has a 30-year history of abandonment by people who have a choice." (2007, 9).

Burgess' assumption that immigrant groups could, and would, assimilate into North American (White) society is problematic on many levels. First, during the Chicago School era, African Americans were still considered a separate "race". In the 1920s, African Americans showed very clear patterns of segregation due to entrenched housing market discrimination, poverty, and racism; clearly they could not spatially or socially assimilate. However, as a "racial" group, and not an immigrant group, Burgess did not seem to view the established segregation of African Americans as contradictory to the spatial assimilation model. This has major implications on our expectations of the model in today's increasingly diverse cities.

The groups considered socially farthest from the native-born in 1920s Chicago were Chinese and Mexican immigrants, followed by Italians and Eastern Europeans (Hoyt 1939). Although these groups sometimes moved further out into better quality housing, they often remained spatially segregated in Chicago, indicating that the social distance between them and the native-born population was still great. The perception of Italian, Czechoslovakian, Polish and Jewish immigrants as non-white was prevalent until at least the late 1960s: Murdie noted in 1969 that Toronto's Italian immigrants were an easily recognizable group because of their physical appearance (1969, 4). Today, the most segregated ethnocultural groups in Canadian cities are Jewish, Italian, and Chinese (Walks and Bourne, 2006). Sizable Jewish and Chinese populations have existed in Canada for almost a century, while the first phase of growth for the Italian population was sixty years ago. However, historical attitudes towards these three immigrant groups in Toronto confirm that racism and housing market discrimination prevented these groups from assimilating. The persistence of ethnic neighbourhoods in many cases shows that the social distance between immigrants and the native-born does not decrease over time.

Burgess assumed that assimilation into the native-born population was a natural goal of immigrant groups, and would occur with socioeconomic mobility. However, the Jewish, Italian, and Chinese groups have high levels of socioeconomic mobility, as shown by their high homeownership rates across Canada, yet they do not necessarily choose to live among the native-born (Balakrishnan and Wu 1992).

The assimilation model is even more difficult to apply now that immigrants come from such diverse countries. Since 1966, when Canada's Immigration Act began to allow entry to citizens of non-European countries, there has been a steady growth in immigrants who are classified as visible minorities (persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour). The majority of immigrants to Canada now come from Asia. Canadian policy and Canadian society have encouraged the integration and acculturation of new immigrants, rather than their assimilation, since 1971 when the multiculturalism policy was adopted. Hiebert and Ley (2003) describe the political shift from admitting immigrants who were able and willing to assimilate to the language, cultural norms and political structures of Anglo-French Canada in the early part of the 20th century. While multiculturalism "marked an official departure from the expectation of cultural conformity, or assimilation, and instead reinterpreted diversity as a defining ingredient of Canadian identity" (ibid, 17) there is still considerable debate whether new immigrants are able to integrate, or acculturate, which implies the formation of a new identity that combines both the existing and new cultures. As housing choice and spatial settlement research indicates, many ethnic groups remain segregated while others show a more dispersed pattern. The introduction of family class immigration in the 1970s likely influenced this pattern, as immigrants who had entered the country as economic class were finally allowed to sponsor family members who would presumably live near them, if not in the same household. Because Burgess' model was not developed at a time when there was a significant influx of non-white immigrants, he could not have foreseen the difficulties in assimilation for these groups or the possible desire of immigrant groups to live in neighbourhoods with their co-ethnics.

The sectoral model may be more useful in understanding housing and transportation choice in Toronto. It acknowledges irregularities in urban structure and growth that affect immigrants, such as persistent high-rent areas in the inner city and the concentration of rental housing in specific neighbourhoods. Social influence and the market image of new condominium and suburban developments continue to play a role in housing choice, as they did in Hoyt's era. Logan (1976) pointed out that fragmentation of local governments is also a factor in growing suburban regions because it has created more competition between suburbs, which affects where businesses choose to locate. Suburban municipalities are constantly trying to attract businesses, which "add substantially to taxable property value without raising school enrollments, as long as employees tend to find homes in other communities." (ibid, 337) The impacts on residents vary according to their social class and tenure: lower-income residents, especially renters, suffer under increasing housing costs while higher-income homeowners benefit from increased property values.

The housing career model, which reflects postwar economic objectives, also has limited applicability to immigrant populations in Canadian cities. The recent sub-prime mortgage crisis in the US illustrates some of the problems with the housing career model, particularly pressuring low-income families to borrow beyond their capacities. Three groups that have been hardest hit by this crisis have been African Americans, Hispanic Americans and immigrants to the US. Another recent trend is that of urban condominium development, which impacts the availability of affordable homeownership opportunities in Canada's inner cities. Changing demographic trends have also taken their toll, with increased single-parent, single-person, and retired couple households requiring smaller units in many cities. Despite these issues, the model is used to make housing forecasts in official documents such as the Toronto Official Plan (2006, 4):

Context Specific: Immigrant Housing and Transportation Choices in Toronto

The underlying assertion is that these occupancy rates reflect decisions about the choice of dwelling by people in a particular stage in their lives, as reflected by their age….The assumption is that these occupancy rates are propensities i.e. "intense natural inclinations or preferences" for different types of housing.

The Plan does qualify that "If economic times are tough and choices are limited, the occupancy rates will tend to reflect the existing stock rather than the preferences of the occupants." (ibid, 5)

A twist on the housing career model is housing trajectory, which includes life cycle stages as well as other factors such as occupation, income, and ethnocultural background. These factors intersect with each other over time and differently affect patterns of housing consumption. Murdie et al (1999, 9) define housing trajectory as "the social mobility of the individual or household over its life course in a particular society." Housing trajectory is a more useful notion than housing career when considering immigrant settlement patterns for several reasons. Although immigrant families may be in the childrearing and launching stage of the life cycle, they may not be able to afford owner-occupied dwellings. Housing discrimination may be a factor, particularly for visible minorities. Household size may also influence the ability of new immigrants to find suitable housing, particularly rental or social housing, as the majority of units are one- or two-bedroom units. The housing trajectory model considers all these factors and acknowledges that people may move sideways and downwards, rather than progressively upwards, in terms of housing career. It is less driven by the idea of rational consumer choice.

Kain's spatial mismatch model has limited applicability to Canadian cities, where large black populations simply do not exist in our inner cities. Because of the absence of slavery and entrenched housing market discrimination towards blacks, our inner city neighbourhoods did not suffer the historic disinvestment that occurred in the United States during the 1940s and 1950s. This is not to imply that every neighbourhood in every Canadian city has equal levels of unemployment or labour market participation, or that some demographic groups may not have difficulty accessing affordable housing. However, there do not seem to be any indications that spatial mismatch is happening in Canadian cities.

Finally, the acceptance of these models as standards by which to measure our cities' growth leads us to serious questions about urban sprawl and sustainable lifestyle choices. The acceptance of the concentric model implies that cities will continue to grow endlessly into agricultural land or natural areas, rather than increasing in density. The principles of spatial assimilation and the relentless push towards homeownership put tremendous strain on our metropolitan areas, as new space for single-family housing must continually be found, usually on the periphery. New immigrants are inundated with information and societal pressure to own housing, from both their own social networks and from Canadian society, although we do not have the ability to deduct mortgage interest from our tax returns as do Americans. The predominance of new single-family housing in suburban areas, and the lack of affordable rental or public housing options in city centers, significantly influences the ability of immigrants to make sustainable choices. The location of employment opportunities in suburban areas also may have a major impact on housing choice. Unsustainable housing choice leads to unsustainable transportation choice, as the purchase of one or two cars becomes necessary in areas poorly served by public transit. In short, the inability of these

models to reflect changes in the housing market (the recent trend towards inner city condominium ownership, decreasing homeownership among several demographic groups), immigration policy, and social trends (more environmental awareness, ethnocultural preferences, willingness of households to purchase more than one car) may limit their applicability in an era of climate change.

Despite the seemingly limited application of these classic models to Canadian cities, they continue to play an important role in research and policy concerning immigrant housing choice and settlement patterns in Canada.

3.2 Transportation models

While housing and transportation have traditionally been studied separately, the five classic models of urban structure and growth illustrate the close relationship between housing and transportation choice. The concentric and assimilation models (Burgess 1925) reflect both the location of lower rent districts in inner city neighbourhoods close to manufacturing and industrial land uses, and elite rail and streetcar suburbs on the city's periphery, two patterns that were evident in 1920s Chicago. In his development of the sectoral model, Hoyt (1939) argued that cities experience axial growth along main roads and railway lines, central growth in interstitial areas, and the development of isolated nuclei on the periphery enabled by rail or automobile travel. Hoyt's model is therefore particularly applicable in the postwar decades of expanding highway infrastructure and car ownership. The housing career model (Haan 2005) reflects not only the age-old aspiration of the upper classes to live in the countryside on large estates, but their ability to own land and to commute into the city by rail, or later by highway, when needed. At the height of the postwar housing boom, the middle class could also buy homes in suburban areas accessible by newly-constructed highways. The economic links between highway building and suburban housing developments are deeply significant in the creation of a distinct, dispersed urban form. The spatial mismatch model (Kain 1968) was developed after widespread suburbanization and highway construction left car-less inner city residents, many of them poor African Americans, without access to suburban jobs.

Transportation models differ from the models of urban structure and growth. Generally, they are not only constructed to help understand patterns or trends, but also to use in mathematical predictions. That is, they are not only models, but methods as well: they have been profoundly effective in shaping a policy and research paradigm. Like the spatial assimilation and housing career models, transportation models are strongly influenced by Enlightenment rationality and Keynesian economics. Aggregate transportation models became the methods of choice for transportation authorities after WWII; before this time, streetcar and rail companies were private companies that financed their lines by selling adjacent land. The models fall into two categories: aggregate and disaggregate. Aggregate models are the first generation of models, using use large data sets, including estimated variables, to explain and predict travel flows within regional zones. They have been used since the 1950s by state agencies and transportation authorities in transportation decision making. However, since the 1970s, they have been supplemented by disaggregate models as well as qualitative methods. Disaggregate models represent the second generation of models, those that use household-level or individual-level data and focus more on transportation choice. They tend to be used more by academic researchers than state or transportation authorities, but this has changed in recent years. Both types of model seem to do a better job describing travel behaviour than explaining it: most models explain only 20 to 30 percent of travel behaviour or mode choice.

Context Specific: Immigrant Housing and Transportation Choices in Toronto

Because aggregate models have been used to justify the construction of major infrastructure that has altered urban form, they tell us a considerable amount about the transportation planning paradigm. Aggregate models are as influential on transportation research, decision making and infrastructure as urban structure and growth models are on housing research.

3.2.1 Aggregate models

Aggregate models are concerned with large-scale movement of people across metropolitan areas, largely for the purposes of justifying transportation infrastructure investments or service improvements. Using massive amounts of data and sophisticated quantitative methods, they tend to focus more on efficient movement of passengers rather than social or environmental issues.

Aggregate models use factors such as age and income in their calculations of zonal travel flows: traffic from one major area of the region to another. Because they focus on large-scale flows, the models themselves do not tell us much about transportation choice. These models were developed during the 1950s to help predict travel demand. The term 'travel demand' implies that all consumers of travel have freely chosen one possibility over all others, which in turn suggests that the observed pattern of trips represents the best possible set of actions that individuals could have taken given their preferences and the spatial structure of the city (Shepperd 1995). This utility maximizing approach was crucial in the postwar development of our cities for several reasons.

First, work trips were assumed to originate in suburban residential areas and end in the central city; studies conducted in the early 1950s identified commuting as the largest proportion of trips. Work trips were associated with peaking problems, as most people worked a routine eight-hour workday; peaks occurred in the morning and evening as people arrived and left workplaces, and the convention was to plan for the peak times, assuming the transportation system could then easily accommodate trips for other purposes. Early models grouped work trips according to large zones of origin and destination, discounting the variations between population groups. Many municipal governments advocated highways to bring people into their central business districts more efficiently.

Second, because the models showed how efficient highways were in moving large amounts of traffic, and highway construction would generate much-needed jobs, they were adopted wholeheartedly. In the US, a substantial amount of funding was made available for the Interstate Highway System under the Federal-Aid Highway Act (1916) and the Interstate Highway Act (1956). This meant that highways could be built with public money, while streetcar lines remained privately financed. As car ownership grew and people became more mobile, streetcar companies could no longer sell land adjacent to new lines. As streetcar companies began to collapse due to lack of funding, newly-formed public transportation authorities bought many of them. With highway and public transit infrastructure competing for the same funding, many governments decided to invest more heavily in highways, and to convert streetcar service to motorized bus service. This loss of mid-scale transportation choice is the source of much of the "spatial mismatch" occurring in American cities today. Highways became the infrastructure of choice in an era of rapid municipal growth and construction, making them the dominant spatial generator of growth in many North American cities. Pas (1995) argues that the early methods were developed during an era when highway planning was the major concern, car ownership was increasing rapidly and national and monetary resources seemed abundant, so the technical procedures that became institutionalized were oriented almost

exclusively toward analysis of long-term, capital-intensive projects, particularly highways. Leinbach (2004, 38) writes that "more than any measure, the 1956 Interstate Highway Act created the decentralized, automobile-dependent metropolis we know today."

Third, aggregate models paid little attention to land use and did not account for induced demand (the increased demand completed highways generate) or non-work trips. They also undercounted short trips predominantly made by walking or cycling, meaning that many trips made by inner city residents and suburban women were undercounted because they often did not have access to cars and made shorter trips. Hanson and Pratt (1988) also suggest that the data did not reflect the working trips of non-white women, who participated more fully in the labour market. The urban transportation model system (UTMS), which is used to predict travel flows based on trip length, trip destination, mode choice, and route choice, is an example of an aggregate model that is still used today. UTMS requires only estimates of residential population and employment levels in each zone, based on "the simplistic home-work links fossilized in the urban models of the 1950s and 1960s" (ibid, 303). Although early aggregate models claimed to be rational, they were in fact biased towards highway infrastructure at the expense of transit, cycling, and walking infrastructure. As Pas (1995, 73) notes, "even mathematical models of travel and related behaviour implicitly employ subjective judgments and reflect particular perspectives on human behaviour."

Finally, aggregate models ignored the social and environmental effects of transportation infrastructure on neighbourhoods. Because of the simplifications necessary in the operationalization of aggregate models, transportation infrastructure carries with it a strong undercurrent of social exclusion, which is important in a study of immigrant housing and transportation choices. Early models reflected the views of the middle and upper classes in the 1950s: inner cities were no longer a place to live, only to work. Generally, transportation infrastructure has provided the upper and middle classes access to more exclusive housing far from industrial inner cities: first with heavy rail lines in the late 1800s, then with streetcar suburbs, which proliferated in the 1920s and 1930s. Muller (1995, 36) writes that the wealthiest suburban corridors in many American cities, built around heavy rail lines, resisted streetcars to prevent middle-class incursion. Finally, from the 1950s to 1970s, highways enabled the upper and middle classes to live in exclusive car-dependent suburbs. The postwar economic situation also encouraged the rapid development of suburban housing, enabled by the construction of the Interstate System, the largest public works project in history. The significant economic gains from both housing and highway construction have been important catalysts for urban growth and change. The early models, then, built on Burgess' concentric model and proved Hoyt's observations on sectoral growth. A firm belief in the housing career model also underpins models like the UTMS, as future residential growth was expected to happen in areas with single-family detached housing, creating transportation demand.

These trends in transportation infrastructure have had serious effects on the social geography of our cities. Hanson (1995, 25) maintains that "the politics of urban transportation often has a distinct geographic dimension" because every transportation-related decision creates both winners and losers. The winners in the American context, typically suburban whites living in single-earner households, have access to the quickest mode of transportation without seeing any of the environmental or social impact. The losers, typically inner city minority residents, must be content with the slower modes, and are only too aware of the displacement and destruction

of neighbourhoods. Transportation infrastructure, following Hoyt's sectoral model, began to simultaneously act as a barrier to immigrant and ethnocultural spatial assimilation and a stimulus for the growth of suburban white enclaves. Many authors agree that aggregate models "overgeneralized the white middle class experience" (Hanson and Pratt 1988, 302), resulting in the destruction and disinvestment of inner city neighbourhoods, many of which were predominantly poor and non-white.

When massive public protests in American cities prompted a reevaluation of transportation models in the 1960s, new models were developed that introduced travel time estimates based upon household characteristics, the number of residents in a zone, and land use mix. By the 1970s, aggregate models did not seem to be accurately predicting transportation flows. The growing dual-income family type posed a considerable barrier to accurate travel demand prediction, and engineers and planners began to question the effects that highway expansion had upon urban form and urban growth. Ironically, rather than bringing workers into the inner city, highways played a major role in urban decentralization: businesses increasingly located near highway exchanges and peripheral "beltways" became "the Main Streets of postwar suburbia" (Leinbach 2004, 38). This trend shows some sign of change: in both the US and Canada, the number of Vehicle Miles Travelled (VMT) decreased substantially in 2008 due to the high price of gas, as it did during the 1974 oil crisis. Suburban housing prices are at record lows and suburban shopping malls are seeing less traffic.

Aggregate models tend to be used at the state and transportation authorities to evaluate transportation infrastructure options and aid in decision-making. The models require massive amounts of data in order to make travel predictions, some of which must be collected and some of which must be estimated, at a considerable cost. Transportation researchers in academic institutions, for the most part, must use disaggregate methods because they are easier to operationalize and fund. Disaggregate models or theories, developed in the 1970s in the US, also represent a shift in transportation planning away from engineering and toward the social sciences, particularly psychology and geography.

3.2.2 Disaggregate models

Disaggregate models try to understand travel behaviour, particularly choice and attitudes, rather than simply describing and predicting travel patterns. They tend to be smaller scale studies focusing on specific factors influencing choice such as car ownership, housing tenure, household composition, or built environment factors. Studies using disaggregate models tend to use household-level or individual-level data, rather than concentrating on major traffic flows from one zone of the city to another. In recent years, built environment factors such as the quality of pedestrian and cycling infrastructure, the distance to shops and services, and the location of work places, have been shown to impact mode choice (Frumkin et al. 2004, Cervero and Kockelman, 1997). Commonly used disaggregate methods include travel surveys, travel diaries, regression analysis, multinomial logit models, and most recently, activity models. The vast majority of transportation research still relies upon quantitative models, reflecting the economic roots of transportation planning. However, some researchers integrate interviewing, focus groups, and other qualitative methods in mixed-methods approaches or for exploratory research. It is widely acknowledged that transportation patterns are complex, and often require mixed methods approaches.

Travel surveys and diaries are used to create databases specializing in individual or household transportation patterns. They typically involve participants recording their travel patterns for a given day or series of days, such as a weekend. They may also focus in on specific population groups, such as low-income women or seniors, in an effort to identify transportation barriers or develop customized services. The travel patterns can include the purpose of travel, length of trip, transportation mode, origin and destination. Participants are usually randomly selected, and these studies can be either large (at the national level) or small (at the neighbourhood level). The resulting databases represent a rich data source to be used in a myriad of mathematical models, including multinomial logit models and activity models. They are also used in simple regression analysis to relate individual or household travel patterns to socioeconomic characteristics, such as education, income, or household size.

Multinomial logit models generalize logistic regression, allowing for more than two discrete outcomes. The method is useful in cases where the dependent variable cannot be ordered in any way, for example when trying to determine what factors influence transportation choice. The model assumes that the dependent variable cannot be perfectly predicted by the independent variables for any one case. Because it allows an investigation into complex behaviour and choice, logit models are increasingly used in transportation research.

Activity models try to analyze where and when people participate in various household or leisure activities. They can use three-dimensional visualization to uncover these patterns (Kwan, 1999) and are particularly useful in the analysis of non-work travel patterns, which tend to be more complex than commute patterns. These are the newest generation of transportation model and are currently in active development. These models are usually used in studies that focus upon non-work travel, which contributes a much larger share of trips per day than the work commute. They are also used in studies focusing on gender inequities in transportation.

Most of the models used in disaggregate research are quantitative in nature and use randomly selected individuals or households. Major advances in this type of research typically come through refinement of the mathematical models rather than reinvestigations of their theoretical origins. Researchers, then, accept the concept of rational choice in travel demand, which likely impacts their effectiveness in making travel predictions; people rarely make completely rational decisions.

3.2.3 Examining Canadian cities through transportation models

Transportation has played a major role in the planning of Canadian cities, and is intrinsically linked to structural changes and the distinct urban forms of inner city, suburb and exurb. In particularly, railways and highways have been significant transportation modes in the settlement of Canada by waves of new immigrants. The early aggregate transportation models had a delayed effect on transportation infrastructure in Canadian cities during the 1950s and 1960s. Canada never passed a national transportation act or highway act, which meant there was less money devoted to highway construction. Instead, while the American Federal Highway Administration was busy building interstates in the postwar decades, Canada's largest cities were moving in another direction. Record numbers of highrise rental apartments were constructed in many cities in the 1950s to meet postwar housing needs. The Yonge subway line opened in 1954; the Bloor Line in 1963. Montreal's Metro opened in

Context Specific: Immigrant Housing and Transportation Choices in Toronto

1966 just in time for Expo 67. Medicare was adopted in 1961. GO Train, the country's first commuter rail service, was started in 1967 in the Metro Toronto area.

Murdie's factor analysis of Metropolitan Toronto (1969) illustrated the interconnectivity of transportation, urban structure and growth in the formation of the earliest Jewish and Italian neighbourhoods. These were in the industrial port area and the west side of downtown where the majority of industrial land was located. Because of the major increase in rental apartments in the 1950s and 1960s, living in the city centre was relatively affordable. As the city sprawled outwards, many ethnic neighbourhoods developed along streetcar lines in Toronto, including the Portuguese neighbourhood in Kensington Market (Spadina, Dundas, and College lines), the Greek neighbourhood on Danforth Avenue (later also served by the Bloor subway line) and Little India (Coxwell and Gerrard lines). Rapid transit in Toronto significantly shaped and intensified development, especially in the Yonge Street corridor (Knight and Trygg, 1977). A number of pro-development public policies helped:

- Aggressive marketing of air rights and available excess land parcels by the TTC
- Allowance of liberal floor area ratios
- Density bonus around stations
- City zoning classification changes in certain districts, notably near transit stations, to permit higher density development
- Lack of income deductions for mortgage interests, an important encouragement to suburban living

The Toronto governmental structure, which in 1954 was changed to a two-tiered regional form with a metropolitan authority responsible for regional functions and five municipal subunits to deal with local concerns, also had considerable effects on land development and transportation. Metro Toronto exerted a substantial influence on land development through its authority over regional transportation and the coordination of land uses among the boroughs.

By the 1970s, however, Canada had converted all but one of its streetcar systems to buses; in a landmark decision in 1972, Toronto's streetcar lines were retained. In Toronto, the 1970s saw the construction of Highway 401 on the north, the Gardiner Expressway on the south, Highway 400 on the west and Don Valley Parkway on the east of the city. Rapid suburbanization occurred, with new land open for development. Luckily, downtown was spared: the Spadina Expressway, proposed in 1971 as the first in a series of highways that would destroy many downtown neighbourhoods, was vehemently opposed by the working class community it threatened. The Allen Expressway, a short portion of which was constructed, stands as testimony of the successful public fight against downtown highway infrastructure projects. Even in the late 1970s, there were significant differences between Toronto and American cities, as Knight and Trygg (1977, 239) noted:

> A strong middle-class element has tended to remain in the city's older, inner areas. This may have been reinforced by the provision of a modern downtown-oriented short-line transit system before expressways were built; the very heavy postwar immigration of Europeans accustomed to urban apartment life certainly aided as well. Finally, there is no significant racial problem in Toronto; there has been no discriminatory

treatment of any racial group. This may contribute to the fact that crime is generally low and both urban and suburban areas are considered safe places to live.

In Vancouver, Italian and Greek neighbourhoods grew around Commercial Drive. Streets like 4th Avenue in Kitsilano reflected a variety of ethnocultural groups. Because these were multi-use neighbourhoods were people lived and worked, access to public transit aided was crucial in the establishment of small ethnic stops and services. Transportation and structural changes in the 1970s changed this pattern drastically: as highways were constructed in the 1970s, housing and employment moved into the suburbs. Hogan's Alley, Vancouver's only black community, was demolished in 1970 to make way for the Georgia Viaduct, which was to be the first in a series of planned highways. The mobilization of the Strathcona community prevented the rest of the Vancouver expressway plan from being built.

Aggregate models have also helped shape recent public transit projects such as the Canada Line in Vancouver and the Sheppard Subway Extension in Toronto. Traditional models such as the UTMS have been supplemented by a range of qualitative methods, such as focus groups, interviewing and direct observation, in many regional transportation authorities. However, funding decisions still tend to rely upon quantitative data produced by aggregate models. The role of politics in decision making falls outside of the models; political fragmentation has been crucial in transportation infrastructure decisions in Canadian cities. Municipalities are dependent upon Provincial and Federal funding to build major infrastructure. The Toronto Transit Commission has been unable to extend streetcar lines or develop much in the way of Light Rapid Transit in the City for years, and there have been significant problems maintaining the existing streetcar lines. This situation finally changed upon adoption of the Transit City Plan, which was approved and funded by the Province of Ontario in 2006. In the Vancouver case, the location of transportation infrastructure has been strongly tied to Provincial agendas, as seen in the Expo and Canada SkyTrain Lines, which were funded by the Province and Federal governments in preparation for Expo 86 and the 2010 Olympics respectively. In both cities, growth has been increasingly driven by rapid transit infrastructure; Hulchanski's 2007 study shows the remarkable income and tenure shift along the Toronto subway lines.

While aggregate models give us an understanding of the major urban structure and growth of Canadian cities in the postwar era, disaggregate models will be more useful in understanding the transportation choices of immigrants. The use of the five classic models of urban structure and urban growth is not common in transportation research, but is used quite liberally in the research dealing with housing choice and immigrant spatial settlement patterns.   The next section reviews this literature with a particular emphasis on methodological approaches.

4.0 Methodological approaches for questions of housing choice

Canadian research on housing choice among immigrant and ethnocultural groups tend to follow two methodological approaches to research on immigrant housing and settlement patterns:
- Identifying general housing, settlement and income trends of immigrants in Canadian cities
- Understanding the housing choices and settlement patterns of a specific immigrant or ethnocultural group

These two methodological approaches use very different methods: the first approach uses quantitative methods to uncover broad trends among major immigrant or ethnocultural categories. The second approach uses census data to hone in on housing choice and settlement patterns of specific ethnocultural groups, as well as interviews, focus groups, and participant observation with immigrants and immigrant service agencies. As outlined in the Terminology section, in many cases, there is no distinction drawn between the terms immigrant (foreign-born) and ethnocultural.

4.1 Research identifying general immigrant housing and settlement patterns

The first approach is motivated by the fact that immigrants do not seem to follow the same patterns as the Canadian-born in terms of home ownership and neighbourhood choice; in particular they do not follow the spatial assimilation or housing career models. The implicit assumption is that spatial assimilation and homeownership are desirable goals in a multicultural society; further, because the majority of new homes are built in the suburban areas of our cities, it is assumed that moving further out from inner city neighbourhoods is beneficial. Therefore, researchers seem concerned that immigrant groups do not follow the models. Canadian research in this area may have initially been motivated by the persistent segregation, housing and labour market discrimination faced by African American and Hispanic American populations in US cities. Considering our multicultural policy, the discovery of these problems in the Canadian immigrant population would have been significant enough to promote policy change. American research also considers issues of citizenship and illegal immigration much more than Canadian research. For example, Liu (2008) suggested that Latinos' tendency to be self employed in Latino enclaves may be exacerbated by citizenship status and the tendency for illegal immigrants to find and keep work though their social networks. Li (2008) found that citizenship status, income, and language isolation were the major factors that showed a positive effect on homeownership rates for Chinese Americans. The sub-prime mortgage crisis showed how vulnerable some ethnocultural groups are in the US, and how some struggle significantly to achieve homeownership.

Because the segregation of certain groups in the American context has been linked to decreased labour market participation and other inequities, Canadian researchers are concerned that similar problems may exist in our cities. For example, Hou and Picot write:

> A growing body of literature in the US and Europe points to the negative consequences of living in deprived neighbourhoods on individuals' socio-economic mobility, health status, and criminal activity (2004, 13).

However, Ray and Bergeron argue that research about the distribution of groups across and within Canadian cities has "tended to emphasize the experiences of ethnic rather than "racial" groups, in part because of an absence of an entrenched history of black-white racial discrimination and enforced segregation found in urban America." (2004, 4) Several other Canadian researchers assert that differences in spatial distribution among ethnocultural groups do not necessarily signify inequity.

In addition to equity concerns, there is a strong economic focus to the work. The decreasing economic success of immigrants, as the major source of population growth in Canadian cities, contributes to unequal housing consumption and impedes the housing career of "the ideal housing consumer". As housing is a valuable consumer product in both Canada and the US, inequities in the housing market are seen as adversely affecting the economy. Economic crises in the mid-1940s, early 1970s, early 1990s, and 2007, and subsequent housing policy changes, have proven the importance of housing as a consumer product.

Canadian researchers rely upon factors that have long contributed to home ownership, such as age, income, and family characteristics provided by the census, using large datasets. Their methods include:
- Comparative data analysis
- Index of dissimilarity (measuring how dissimilar the spatial distributions of two groups of people are across an area)
- Index of segregation (measuring a group's concentration in a neighbourhood compared to the entire area)
- Factor analysis/factorial ecology (explaining urban structure using census data variables that contribute to economic status, family status, and ethnic status)

Researchers focusing on general trends in Canadian cities often use census data and large census ethnocultural categories, such as "South Asian" or "West European". Some research concentrates on visible minorities. Canadian researchers often focus on Toronto, Vancouver, and Montreal as the major immigrant-receiving cities. Because of the patterns of housing tenure in cities, these researchers often discover spatial patterns in their studies.

4.1.1 Comparative data analysis

The most common research method used in research on immigrant housing choice and settlement patterns is simple data comparison. Since the Canadian Census has a wealth of information on ethnicity, mother tongue, and languages spoken, it enables researchers to easily compare different markers of well-being across many ethnocultural groups. These markers of well-being include concentration in specific census tracts, home ownership, income disparity, and labour market participation. Regression analysis is rarely conducted, so we know little about the factors that may influence people to live amongst co-ethnics. This research is more illustrative than inferential; it merely describes the patterns rather than exploring the reasons behind them. The index of segregation, index of dissimilarity, and location quotient are all advanced comparative methods, which will be discussed shortly.

Many researchers have noted the tendency of ethnocultural groups to live within proximity to members of their own group. Seventy years ago, Hoyt wrote:

> People of the same nationality tended to live together because of a desire for companionship with fellows of common background. Speaking different languages, inhabitants of those communities felt that they constituted a class different from earlier immigrants to our shores. Not until their children were educated in

Context Specific: Immigrant Housing and Transportation Choices in Toronto

our schools and grew up on the American environment did any great diffusion of nationalities occur (1939, 62).

Hoyt did not acknowledge interviewing members of these groups, yet he seemed to accept and believe in this "ethnic solidarity" factor in housing choice. The assumption that members of ethnocultural groups willingly choose to locate near co-ethnics has endured as a powerful concept in the current research (Walks and Bourne 2006; Balakrishnan and Wu 1992) although it has rarely been backed up by interviews, focus groups, or surveys with members of these groups. In some circles, this is known as the ethnic resources model, and American researchers suggest that immigrants may remain in inner city enclaves longer because of the local and ethnic-specific economic and cultural networks. Still, the assumption here is that ethnic concentration does not contribute to individual well-being. As Balakrishnan and Hou (1999, 201) write,

> To urban sociologists, the residential segregation of ethnic and racial groups in cities provides a measure of how well or poorly a group has integrated into society. The assumption is that a group isolated in a particular area is probably not participating fully in housing and labour markets. By living close to others of the same ethnic or racial background, social interaction increases within the group but interaction outside the group is reduced.

As segregation implies a lack of assimilation or integration into Canadian society, both spatially and culturally, it is of particular concern in a multicultural society.

Census data does reveal certain broad trends. For example, certain ethnic groups are more likely to congregate in specific neighbourhoods, such as Italians, Jews, Chinese, and South Asians (Balakrishnan and Wu 1992; Walks and Bourne 2006; Hou and Picot 2004). Balakrishnan and Wu acknowledged that cultural values towards homeownership could influence high homeownership rates among immigrants. Also, "It may be argued that, where the minority groups feel relative deprivation in social status, home ownership may be seen as an attempt to overcome it." (1992, 392) This agrees with Riger and Lavrakas (1981) who suggested that for a cohesive sense of community to exist, the conditions for oppression must prevail. Balakrishnan and Wu asserted that many ethnocultural groups who were culturally farther from the British and French and whose entry in to Canada was more recent had higher homeownership rates after controlling for other factors (ibid, 399). It is interesting to note that some of the first ethnic groups to settle in Canada (Jewish, Chinese, and Italian) are the most spatially segregated, but that all are well integrated in the housing and labour markets.

Many researchers have become concerned about falling rates of homeownership among immigrants. Until 1981, Canadian immigrants had a higher homeownership rate than the native-born population (Balakrishnan and Wu 1992). Haan's 2004 study of the declining home ownership advantage in immigrant households found that since 1981, immigrants have increasingly located in cities where home ownership is more difficult (Toronto and Vancouver). His analysis of census data revealed a growing income disparity between immigrants and the Canadian-born, in part because of the decreased participation of immigrants in the labour market due to devaluation and non-recognition of foreign credentials. Home ownership is now out of reach for many immigrants,

particularly in Toronto and Vancouver. However, Haan found that roughly two-thirds of changes in home ownership rates between immigrants and Canadian-born could not be explained using the rational choice model of the "ideal housing consumer" (ibid, 2208). He also found that several characteristics of immigrant families, such as their larger size and greater tendency to live in two-parent, two-child households, protected them from even further declines in homeownership.

Hulchanski's study of income disparities in the Toronto CMA found that the outermost suburbs had the largest percentage of foreign-born people (62% versus 32% in the inner city) and the largest families in the CMA (3.0 persons per household compared to 2.2 in the inner city) (2007, 7). This would seem to indicate higher homeownership rates. However, the outer suburbs also had the highest rate of rented dwellings (54% compared to 46% in the inner city) and the greatest proportion of households paying over 30% of their income towards rent (27% compared to 18% in the inner city). Structural changes have also led to an increased polarization of the workforce. Hulchanski found that while 25% of the Toronto CMA's blue collar jobs could be found in the outer suburbs, only 5% were located in the city center. On the other end of the spectrum, Hutton describes the growth of "creative, knowledge-based, and technology-intensive" industries that have located in old, deindustrialized city districts (2007, 90). These industries, such as architecture offices, graphic design firms, software design and multimedia imaging, have contributed to an increasingly skilled workforce in the city center. This in turn has led to a rapid increase in luxury condominiums and high-rent apartments catering to a more wealthy and skilled population. These changes in housing type and tenure have often occurred in the very inner city neighbourhoods that used to provide affordable rental housing.

Labour market participation impacts immigrants' ability to afford suitable housing and may offer us a window into discriminatory hiring practices and societal racism. Hiebert (2005) argues that because foreign credentials are not widely accepted, immigrants do not compete directly against the middle class, one reason that the political economy of immigration settlement in Canada is so different than in other countries. In Canada, immigration was redefined in the 1980s as being necessary to stave off demographic problems (due to a falling birth rate) and to keep the economy buoyant. As a result, Canadians view immigration as favourable; particularly, Hiebert argues, the group of people most likely to vote. Li (1998) argues that the rise of post-Fordism, deindustrialization of traditional manufacturing industries, rapid expansion of service-sector activities and the growth of multinational corporations had a major impact on the creation of "ethnoburbs" in Los Angeles.

The Labour Force Study, a monthly consumer study conducted by Statistics Canada, Citizenship and Immigration Canada, and Human Resources and Social Development Canada, provides a wealth of data on employment. Gilmore (2008) used this data to assess immigrants☐ labour force participation at three stages for Statistics Canada: very recent immigrants, who had landed between 2001 and 2006; recent immigrants, who had landed between 1996 and 2001; and established immigrants, who had been in Canada more than 10 years. Similar to the research on home ownership and spatial patterns, Gilmore compares immigrant groups to the native-born. Certain groups had very strong labour force participation, even higher than the Canadian-born (Southeast Asians, particularly Filipinos, and Caribbeans). Those born elsewhere in Asia (including the Middle East), Latin America, Europe and Africa all had higher unemployment rates in 2006 than their Canadian-born counterparts.

Context Specific: Immigrant Housing and Transportation Choices in Toronto

Immigrants born in Africa experienced difficulties in the labour market, regardless of when they had landed; very recent African-born immigrants had an unemployment rate of 20.8%, more than four times higher than that of the Canadian born. Montréal reported lower employment rates in 2006 for all residents compared with Toronto or Vancouver (Gilmore, 2008b). Of these three CMAs, Montréals immigrants had the most pronounced differences between their labour market outcomes and those of the Canadian born; those living in Toronto had the least. Gilmore does not offer any explanations for these differing rates, concluding:

> Cultural adjustments, language difficulties, social network struggles, Canadian work experience issues and credential recognition problems have been previously cited as reasons for immigrants' slower integration into the labour market. This pattern is not limited to Canada, as it is documented by the Organisation for Economic Co-operation and Development for many other countries as well (2008, 30).

Landed immigrants are more likely to have a university education than the Canadian born (37% versus 22%) (Gilmore and Le Petit 2008, 7).   However, almost one in five very recent immigrant university graduates (those who arrived in Canada less than five years ago) were attending school in Canada in 2007, even though they already had a university degree (ibid, 6). Employment opportunities increase with time of residence in Canada: for established immigrants (those who arrived in Canada more than ten years ago), labour market participation is almost identical to the Canadian-born (89.9% versus 90.7%) (ibid, 12).

Comparing census data for different ethnocultural groups or immigration periods reveals general patterns, but does not explain the differences between groups. When explanations are given, they tend to be structural, such as the lack of foreign credential recognition. They do not tend to be social or behavioural, perhaps reflecting assumptions of rational choice.

4.1.2 Index of segregation

The index of segregation measures the extent to which minority group members are exposed only to one another in their neighbourhood. It is expressed as a percentage from 0 to 100 (the higher the number, the more likely a minority group member would encounter members of their own group). For reasons that will be explained shortly, the use of this index has become problematic in an era of increased neighbourhood diversity. However, its prominence in the field of study, particularly in American cities, prompts researchers to use it in the interest of comparing their work to previous studies.

Hou and Picot (2004) used the index of segregation on Toronto, Montreal and Vancouver census data. They determined that there was an increase in the index from 1981-2001 for several groups, including the South Asian, Chinese, and Arab/West Asian groups in all three cities. However in this case, the increase was due to an increase in visible minorities' share of the city population, rather than their concentration in specific neighbourhoods. The researchers identified 254 "visible minority neighbourhoods", those with over 30% of their population from a particular ethnic group, in Canada's three largest cities. They found that neighbourhoods are generally becoming more diverse and that "visible minority neighbourhoods" are more likely to have higher

unemployment and lower income rates, most likely because of the declining economic outcomes of immigrants from 1981-2001. However,

> Concentration of a visible minority is most likely to occur in neighbourhoods with new housing developments and owner-occupied housing. Members of a visible minority group who arrive in large numbers may have a strong demand for home ownership, which can only be satisfied where housing is in plentiful supply. Group differences in housing demand and the spatial concentration of the supply of housing in a given period may influence the formation of visible minority neighbourhoods. (2004, 10)

Hou and Picot indicate their acceptance of the housing career model, writing that new immigrants could be restricted to poor neighbourhoods with affordable housing that becomes available as native-born families move to the next lifecycle stage. They suggest that residential segregation may also endure because of social distance, a preference for choosing neighbourhoods in the same ethnic group, or racism. Social distance has become apparent in several cities where conflicting claims of neighbourhood space are evident, particularly in terms of the physical design of houses, heritage controls that emphasize European forms, and residential controls that prohibit large extended families from living together (Hutton et al, 2001).

Walks and Bourne used the index of segregation to analyze the Chinese, South Asian, Black, Latin American, Lebanese/Arab/West Asian and Aboriginal populations in all 27 Canadian CMAs (2006). The four largest cities (Toronto, Vancouver, Montreal and Calgary) had the highest proportion of segregated neighbourhoods. The researchers developed a neighbourhood classification system to determine whether Canadian cities had ghettos, which they classified as census tracts with at least 70% visible minority residents, 66% from one singe ethnic group and at least 30% of ethnic group members living in such neighbourhoods. They found no ghettoes and not one black or Hispanic polarized neighbourhood (census tracts with at least 70% visible minority residents and 66% from one single ethnic group) in any Canadian CMA. However, the Chinese dominated three-quarters of all polarized tracts in Toronto and Vancouver, and South Asians were dominant in the remaining polarized tracts. These tracts show a marked spatial pattern, with the Chinese clustered in North Scarborough and West Markham and South Asians spread across the inner and outer suburbs in Toronto.

Walks and Bourne wrote that neighbourhood concentration of visible minority groups "violates traditional ecological models that see immigrants and ethnic groups integrating geographically as they assimilate culturally," (ibid, 276) and expressed "concern that previous processes of spatial assimilation might be breaking down, particularly if such neighbourhoods show declining incomes" (ibid, 286). This assumes that at one time, spatial assimilation was occurring. However, they also speculate that the concentration of visible minority neighbourhoods "is the end result of a cultural strategy of ethnic community formation." (ibid) For example, they found that residential segregation decreased from 1991-2001, but many visible minorities were moving into areas with high proportions of other visible minorities. Rather than a preference for living among co-ethnics, they linked this to housing affordability:

Context Specific: Immigrant Housing and Transportation Choices in Toronto

It is the distribution of low-rent apartment housing and increasing affordability problems among new immigrants, rather than the concentration of visible minority populations per se, that are most responsible for shaping the patterning of neighbourhood poverty, at least in the three largest CMAs. (ibid, 294)

Some researchers believe that there may actually be some positive aspects to living in close proximity to others of the same ethnicity or culture, such as cultural and language retention, social and financial support (Siemiatycki et al. 2001; Ley and Germain 2000). Harris (1984) wrote that segregation in Canadian industrial cities had led both to political quiescence, and paradoxically, class cohesion and mobilization. To add a further wrinkle to this discussion, Hiebert and Ley (2003) found that for European immigrants, higher rates of residential segregation and occupational segregation were correlated with higher individual incomes in the Vancouver CMA. They used census data from 1981-1991 to compare integration of various immigrant groups (twelve European origin groups and nine non-European origin groups). The non-European groups showed the exact opposite relationship: higher rates of residential segregation and occupational segregation were correlated with lower individual incomes. However, for these groups, larger family sizes meant more wage earners, raising household incomes enough to compensate for their segregation. Interestingly, residential segregation is higher for non-European immigrants but occupational segregation is almost identical for both groups. These findings raise serious questions about the benefits of integrating into Canadian society.

The use of the index of segregation seems to be problematic in Canadian cities because it treats a high index value as a signal of forced residential concentration. It does not account for increasing diversity in many municipalities, and does not seem to reveal general patterns for immigrants or ethnocultural groups. Hiebert and Ley (2003, 19) wrote that they were well aware of the criticisms of the method, including the tendency to view ethnic identities as essentialized, the implication that socially/spatially segregated groups are somehow at fault, and the outdated expectations of the assimilation model. They chose to "borrow the methods rather than the purpose of assimilationist research":

> …we employ in this study methods typically used by researchers who frame their work in an assimilationist perspective, such as segregation indices and other measures of social distance among groups. However, we do this not out of an expectation that assimilation is inevitable, nor perhaps even desirable, but to investigate the relationship between social isolation and socioeconomic exclusion. If Canadian society embraces multiculturalism but economic penalties exist for minority groups that maintain a social distance from the mainstream, then there is an unfortunate gap between rhetoric and reality.

In this case, and likely many others, the researchers use methods that are established in the field so that they can compare research results more easily.

4.1.3 Index of Dissimilarity

The Index of Dissimilarity is a demographic measure of evenness with which two groups are distributed across the component geographic areas that make up a larger area. It is measured from 0 to 1 (the higher the number, the more uneven the distribution of the two groups). The index score can also be interpreted as the percentage of

one of the two groups included in the calculation that would have to move to different geographic areas in order to produce a completely even distribution (the lower the percentage, the more even the distribution). It is particularly useful in situations where only two groups dominate the population, less so in cases of multiple groups. It is aspatial in the sense that it does not tell us where the groups are more or less concentrated, but simply the relative degree of separation in the entire area.

Balakrishnan and Hou (1999) used indices of dissimilarity to measure both residential and occupational segregation, with 13 ethnocultural groups and 16 occupational classifications from the census. Concentrating on the seven largest CMAs, they found that residential segregation remained relatively constant in Canada from 1981-1991, while occupational segregation decreased. They maintained that,

> Public policy concerns that spatial segregation of an ethnic group will result in relative deprivation in terms of socioeconomic integration may not always be valid in Canada. (1999, 216)

Ray and Bergeron (2006) argue that people in today's cities have a large degree of personal mobility, and potentially interact with people of different cultural and linguistic backgrounds on a daily basis, even if they live in more segregated residential areas. They write about the contradictions in Canadian society over the issue of ethnic concentration:

> Many media stories express concerns about perceptions of growing ethnic concentration in Canadian cities, and implicitly or explicitly suggest that spatial concentration leads to social fragmentation and limited opportunities for cross-cultural interaction. In contrast, other media stories celebrate the ethnocultural diversity of our cities and the opportunities that immigration provides for the population as a whole, whether cultural of economic (ibid, 3)

They analyzed new immigrants' residential and occupational trends in the Ottawa-Gatineau CMA using location quotients. This method compares the relative concentration of a particular group in a census tract to their concentration across the CMA, but does not compare their concentration to that of another group. They found that new immigrants tended to reside in most areas of the inner city and inner suburbs, often where there was a significant stock of rental housing. There was also a notable residential concentration in Kanata, a suburb with many high-tech industries. But the location quotients for place of work showed a more even distribution throughout the CMA.

These researchers assert that the spatial assimilation model is not a good barometer of how well or poorly a group has integrated into society; residential segregation does not necessarily imply inequity. While groups may live in areas with co-ethnics, they are not socially isolated or poorly integrated in the labour market.

4.1.4 Factor analysis

Murdie (1969) was the first to use factorial ecology in a Canadian context. Factorial ecology, or factor analysis, is a statistical method that allows the examination of complex factors shaped by structural change. The model allows

the researcher to explain urban structure and change using large data sets such as the Canadian census. Factor analysis allows researchers to use a large number of census variables and explain their variation with a number of factors, which are found using principles of matrix algebra. The first factor explains the majority of variation, the second factor explains less of the variation, and so on, with consecutive factors explaining less and less of the variation. Typically, three to six factors explain the vast majority of variation in the data. Murdie examined ecological change in three factors from 1951-1961 (economic status, family status, and ethnic/racial composition). These three factors had been proven to explain the majority of variation in urban structure and growth in many American cities in the 1950s.

Murdie's study was greatly influenced by the concentric and sectoral models of urban growth. He found that economic status moved outwards sectorally along transportation corridors; family status increased in a concentric pattern that was interrupted by swathes of apartments in the inner suburbs. Ethnic status followed a sectoral pattern as well, with the Italian population moving from the inner city in a northwest direction through the low economic status sector. The Jewish group moved north from the inner city to Forest Hill Village and North York Township through sectors of both high and low economic status. Murdie characterized the latter as "being consistent with the high economic mobility which is characteristic of many Jewish people." (ibid, 146) Murdie's study also pointed out two growing differences between Canadian and American cities in the 1950s. First, the vast increase in rental apartments in Toronto's inner suburbs during the 1950s, which was paralleled in other Canadian cities. And secondly, 1950s immigration levels were at their highest levels since 1900. These two factors greatly impacted the urban structure of Canadian cities and maintained the urban vitality of city centers at a time when US inner cities were losing population and becoming more ethnically and income-segregated.

Johnson (1970) agreed with many of Murdie's findings, writing that several studies using factor analysis identified the persistence of upper class suburbs adjacent to the inner city, such as Forest Hill and Rosedale. He believed the patterns seen in Toronto contradicted the concentric and assimilation models. Maher (1974) examined the filtering of housing stock in Toronto from 1953-1971. He found the greatest downfiltering in older housing to the east and west of the central business district, particularly those on smaller lots and less attractive environments. These areas had often experienced a shift in tenure from owning to renting. Maher found that the tracts west of the CBD did not experience as much downfiltering and suggested this might be explained by the fact that the area was "favoured by many of Toronto's ethnic minorities", which tended to keep house prices high (ibid, 116). This area has been popular with Italian, Polish, and other European immigrant groups. He also suggested that the loss of many single-family homes to rental apartments removed affordable homeownership opportunities in the 1950s and 1960s.

Although it is an American example, Wyly's factorial ecology of Minneapolis-St. Paul (1999) is a unique example of changing household and family structure that could apply to Canadian cities. He argues that increasing household diversity, widening income inequality and continued growth in female labour force participation have magnified the contradictions of American housing policy, which were previously partially concealed by women's unpaid domestic labour in the patriarchal nuclear family. The continued expansion of single-family homes propels demand for time and labour saving innovations that blur the boundaries between households and markets: the

term "public household" refers to this interdependency of markets and family life. In the process of mapping female labour force participation, non-family households, and childless couples from 1970-1990, he found that in 1970s the largest concentration of all three was found in the central city. However, non-family households were the only group that maintained this centrality in 1990; the highest female labour participation rates were in 2nd- and 3rd-ring suburbs and childless couples could be found in the inner city as well as suburbs, elite enclaves and resort settlements. His factor analysis revealed that the growing number of childless couples, which includes both young couples with lower incomes and older empty nesters needing to downsize, impacted housing demography. Suburban neighbourhoods were aging and had a higher rate of turnover. Occupational restructuring has resulted in sharper divisions between white-collar, blue-collar and clerical workers as well as part-time workers, who have a higher rate of poverty than full-time workers. He concludes,

> In retrospect, the sharp distinction between women's employment and "family-oriented" suburbs was a historical aberration, a product of massive city-to-suburb migration, increased marriage and fertility rates, and the sudden expansion of suburban homeownership opportunities. (ibid, 329)

Housing design, suburban growth and social policy have been slow to respond to demographic and household shifts, so the household remains the site of conflicts and struggles between the market and household concerns. The strength of the factor analysis method is its ability to reveal urban structure. If used over a period of time, it can reveal the movement of ethnocultural groups and draw attention to spatial barriers to integration, such as the persistence of high-rent areas.

4.1.5 Summary

In summary, the methodological approaches used in this body of research are more descriptive than inferential. They work at the largest scale of analysis, using broad ethnocultural categories and concentrating on Canada's largest and most diverse cities. There has been some focus on immigration period as effecting labour market participation, housing choice and settlement patterns. Other research has focused on large census ethnocultural categories, regardless of their date of immigration, in an attempt to uncover patterns of segregation, income disparity and deprivation. The use of the index of segregation has shown that Canadian cities, particularly the largest immigrant-receiving cities, are becoming much more diverse. This method must now be used with some caution as it measures the likelihood of a member of an ethnic group to encounter another member of the same group, a likelihood that is steadily growing in Canada's largest cities. The index of dissimilarity shows that while some immigrant groups may show spatial segregation, rates of occupational segregation have fallen. Factor analysis gives us an insight into the particular trends of ethnocultural groups as well as the unique urban structure of a city. For example, housing affordability would have been greater in earlier immigrant cohorts because there was a plethora of rental housing available in inner city neighbourhoods. As Vancouver, Toronto, and other large Canadian cities grew, suburban housing became available to the middle class. At the same time, inner city rental housing began to be converted to condominiums beginning in the 1980s, resulting in less affordable or downfiltered housing for new immigrants. Researchers identify 1981 as the Census year that showed decreasing homeownership rates for immigrants; since then, immigrants have been more likely to locate in the three largest cities with the highest housing prices. Some downfiltering of housing occurred in the 1970s as people moved

into the suburbs in both Toronto and Vancouver, and currently even the outer ring of housing in Toronto has downfiltered.

As many of the researchers attest, the use of large census categories may obscure the variety of settlement patterns and specific ethnocultural factors that impact homeownership rates and neighbourhood formation. In fact, the use of these quantitative methods has revealed no general patterns in Canadian cities; there is great variation in housing choice and spatial settlement patterns. In particular, there is no one ethnocultural group that shows rates of segregation or income disparity close to the African American and Hispanic groups in US cities. A few researchers have pointed out that residential segregation in Canadian cities cannot be considered a proxy for societal, labour market or housing discrimination. So using large data sets has not enabled researchers to create generalizable theories of the housing choices or spatial settlement patterns of immigrant groups.

Although most Canadian researchers refer to and in some cases rely upon them, the classic models of urban structure and growth do not seem to explain the general patterns of housing choice and settlement patterns among immigrants. The lack of affordable housing options in Canada's inner cities has created a very different pattern than Burgess' concentric model. The process of spatial assimilation does not seem to occur for many ethnocultural groups, particularly in Canada's four largest cities. The housing career model seems to apply to some groups, while others do not seem to progress along the linear lifecycle stages. The sectoral model, as applied to Toronto, indicated that ethnic status moved along both low- and high-rent sectors over time. The conspicuous absence of the spatial mismatch model in Canadian research, so prevalent in American housing and transportation research, may indicate that concerns of entrenched poverty and labour market discrimination are not valid in Canada. The realization that Canadian immigrants are not suffering from major societal or housing discrimination, despite the fact that they may not be spatially assimilating or progressing smoothly along the housing career model, seems to have freed researchers to concentrate more on the settlement process and ethnocultural preferences for certain neighbourhoods.

Major differences in spatial settlement patterns and homeownership rates have contributed to the idea that social and ethnocultural factors may in fact influence immigrant settlement patterns just as much as structural factors; this is the central premise of the second body of research. In order to address these issues, researchers have decreased their reliance on the indices of segregation and dissimilarity and factor analysis. They have instead turned to qualitative methods to integrate the housing preferences of members of specific ethnocultural groups.

4.2 Research identifying specific housing and settlement patterns of immigrant and ethnocultural groups

The second body of research focuses more on immigrants' experiences of finding appropriate housing in a major CMA, including the existence of structural barriers. Although these researchers analyze census data, they also use interviewing and surveys. The Longitudinal Survey of Immigrants to Canada (LSIC) is included in this section because it was the first national study to ask immigrants directly about their experiences in the settlement process, rather than relying on assumptions from comparative data analysis. Most other studies in this body of research disaggregate broad census categories and data to determine whether specific ethnocultural preferences,

social networks, or immigrant service agencies might influence spatial assimilation, housing careers or housing trajectories. They tend to focus on one or two ethnic groups, either doing an in-depth case study on one group, or comparing two groups that arrived in Canada around the same time.

The LSIC was conducted by Statistics Canada and Citizenship and Immigration Canada. It is based on a sample of 12,000 adults who entered Canada from October 2000-September 2001 and has three stages, two of which are now published. It measures immigrants' experiences six months, two years, and four years after their arrival in Canada. Respondents were asked about their settlement experiences (reasons why they chose Canada, what type of housing they found, whether they were satisfied with their experiences, etc). The most common reason immigrants chose to come to Canada was because they had friends or family here: at arrival, 87% of the survey sample had friends or relatives in Canada (StatsCan 2005, 19). Those who settled in the five largest CMAs were more likely to know only friends in the city, while those settling in other cities knew only relatives. Immigrants moved quickly after their arrival in the country: 92% were living in their own housing at that time within 6 months (ibid, 24). Among the 85% immigrants who made new friends, three quarters reported that at least half of these new friends were of the same ethnic or cultural group. The proportion varies slightly by category of immigration, with refugees the least likely to make friends within the same group, and economic class immigrants the most likely. Immigrants in the family class category were the mostly likely to report that all their new friends were of the same ethnic or cultural group. The tendency was highest in East and South Asians and lowest in Europeans. Interestingly, although 83% of respondents said that carrying on their own cultural traditions and values was important, 93% reported that it was important to learn about the traditions and values of their new country (ibid, 85). Almost three-quarters of the respondents were happy with their experiences in Canada, and almost half of all new immigrants would sponsor eligible family members to come to Canada.

Hiebert et al (2006) used LSIC data to examine trends in Montreal, Toronto and Vancouver. They found that there were significant differences in immigrant type for each city: Montreal has the largest share of European immigrants and the highest number of refugees, while Vancouver has the largest share of immigrants from East Asia and the highest number of entrepreneurs and investors (the two types of economic class immigrants). Toronto has the highest number of immigrants in total. In all three cities, the authors argue, the scale of immigration is too large and rapid to be accommodated in a single neighbourhood or region of the city. Also, the diversity of immigrant socioeconomic backgrounds prevents immigrants from settling in one type of neighbourhood, such as a traditional low-income reception area. Many new immigrants are defined as being at risk (paying over 30% of their income towards housing) or at high risk (paying over 50% of their income towards housing). The vast majority (88% of recent immigrants in Montreal, 73% in Toronto, and 74% in Vancouver) live in rental housing. However, within their first ten years in the country, a higher than expected number of new immigrants purchased housing; high rents and rising real estate prices pulled immigrants towards homeownership in Toronto and Vancouver.

The second stage of the (LSIC) revealed that the vast majority (90%) of skilled worker class immigrants found jobs in Canada during their first two years in Canada (StatsCan 2003, 9), although the rates were lower for refugees and family class immigrants. Despite the challenges, 74% of all immigrants in the survey were satisfied with their job six months after landing and 84% were satisfied with their job two years after landing (ibid, 11). There has

been no examination of the geography of these trends, so we do not know whether new immigrants are more likely to find work in suburban or inner city neighbourhoods, or how this influences housing choice.

Moving to research focusing on the experience of a specific ethnocultural group, Teixeira (1995) examined the role of real estate agents in Portuguese immigrants' housing search process. Real estate agents have been found to accelerate, decelerate, and prevent neighbourhood change, particularly in racially segregated areas of the US. Teixeira presented himself to real estate agents in Toronto and Mississauga as a potential homebuyer of Portuguese ethnicity relocating to Mississauga, using participant observation to analyze the agents' behaviour. This allowed him to gain "insights into their behaviour and methods which would be impossible using a more structured method." (ibid, 177) The Portuguese community first arrived in Canada in the 1950s, settling in inner city working class neighbourhoods of Kensington Market and Alexandra Park. By 1986 they had become concentrated in the inner city area bounded by Spadina Avenue, King Street, Lansdowne Avenue and St. Clair Avenue. The group has moved northwest through inner suburban neighbourhoods and into Mississauga, where they tend to occupy the oldest and most urbanized part of the municipality. Teixeira observed both Portuguese and non-Portuguese agents. He found that the Portuguese real estate agents emphasized single family dwellings, houses owned by Portuguese home sellers and/or listed with a Portuguese firm. The agents "strongly emphasized the importance of a single family dwelling for a Portuguese family in terms of cultural preferences and as a solid real estate investment. " (ibid, 179) They also tended to recommend houses in the core area of Mississauga, where a high percentage of Portuguese people lived. In contrast, non-Portuguese firms more often recommended condominiums and townhouses. They provided more detailed information about neighbourhoods, main highways and public transportation facilities, and suggested locations outside of Mississauga's main core area. Teixeira notes that

> Portuguese agents go beyond the simple function of providing housing information. They may be seen as "cultural filters" (intentionally or unintentionally) of housing information in a way that suits the housing needs, aspirations, and life-style orientation of Portuguese home-buyers.

He concluded that real estate agents are spatially biased information sources for immigrants looking for housing, encouraging spatial concentration and contributing to ethnic community preservation.

Osuwu (1999) studied the housing patterns of Ghanaian immigrants in Toronto. He found that they tended to live in the older suburbs of Toronto: North York Etobicoke, and Scarborough. Ghanaian immigrants were found to have a high degree of concentration in specific neighbourhoods, and even in specific high-rise buildings, because they were dependent upon the location of affordable rental housing. This group would only be able to spatially assimilate along low-rent housing sectors, although Osuwu does not mention the sectoral model. Also, 44 percent of Ghanaian immigrants indicated that they prefer to live near members of their own ethnic group and 31 percent were sharing their apartment, often with another Ghanaian (ibid, 89). The index of dissimilarity (the percentage of this group that would have to move to achieve a uniform residential distribution with the rest of the population) for this group was higher than that for Chinese, Indo-Pakistani, and Caribbean/African groups in Toronto. The study confirms some of the underlying problems with the assimilation model, such as Burgess'

omission of societal and labour market discrimination towards African Americans. It also confirms Hoyt's 1939 assumption that members of ethnic groups prefer to live near co-ethnics.

Murdie (2002) compared the housing trajectories of recent Polish and Somali immigrants. He found that for recent Polish immigrants living in rental accommodation in Toronto, housing cost, accessibility and social networks were the most important factors in finding housing. The desire to live in a Polish neighbourhood, for example in the High Park area of Toronto, was strong. For recent Somali immigrants, proximity to friends and relatives was the most important factor in finding initial accommodation in Toronto, but with subsequent moves along the housing trajectory, housing cost became more important. The two groups were significantly different: the Somali group did not have an established ethnic community in Toronto to help in settlement. They were more likely to have entered the country as refugees, to face housing discrimination on the basis of family size or income source; they were more likely to have large families and to rely upon social assistance. The importance of Murdie's study is the realization that housing trajectory is a much more useful model than the housing career model; immigrants often do not live in progressively more suitable housing. This was particularly the case with Somalis, who often started out in larger apartments but had to move to smaller ones because they could not afford the rent. The type of housing that immigrants had in their home country before immigrating also influenced their housing choice: Polish immigrants were much more likely to have lived in urban settings and high-rise housing, and were more satisfied with similar housing in Toronto compared to Somalis, many of whom hade been rural home owners. Although Murdie did not map the spatial pattern of housing trajectories, the quest for housing affordability meant that both groups were confined to affordable rental housing, which Hulchanski's (2007) study showed was more prevalent in the outer suburbs. In addition to explaining two ethnic groups' different housing trajectories, the study shows the tendencies of both groups to congregate spatially and to move along low-rent sectors for cultural or structural reasons.

Ghosh's 2007 study of Indian Bengalis and Bangladeshis in Toronto showed significant differences in settlement patterns, despite the fact that these two groups share the same language and very similar cultures. Indian Bengalis used immigration agencies, educational institutions and employers to assist in their immigration to Canada, including the housing search. The majority of this group (80 percent) settled directly in the suburbs, primarily Mississauga, because it was near their workplaces. They tended to live in overcrowded "guest houses" shared with other new immigrants, which were provided by immigration agencies at a significant cost. This agrees with Hoyt's (1939) observation that the relocation of employment opportunities to the suburbs had an effect on workers' housing. Bangladeshis in the study tended to live in clusters in Regent Park, East York, and near Eglington and Markham Roads in Scarborough; they were much more likely to settle in places where they had friends and relatives and to live with members of their own ethnic group. They showed a strong sense of duty towards members their own ethnic group, and would likely take in another Bangladeshi in search of housing. Both groups tended to remain in the area where they initially settled because they had developed social ties and familiarity with the area, contradicting the spatial assimilation model and supporting the ethnic resources model. The housing trajectory model acknowledges that different cultural traditions, income, social and transnational ties, and immigrant service provision impact housing choice. The study reveals the complexity of spatial assimilation and social assimilation as linked to transnational identities and relocation processes. Walton-Roberts' 2003

study of Indian immigrants also showed that transnational social and economic ties, such as returning to India to get married or immigrating to Canada to reunite with family, were very important in spatial patterns and social integration.

Immigrants who choose to settle in smaller cities reveal different factors in their choice of housing. Walton-Roberts (2007) conducted semi-structured interviews with local government officials, immigrant community leaders, immigrant service agencies and immigrant couples in Kitchener, Ontario. She found that immigrants are attracted to smaller cities because of the relatively affordable housing and the small-town feeling, including less traffic congestion, crime, easier access to services and employment. Participants also noted the presence of universities in Kitchener attracted foreign students, which made it a safe place for immigrants. It also indicated to them that city residents were more educated, and therefore more tolerant of newcomers. The majority of immigrants indicated that discrimination was not an issue in their new city. Most were not visible minorities, having arrived from Eastern European countries such as Yugoslavia and Romania, but may have faced language barriers.

Bauder and Lusis (2008) interviewed Filipino Canadians in Guelph, Kitchener and Niagara Falls, Ontario. Filipino immigrants living in these cities prefer the smaller cities' standard of living, institutional infrastructure, and employment opportunities to those of Toronto, the closest major city. In fact, participants noted that the Filipino community in Toronto was unfriendly compared to those in smaller cities. Interestingly, smaller cities were seen as contributing to the adaptation and assimilation of newcomers, which were more difficult in Toronto where they may be able to find work quickly through social networks, but the jobs would likely be in the informal sector where labour exploitation is rampant. They would also have less opportunity to learn English or engage with non-Filipino Canadians in a larger city where the Filipino population is far higher. Filipino residents in these smaller cities played a major role in settlement, as they told friends and family back home about their experiences and encouraged them to immigrate to the same city.

4.2.1 Summary

The practice of interviewing or surveying immigrants to unravel complex transnational immigration patterns is quite recent, and gives us many insights into housing choice and settlement patterns. This methodological approach, particularly in studies concentrating on specific ethnocultural groups rather than identifying general trends across Canadian CMAs, has revealed the complex process of settlement. The information new immigrants receive, such as that from real estate agents, may influence housing and neighbourhood choice. Research has shown that there are some similarities in housing choice for different ethnic groups in Toronto: the tendency to use social networks to find housing and the reliance upon affordable rental housing. Some could access immigrant services easily, while others could not, or had problems dealing with agencies. Some groups desire living among co-ethnics, while others do not. However, some groups seem to face more challenges in the settlement process, including housing market discrimination based on ethnicity or income source. As Hulchanski concluded in his study of income polarization in Toronto, "It is common to say that people "choose" their neighbourhoods, but it's money that buys choice. Many people in Toronto have little money, and thus few choices." (2007, 10) Immigrants' housing history and cultural expectations also play a role in the type of housing they choose and are satisfied with.

The experiences of immigrants in smaller cities seem to agree more with the spatial assimilation model. Filipino immigrants seem to prefer living among the native-born population, and show a strong desire to assimilate into the Canadian culture. At the same time, they encourage friends and family to join them in their new cities. Yugoslavian and Romanian immigrants found the social and employment support they needed in immigrant service agencies rather than among members of their own ethnocultural groups.

This body of research has finally begun to break away from the generalizations made in previous studies: the assumption that members of ethnocultural groups choose to live among co-ethnics, place a high value on homeownership, use social ties to find jobs and housing, and live in inner city neighbourhoods with high concentrations of rental housing. As this research indicates, the factors that impact spatial settlement and housing choice are often unique to each culture.

4.3 Understanding immigrant housing choice and spatial settlement patterns in Canadian cities

This review of the literature on immigrant housing choice and spatial settlement patterns reveals their reliance upon the classic urban structure models. Current research shows that the concentric, assimilation, and housing career models cannot be assumed to be characteristic of Canadian cities for which a main source of population growth and change is immigration. Major changes since the 1950s, including the increasing diversity of immigrants from non-European countries, the increasing diversity of neighbourhoods in Canada's largest cities, decreased household sizes and changing family structure, have impacted the urban structure and growth of cities. Immigrants have increasingly chosen to settle in Canada's largest cities, putting tremendous pressure on Toronto, Vancouver, and Montreal. The supply of affordable housing in Canadian cities is not keeping pace with demand in an era of historically high immigration.

Immigrant groups show extreme differences in how they arrive, settle and integrate into Canadian housing and labour markets. Some are concentrated in areas of low-rent and public housing while others show high levels of home ownership. High-rent and high-homeownership areas are not necessarily located on the periphery of cities, but follow natural features, transportation infrastructure, and popular social trends. The persistence of some ethnic neighbourhoods and the increasing diversity of other neighbourhoods show no clear pattern of ethnic segregation. Social forces and market information provided by agencies and realtors may also impact residential segregation. These factors have created different spatial patterns in each Canadian city. The housing career model does not explain the choices of immigrant "housing consumers" because structural changes have made it much more difficult to achieve home ownership in Canada's three largest cities, which receive almost all of the country's immigrants. The availability of specific housing types seems to have more of an influence in Canadian cities than the entrenched racism or housing market discrimination seen in American cities. Despite this, we see a continued societal and research bias towards homeownership, and to rent or live in public housing is not considered desirable. It is somewhat worrying that immigrants rely on "social filters" such as real estate agents for their housing information, as this information is biased towards homeownership. Due to increasing neighbourhood

diversity and societal tolerance in Canada's largest cities, we do not see a pattern wherein one ethnocultural group is faced with persistent housing or labour market discrimination.

However, the recent decline in economic advantages for immigrants because of their lack of Canadian work experience or qualifications gives us ample evidence of labour market discrimination. Despite the fact that there is decreasing occupational segregation in Canadian cities, immigrant groups show extreme variation in labour market participation: some have very high rates of participation while others show significantly lower levels than the native-born population. The high concentration of foreign-born residents in suburban Vancouver and Toronto means that new immigrants are more likely to have social contacts in the periphery of the city. These social and often transnational contacts significantly impact immigrant settlement patterns and employment opportunities. The shift back to economic class immigrants in the late 1980s and the sustained high levels of immigration during the prolonged recession in the 1990s have also had an impact on immigrants' economic success.

Because so much of the population growth in Toronto is based on immigration, these research findings imply a new way of thinking about housing types and their provision by private developers, affordable housing policy and funding; indeed, the whole idea of home ownership as a societal goal. The City of Toronto's 2006 Perspectives on Housing Tenure (2006d, 4), explains homeownership trends between 1991 and 2001: increasing numbers of young adults could afford their own homes, more seniors were buying condos, and there was "the continuing flow of immigrants from earlier periods into the prime home-owning age groups." However, the report also notes that "the 'typical' life cycle based around families with children is no longer as typical as it once was, resulting in a wide variety of needs that must be met." It states that 45% of Toronto's immigrants live in rental housing; the rate is of course much higher, 74%, for recent immigrants (ibid, 23). Younger households often moved to the suburbs to find more affordable housing, but "others may have become 'permanent' renters rather than making the transition to ownership housing that might have been expected at their life cycle stage." (ibid, 13) The report also emphasizes that the vast majority of rental units in the region are in the City of Toronto, which makes the city more attractive to new immigrants and younger households who usually cannot afford homeownership.

Recent immigrants in particular are in need of more affordable housing choices. Rather than face skyrocketing rents, many choose to buy. Homeownership in Canada's largest cities is most affordable in suburban areas. The tremendous outward growth pressure on our three largest cities, which is in part driven by high immigration levels as the major source of population growth, is exacerbated by the acceptance of outdated models of urban structure and growth. By promoting homeownership as the pinnacle of the human life cycle and disinvesting in rental, co-op and public housing, policy makers force on households a dichotomous choice: live with high rents in an inner city or inner suburban neighbourhood, or buy in a suburban or exurban single-family development. In effect, the lack of affordable housing options throughout our cities forces people to make unsustainable housing choices, which in turn lead to unsustainable transportation choices.

Luckily, the Canadian mortgage industry was reluctant to grant mortgages to those without a significant downpayment, and the "zero downpayment" mortgage only existed for a few short years in this country. US policy and lenders such as Fannie Mae and Freddie Mac encouraged this type of risky lending, which led to the

mortgage sub-prime crisis and has now spiraled into an economic crisis. Housing has been seen as a valuable consumer product since 1945, when the sale of housing helped invigorate the economy. This is problematic because policy makers, banks, and mortgage institutions effectively offer incentives to individuals and households to borrow heavily, and sometimes beyond their means. To buy, then, becomes an economic duty. At the height of the sub-prime mortgage crisis, Richard Florida (2008) wrote,

> Our reliance on single-family ownership is a product of the past 50 years—and the experiment has outlived its usefulness. Not only is it now readily apparent that not everyone should own a home, and that the mortgage system is a big part of what got us into the current financial mess, but homeownership also ties people to locations, making it harder for them to move to where the work is. Homeownership made sense when most people had one job and lived in the same city for life. But it makes less sense when people change jobs frequently and have to relocate to find new work.

Instead of the massive $700-billion bailout for US banks, Florida recommended that governments encourage a shift from ownership toward flexible rental housing. Using the bailout money, banks could have bought up foreclosed houses and rented them back at an affordable rate, which would allow people to move around as their job prospects change.

We need to start seeing the classic urban growth and urban change models through a new lens that allows local variations. When immigrant groups do not follow the same patterns as those born in Canada, we need to ask whether there is cause for concern. For example, in using the housing career model, is our concern that immigrants are not being adequately housed, or is it that they do not have the ability to buy housing, a valuable consumer product that is vital to our economic survival? Ideally, research results that uncover gaps in policy and programs would lead to policy change. In this case, interviews and surveys with immigrants about their experiences in the housing market and settlement process consistently identify the need for more affordable housing, particularly rental housing, and the acceptance of foreign credentials. Interestingly, decreased foreign credentials recognition as a barrier to immigrant integration has indeed translated into policy and programs, while decreased affordable housing has not.

A significant policy shift has occurred in the area of foreign credential recognition in the past few years. The Canada-Ontario-Toronto Memorandum of Understanding on Immigration and Settlement (2006) established a framework to improve the outcomes of immigrants in four areas: access to employment, access to education and training, access to services, and citizen and civic engagement. These priorities are echoed, almost word for word, in the City of Toronto Strategic Plan (www.toronto.ca). An Immigration and Settlement Portal has been created on the City of Toronto's website with information on employment, professional accreditation, and education in the city. The City of Mississauga (Peel Region) has a similar section. Settlement.org, a website set up through the tri-level government partnership, provides additional information on these subjects and links to immigration and settlement organizations. New immigrants are given helpful information upon arrival at Lester B. Pearson International Airport, immigrant service provision has been enhanced in the Toronto region, and Newcomer Information Centers have been established Brampton, Caledonia, Mississauga, Toronto, and Ottawa. Educational institutions like George

Brown College and local school boards have created innovative bridging programs to help immigrants update their foreign credentials quickly, gain Canadian experience, and find jobs in their field.

The issue of affordable housing is still stalled because Canadian municipalities cannot produce affordable housing without the assistance of the upper levels of government. The City of Toronto acknowledges its role as a major immigrant reception area:

> …the City can expect to continue to receive a large number of new permanent residents into the future, which will drive its future growth." (2006b, 7)

Toronto's Official Plan acknowledges that younger households and immigrant households will continue to place a strong demand on rental housing in the future (2006d, 24). The City also acknowledges affordability problems, particularly among renters, whose ratio of shelter costs to income levels is 50% higher than owners; about 30% of Toronto's households spend more than 30% of their income on housing (2006). Considering the high percentage of recent immigrants who rent in the Toronto area, this is very significant. Rental units have slowly been converted to condominiums, and little new rental housing has been built since the passing of provincial condominium acts in the 1970s and the slow retreat of the Federal government from social housing provision during the 1980s and early 1990s. The City of Toronto points out that from 1996-2006, only 5% of new housing in completions were rental (2006c). Vacancy rates have been persistently low, often below 1%, for the past 30 years. Apartment rental rates have increased at one and a half times the rate of inflation. When rental conversions to owner-occupied units are included, the City of Toronto suffered a decrease in rental units from 1996-2006, the same period that saw record high numbers of immigrants entering the city. Ninety percent of private rental buildings in Toronto were built before 1975 (ibid, 13). The City, in determining if Toronto's housing is affordable, concludes that the distribution of affordable rental units makes it difficult for one-person households in search of a bachelor unit and for large families with children to secure housing at an affordable rent level in the current supply: "In other words, another dimension of housing need is evidenced by the fact that choice is limited by supply." (2006e, 26) Further, they write that the strong economy since 1999, lower interest rates and higher incomes have moderated affordability problems for homeowners, but affordability for renters has not returned to the levels of the 1980s (ibid, 29).

The Toronto City Council's Strategic Plan outlines several strategic directions around housing, including:

- The use of intensification to provide a mix of housing options and compatible employment opportunities to accommodate the needs of changing families and households
- Development of policies that facilitate access to housing for people at all income levels
- Advocating for the Provincial and Federal governments to provide more appropriate funding sources for income redistribution programs than the property tax, eg. for social housing

In the absence of Provincial and Federal funding for affordable housing, the City of Toronto has focused its attention on introducing new immigrants to its neighbourhoods, informing them on approximate rental and home

ownership costs, tenant rights, and housing types using websites like Settlement.org and the City of Toronto's portal. They have also have placed strong controls on rental conversion. However, the mismatch between Federal, Provincial, and municipal funding and priorities can be seen in Province of Ontario's Places to Grow Act (2005) which identifies twenty-five downtown areas as urban growth centers, setting minimum density targets (from 1500-400 residents and jobs per hectare) to encourage revitalization. Without funding for affordable or rental housing, the plan will likely encourage the construction of more high-end condominiums. It is here that the assumptions of the housing career model come into play.

On a positive note, immigrants participating in the LSIC generally reported job satisfaction and happiness with their lives in Canada. With the recent improvement in services, information for new immigrants, and quicker transitions with foreign credential bridge programs, immigrant transitions into the labour market are expected to improve further. More studies involving interviews, focus groups, or surveys will help draw out immigrant experiences and identify needs for settlement services.

5.0 Methodological approaches for questions of transportation choice

Transportation research focusing on immigrant and ethnocultural transportation patterns and choices is somewhat limited; the US Department of Transportation calls the body of literature "embarrassingly thin" (US DOT 2000, 2). Prominent researchers Evelyn Blumenberg and Michael Smart refer to the "scant data available on immigrants" in studies such as the National Household Transportation Survey (NHTS) (2008). However, there is a growing body of literature dealing with transportation choice, behaviour, and travel patterns of specific demographic groups such as women and low-income households. In part, the scarcity of research into specific demographic groups is related to the methodological approaches that became widespread in the postwar era, which tend to be based upon economic models of rational choice. Aggregate models like the UTMS take a generalist approach, assuming that all travelers make the same choices and follow the same patterns. Therefore, many established transportation models do not deal very well with transportation choice, as they simply assume everyone has equal access to all transportation modes. One could argue that the early models were particularly oblivious to their effects on constraining transportation choice for users of public transit and non-motorized modes. Some researchers argue that inclusion of transit-dependent individuals, in the form of social justice approaches, seems inconceivable or even illogical in the highly technical profession of transportation planning (Deka 2004). The effects of individual choices on urban form and social geography have typically been seen as an unfortunate side effect of transportation efficiency.

While aggregate models concentrate on how to move people efficiently, disaggregate models concentrate on behaviour and choice in an effort to understand or modify it for specific goals, such as mobility or sustainability. Canadian researchers have done a considerable amount of work on immigrants' housing choices and spatial settlement patterns, but very little on immigrants' transportation choices. This section of the paper must therefore rely upon American research, punctuated by the occasional Canadian study. However, this approach has its disadvantages, which will be explained at the end of this section.

Context Specific: Immigrant Housing and Transportation Choices in Toronto

Like the literature dealing with housing choice, the transportation choice research can be broken down into two key bodies of research. The first uses the NHTS, the major source of travel data in the US, or the Census Public-Use Microdata Samples (PUMS). The research focuses on general transportation patterns of three major ethnocultural groups: African American, Hispanic American and occasionally, Asian American, as compared to Whites. As such, it does not distinguish immigrants from the native-born; there have been very few studies focusing on immigrants as opposed to ethnocultural groups. A rare example is Blumenberg and Shiki (2006), who compared White, Black, Asian, and Hispanic native-born people to White, Black, Asian, and Hispanic immigrants. The most commonly used methods are regression analysis and logit modeling. The second body of research takes the approach of economic geography or built form. Researchers in this area attempt to integrate larger economic and spatial trends into transportation research, such as women's increasing labour force participation, decentralization, and changing land use patterns. There is a shift towards individual, rather than household, travel behaviour and choices. This body of work acknowledges the complexity of transportation choice in the context of urban structure, major demographic shifts, and built environments that may discourage the use of certain transportation modes. In doing so, it begins to consider housing and household interactions as intrinsically tied to transportation choices.

5.1 Research focusing on immigrant transportation choice

The use of census or other national surveys for quantitative analysis, such as regression and logit modelling, has been instrumental in identifying national public transit ridership trends among immigrant and ethnocultural groups. Because these surveys are massive in size, they can give us only general information on travel patterns and choice. American research reflects both the tendency to classify transit-dependent people as second-class citizens, and the emphasis on certain large ethnocultural categories. The American distinction of African Americans by race and Hispanic Americans by ethnicity reflects the legacies of slavery, the predominance of these two groups in American cities, and barriers to housing and labour market participation. These three factors, as well as entrenched racism and segregation, have created patterns of "spatial mismatch" in many American cities: low-income ethnocultural groups entrenched in segregated inner city neighbourhoods with little or no access to minimum-wage employment opportunities in the suburbs. This is why American researchers focusing on ethnic disparities in transportation often portray transit dependence as a barrier to labour market participation. African American and Hispanic Americans represent, by far, the major non-white groups in most American cities and are overrepresented in public transit ridership; hence, most research on the transportation choices of ethnocultural groups focuses on these groups.

5.1.1 Regression analysis

The US Department of Transportation (US DOT) first conducted the National Household Transportation Survey (NHTS) in 2001, replacing the National Personal Travel Study conducted in 1969, 1977, 1983, 1990, and 1995. It is a telephone survey with a sample size of over 25,000 households. The data shows that low-income, African American, and Hispanic American households travel further for health care, have poor access to suburban and rural recreational activities, and have less access to grocery stores and jobs. They also spend an increasing proportion of their incomes on transportation, in part because more of them have cars in each successive survey. Drawing heavily on the spatial mismatch model, Deka (2004) maintains that transit users who travel shorter

distances subsidize those who travel further, so poor inner city residents subsidize rich suburbanites. She points out that many low-income and minority workers use transit at off-peak times, so they are less likely to benefit from peak hour services.

In the report Travel Patterns of People of Color (2000) the US DOT raises several key issues:
- The public subsidy for bus riders (the vast majority of whom are low-income) is much lower than the public subsidy for rail riders (the vast majority of whom are high-income)
- African Americans, Hispanics and other groups have lower household incomes than Whites and are much more likely to live in poverty
- African Americans, Hispanics and other minority groups are much more likely to live in urban locations rather than suburbs, towns or rural locations; they are much more likely to live in residentially segregated neighbourhoods
- The vast majority of immigrants to the US live in the eight largest metropolitan areas, and they have lower rates of car ownership than the native-born population; recent immigrants have high rates of transit ridership
- Whites have the highest rate of car ownership
- Non-Whites spend the most time commuting to work, in part due to their reliance upon transit
- African Americans and Hispanic Americans are significantly more likely to use transit for non-work trips than Whites
- Women use transit more than men across all ethnic groups

Pucher and Renne (2003) confirm that the poor, the elderly, African Americans and Hispanic Americans represent the majority of transit ridership in the US. Using 2001 NHTS data, they examine trends in transit use including trip length, frequency, and mode share. They find that transit ridership is polarized, reflecting wealthy individuals choosing to commute by rail or subway and poor individuals who have no other choice than to commute by bus. In fact, most transit users in small cities are poor bus riders, while most transit users in large metropolitan areas use a mix of bus and rail and have a greater proportion of wealthy riders (ibid, 62). Lower income households make shorter trips than the wealthy, including biking and walking trips; this could be because they are located in inner city neighbourhoods where shops and services are within a short distance, or because they do not have access to employment in suburban areas. Whites and Hispanics show the highest rates of bicycling, but Whites bike mainly for recreation while Hispanics bike mainly to work (ibid, 67). Hispanic and African Americans make more walking trips than Whites. African Americans are eight times as likely to use transit as Whites; Hispanics are three times as likely to use transit as Whites. Therefore, improvements to transit systems would primarily benefits these two groups. However, as many researchers attest,

> Most transit systems have tended to take minority and low-income "captive riders" for granted and focused their fare and service policies on attracting middle-class and affluent riders out of their automobiles. In many cases, the result has been lower-quality service for the poor and minorities and superior service, at high public subsidy cost, for the affluent (ibid).

Context Specific: Immigrant Housing and Transportation Choices in Toronto

Despite the reliance on the poor, the elderly and visible minority groups upon transit, even these individuals only use transit for 5% of their trips. A scant 8.7% of Americans do not own a car, and thirty percent of the car-free live in the New York City and Philadelphia metropolitan areas. Therefore, Pucher and Renne conclude that transit improvements cannot be the main strategy for improving the mobility of these groups. They advocate changes in housing policy to refocus public housing in areas well-served by transit, as well as the improvement of walking and cycling infrastructure. There is some evidence that this would only work in the largest cities; Pucher (2004) found that transit use was strongly correlated with city size, with the ten largest US cities home to 76% of transit riders.

Generally, the US national data reflects a reality that does not exist in Canada: large numbers of African Americans and Hispanic Americans living in inner cities that have suffered from decades of disinvestment, including the decimation of local streetcar and bus service. Pucher (2004) suggests that Canadian cities differ significantly from American cities in transit ridership because they are denser, have vibrant core areas, have local and provincial land use policies encouraging clustered development and higher densities, have higher gas and car prices, have greater speed restrictions and rights-of-way, and set maximum parking limitations for new buildings rather than minimums. He does not mention the significant ethnocultural differences between American and Canadian cities.

It is therefore difficult to generalize American research findings on transportation and ethnocultural or immigrant groups to Canadian cities. Canada does not have a national transportation survey, and unfortunately, the Canadian Census only contains one question on transportation: it asks which travel mode is usually taken to work. The question was first asked in the 1996 Census. The Census no longer records car ownership. Each individual transportation authority collects its own data, and the Canadian Urban Transit Association has only partial data. This means that there is a lack of general understanding of how different demographic groups travel and what informs their transportation choices. For example, it is not known whether Canadian cities show the same links between poverty, ethnicity, and transit use.

Litman (2003) examined the equity considerations of public transit provision in Canada. About 20% of Canadian households do not own a car (more than double the US share); 10% are low income; and 10% have a disability that constrains mobility. Litman also pointed out that those too young or too old to drive and recent immigrants face social exclusion in the provision of transit services: although car ownership reduces social exclusion at the individual level, it increases social exclusion at the community level by disadvantaging some groups. Transportation costs can be considered unaffordable if they exceed 20% of the household income; in the US low-income households devote one-third of their income to transportation while in Canada the figure is closer to 15%. Litman attributed this to much higher car ownership among the low-income population in the US. Households in car-dependent areas in Canada spend 20% of their income on transit while those with more efficient land use spend less than 17%. Like Pucher and Renne, Litman suggests that car-less households can "easily and affordably satisfy their basic travel needs by using a combination of walking, cycling, ridesharing, transit services and occasional vehicle rentals." (ibid, 10)

Heisz and Schellenberg (2004) conducted a landmark study of Canadian immigrants' use of transit for commuting focused on Toronto, Vancouver, and Montreal, using 1996 and 2001 Census data. They argue that the increased

proportion of recent immigrants in Canada's three largest cities raises significant issues for public service provision, particularly transit. Using data from the commute-to-work question on the Census, the authors found that recent immigrants commuted by transit at a much higher rate than the native-born population, having controlled for age, income, distance to work, and distance between place of residence and the city centre. Recent immigrants used transit for 48.6%, 36.3%, and 21.2% of their trips in Montreal, Toronto and Vancouver respectively, compared to 20.9%, 20.7%, and 11.4% for the native-born in these cities. Spatially, transit users were concentrated in the neighbourhoods close to the core in Montreal, particularly immigrants. In Toronto, Canadian-born transit users were concentrated in the core area, while immigrant transit users were spatially dispersed. Similarly, in Vancouver Canadian-born transit users were located along the SkyTrain line, while immigrant transit users lived further out in North Vancouver, Surrey, East Vancouver and New Westminster. In all three cities, immigrants from the Caribbean, Southeast Asia, Central and South America show the highest rates of public transit use while those from East Asia, Europe, West Asia, North America and Oceania show the lowest rates. Multivariate regression shows that the tendency to use transit falls with increased time in Canada. The researchers do not know if immigrant transit use "integrates" to a similar level in the Canadian-born population or if newer immigrant cohorts actually have a greater likelihood of using public transit than previous cohorts. At any rate, recent immigrants show high rates of transit use no matter how far away they live from the central city, which has implications for the provision of transit services. They also used transit at higher rates than the native-born after controlling for income, even after twenty years in Canada.

Heisz and Schellenberg's study has some profound impacts on our understanding of urban structure. For example, while transit users in general are clustered in the city center in all three cities, immigrant transit users are clustered in the center in Montreal but dispersed in Vancouver and Toronto. This implies greater spatial assimilation in Vancouver and Toronto, or more likely, differences in housing trajectory. Montreal has the lowest immigration rate of the three and is known for its high percentage of rental households. Toronto and Vancouver, on the other hand, are known for their high rents and loss of rental units through condominium conversions, particularly in their city centers.

5.1.2 Multinomial logit models

Some researchers tackle the question of immigrant transportation patterns using multinomial logit models. Blumenberg (2008) is primarily interested in what she calls "transport barriers to employment." Her work is clearly motivated by Kain's spatial mismatch theory and the entrenched segregation of the largest ethnocultural groups, as well as low-income people, in many American cities. To this end, she focuses on Southeast Asian welfare recipients in two California counties. Using the national datasets, Blumenberg found that about two-thirds of Southeast Asian respondents with cars reported difficulty travelling because of the age and unreliability of their vehicles. Her logit model predicted the likelihood of employment of this group compared to the Hispanic, White, and Black groups: she found that unlimited access to cars was a strong and statistically significant predictor of employment for each group. For this reason, she advocates policies that include efforts to increase access to reliable cars, and in dense urban areas with extensive transit service, an increase in transit services. In these areas, transit authorities should "devote greater attention to overcoming immigrants' fears associated

Context Specific: Immigrant Housing and Transportation Choices in Toronto

with traveling by public transit," most of which she attributes to language difficulties (2008, 34). However, her recommendations are clear:

> …low-income households should not be channeled into alternative modes of transportation under the erroneous belief that doing so will mitigate [congestion and poor air quality]…without access to automobiles, low-income adults who live in areas where public transit is not a viable option will be isolated from jobs, services, and other essential destinations (2008, 39).

Blumenberg and Shiki (2006) focused on White, Black, Asian, and Hispanic immigrants to California, using 2000 Census PUMS data, which represents 5% of the state's population. Citing both Burgess' spatial assimilation model and the ethnic resources model, they write that recent immigrants use transit twice as much as the native-born population since they tend to have lower incomes and live in central city neighbourhoods where ethnic enclaves, affordable housing and public transit are concentrated. Blumenberg suggests that ethnic or cultural differences may explain low car ownership rates: for example, some may not know how to drive, come from countries where car ownership is not the norm, women in some groups may have lower labour force participation, and immigrants may face administrative and legal barriers to obtaining drivers' licenses. Her logit model proposed that three important factors determined modal choice: length of residency in the US, country of origin, and legal status. She found that Hispanic immigrants had the highest transit usage rate followed Black and Asian immigrants. Over 20 years, Hispanics showed the greatest decline in transit use: after 20 years they showed less reliance on transit than the other two groups but still used transit more than native-born Hispanics. Similarly, Black immigrants had higher rates than native-born Blacks, but the levels converged within five years. Asian immigrants had lower rates of transit use than native-born Asians. Blumenberg speculates that this is due to the higher incomes and educational levels of Asian households, since her models showed that these differences could not be explained by income or residential location. Again, she advocates for more equitable car ownership opportunities and policies because "cars serve as a symbol of economic assimilation as they are the dominant mode of transportation in the US." (2006, 13)

Blumenberg and Smart (2008) investigated carpooling among immigrants in the US, using the 2001 NHTS. Immigrants are far more likely to use carpools for all trip purposes than native-born Americans; while recent immigrants (those living in the US for less than five years) made only 2.8% of their trips by transit, they made ten times that number of trips by carpool. Blumenberg and Smart used a multinomial logit model focused on mode choice and a massive sample of 177,289 trips made by 36,561 individuals across the US. They found that after controlling for socioeconomic, location, and demographic variables, immigrants were somewhat more likely to form external carpools (those with at least one non-household member) and far more likely to form household carpools (those with at least one other household member). Carpooling immigrants nearly "assimilated" to native-born levels within ten years, but there was still a slightly higher tendency to carpool than the native-born population. The researchers write,

> In the face of [racism and xenophobia] many immigrants may exploit existing strong familial and kinship ties to increase the expected likelihood of achieving desired incomes such as employment, higher incomes, participation in meaningful social activities, and educational advancement (ibid, 1).

They found that the lack of a driver's license, the ratio of vehicles to driving-age household members, and trip purpose were major determinants of carpool formation. For example, women were far more likely to carpool than men, and trips for social, shopping, and family-serving trips entailed more carpooling than work trips. They also found a strong association between immigrant status and non-motorized travel.

Sharma (2004) analyzed over six thousand diaries for Black and White groups using an existing dataset, the 1999 Mid-Ohio Area Household Travel Survey. These two groups were the predominant "racial" groups in the Columbus, Ohio metropolitan area; the third largest group, Asian, represented only 1.2% of the original survey sample and was consequently omitted from Sharma's study. Her logit model found significant differences in trip chaining in between men and women (Black women undertook more complex trip chains than Black men and White women more than White men), but the effect was not significant across Black and White groups. That is, Black women did not make significantly more complex trips than White women. The presence of children in a household increased the tendency to make complex trip chains for all groups in Sharma's study.

While it does not focus on particular ethnocultural groups, Weinberger and Goetzke's study of car ownership preferences in Boston, Chicago, Philadelphia, San Francisco and Washington (2008) is useful in understanding transportation choice. Using cities with relatively robust transit systems, data from the 2000 US Census and a social learning model, the authors hypothesized that previous experience taking public transit or living without a car could decrease car ownership in the future. They limited their sample to people who had moved in the past five years, so that they could compare their car ownership in both their old and new neighbourhoods. They found that the built environment, including transit infrastructure, does inform preferences which are carried over to other environments. People moving from non-metropolitan areas to one of the five study areas were more likely to own more cars than their counterparts who moved from metropolitan areas. This held true whether people were moving to the central city or to a part of the metropolitan area outside the central city. People's preferences for low or high car ownership are in fact learned, which, as the authors assert, suggests that we need to preserve and enhance built environments that allow or foster low car ownership levels. Research with youth (Weston 2005; Cain et al 2005; St. Lucie 2002; Orsini 2003; Pilling et al 1999) also suggests that attitudes towards sustainable transportation modes are learned. In youth, these attitudes are very flexible: providing them with information on the sustainable modes and transportation planning goals significantly affected their transportation choices.

5.1.3 Index of segregation

Despite the predominance of this method in studies of immigrant spatial settlement and homeownership patterns, the index of segregation is rarely used in transportation research. A rare example is Liu (2008), who tried to understand Latino immigrants' longer commute times using the segregation index and US Census data. She found that Latino immigrants cluster residentially and occupationally in employment niches. Building on the spatial mismatch model, she suggests that low-skilled Latinos tend to be self-employed in Latino enclaves, which

Context Specific: Immigrant Housing and Transportation Choices in Toronto

lengthens their commute times. She suggests that this tendency may be exacerbated by citizenship status and the tendency for illegal immigrants to find and keep work though their social networks in the US. However, since residential and employment concentration differs by city and gender, Liu does not consider these results generalizable.

5.1.4 Housing + Transportation Index

The Center for Neighbourhood Technology, part of the Reconnecting America's Center for Transit-Oriented Development in the US, has developed the Housing + Transportation Index, a measure of affordability:

$$\text{Affordability Index} = \frac{\text{Housing Costs} + \text{Transportation Costs}}{\text{Income}}$$

The index "prices the trade-offs that households make between housing and transportation costs and the savings that derive from living in communities that are near shopping, schools, and work, and that boast a transit-rich environment." (CNT 2006, 1) Transportation costs include costs of car ownership, car use, and transit use. These three components are the dependent variables in the model and are affected by the combination of seven independent built environment variables and two independent household variables. Together, these nine variables represent the independent neighborhood and socioeconomic variables that predict household transportation costs at the census block group level, the smallest geography available to approximate neighborhoods. CNT uses existing datasets such as the U.S. Decennial Census 2000 Survey, Census Transportation Planning Package 2000 (CTPP 2000), the NHTS, and the National Transit-Oriented Development (TOD) database. The national average of devoting 47% of household income to housing and transportation combined was used as a benchmark in their 2006 study, which tested the index in four neighbourhoods in the Minneapolis Metropolitan Area. Transportation accounted for only 10% of household expenses in areas well-served by transit, and 25% in areas that are more car-dependent. The combined costs of housing and transportation varied from 30% to 47% for renters and 39% to 53% for owners.

In another study, CNT (2006b) used the housing and transportation index in transit zones, areas within a half-mile radius around transit stations, using the 2000 US Decennial Census for 25 metropolitan areas. Transit zones were found to offer lower-income residents more choice in affordable housing, with significantly more rental housing and much lower rents. Nationally, households near transit make up 15% of the 40 million American households in metropolitan areas with transit service, a number that could grow to 22% by 2030 if supply is met. Households living in transit zones have the greatest proportion of single and non-family households, two households types that have grown dramatically in the past decade. Transit zones also have lower than average incomes, although 10% of zones have household incomes over $75000, most of these in areas with extensive transit systems and high costs of living (Boston, Chicago, New York, Philadelphia and San Francisco). Because there is less owner-occupied housing in transit zones, these homes are worth more, particularly in large cities. Transit zones are more ethnically diverse than average neighbourhoods: in general, 41% of those living in transit zones are white, 23% African American, 8% Asian and Pacific Islander, 24% Hispanic, and 3% other ethnicities (ibid, 9), amounting to 59% non-white groups. In 22 of 25 of the regions, transit zones have more ethnic diversity than their regions

as a whole (ibid, 16). Transit zones were more ethnically diverse than comparable suburban or central city neighbourhoods in their own region: 86% were more ethnically diverse and almost half of these were more diverse in terms of both ethnicity and income. CNT advocates combining transit-oriented development strategies with strategies that would draw mixed-income communities. They argue that "diverse TOD has even greater benefits for transit agencies because minority and lower-income workers take transit at the highest rates." (ibid, 23)

The Center for Housing Policy, also part of Reconnecting America, outlined four types of households, using the Housing + Transportation Index in 28 metropolitan areas in the US (2006). The four household types can be summarized as follows:

High Housing Cost Burden

Neighbourhoods with high housing prices, a mix of incomes and low transportation costs. Tend to be urban, near jobs, near transportation options and are the most diverse. Tendency to have older housing stock.

Average income $52,184
33% owners, 66% renters
58% White, 20% Black, 18% Hispanic
Average household size 2.6
18% married with children
10% single parents
77% car, 23% transit commuters

High Housing and High Transportation Cost Burden

Neighbourhoods with low incomes and above average housing and transportation costs. Tend to be urban areas segregated by race and income, inner suburbs with fewer jobs and, in some regions, outer suburbs or satellite cities away from jobs and services and close to rural areas. Tendency to have older housing stock.

Average income $41,387
42% owners, 58% renters
47% White, 32% Black, 25% Hispanic
Average household size 3.21
19% married with children
16% single parents
89% car , 11% transit commuters

Increasing Housing Costs

Increasing Transportation Costs

Low Housing and Low Transportation Cost Burden

Neighbourhoods higher incomes and below average housing and transportaion costs. Tend to be suburban and have newer housing stock.

Average income $7,6444
75% owners, 25% renters
81% White, 6% Black, 9% Hispanic
Average household size 3.96
29% married with children
5% single parents
93% car, 7% transit commuters

High Transportation Cost Burden

Neighbourhoods with moderate incomes and moderate housing prices but exceptionally high transportation costs due to long distances to services and employment. Primarily in exurban areas with newer housing stock.

Average income $52,184
73% owners, 27% renters
81% White, 7% Black, 13% Hispanic
Average household size 4.35
27% married with children
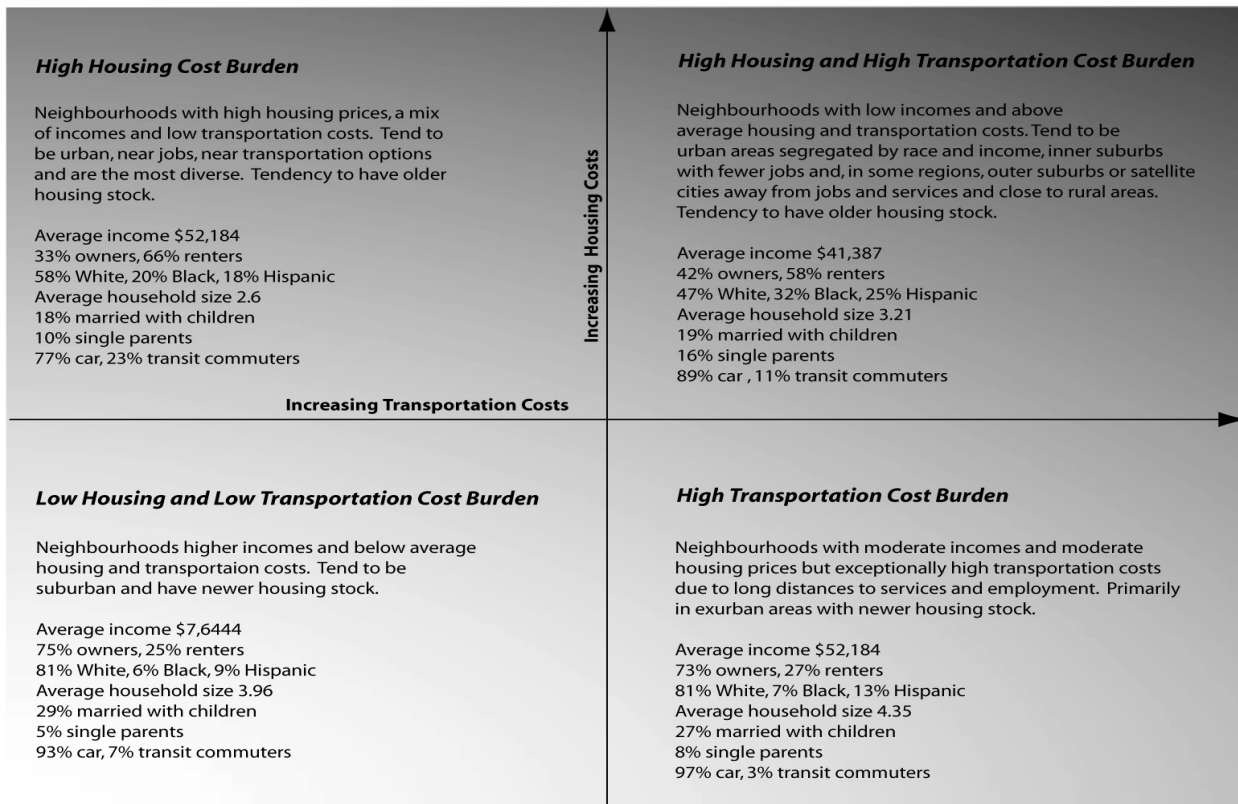8% single parents
97% car, 3% transit commuters

Figure 1. Center for Housing Technology household types. Adapted from CHT (2006).

The researchers found that there were few employment centers (neighbourhoods with 5000 or more jobs) in the High Housing and High Transportation Cost areas or the High Transportation Cost areas. The longer commute distances in these two neighbourhood types contributes to their high transportation costs. The researchers speculate that the lack of affordable housing leads to region-wide congestion, as people try to negotiate low housing prices and long travel distances. Renters, for example, are concentrated in the High Housing and High Transportation Cost and High Housing Cost areas; either they exchange high housing prices for low transportation costs or they move to suburban areas to achieve lower housing prices, which leads to higher transportation costs. While the Center for Housing Policy encourages infill development, employment location in inner suburbs, and transit improvements, they also advocate reducing the cost of commuting by car to benefit working families.

The Center for Housing Policy, Center for Transit-Oriented Development, and Center for Neighbourhood Technology all agree that due to increasing gas prices and housing costs, the demand for housing in areas accessible to transit will increase dramatically in the next twenty-five years. By 2030, the CTOD estimates that demand reach 16 million households, one-quarter of all renters and owners. The CTOD (2007) advocates building housing near transit as an affordability strategy, but they acknowledge the barriers of high land prices around transit stations, limited capital of affordable housing developers, complex financing structures, rezoning and permits, high parking requirements, and community opposition to density and affordable housing.

5.1.5 Assisted housing mobility

Although this research does not fit neatly into either category, any review of transportation choice would be remiss in omitting Moving to Opportunities (MTO), a direct response to spatial mismatch and entrenched residential segregation in the US. The size of the project, and its reliance upon major trends seen in Census data, place it within the first category of research dealing with large national trends. The controversial project, involving over 4600 families in five American cities, was a voluntary relocation program for low-income families living in public housing in high-poverty, inner city areas with over 60% minority residents (Cove et al, 2008). The approach has been called "assisted housing mobility."

The project took place in Baltimore, Boston, Chicago, Los Angeles, and New York. Three groups were created: a control group; those who received a Section 8 voucher for public housing; and an experimental group, who received a voucher plus advice on relocation to a low-poverty neighbourhood). An interim evaluation, conducted in 2002 after five years, found that about 70% of the control group had moved out of public housing into similar poor urban neighbourhood (Cove et al 2008, 12). Of the experimental group, many had moved from the low-poverty areas to other areas with higher poverty. MTO was expected to increase families' access to employment opportunities. In fact, for some families "relocating to lower poverty meant leaving behind a dense concentration of low-wage jobs for areas with fewer nearby jobs and little public transportation." (ibid, 2). Moving out of the inner city did not expand their proximity to job opportunities. Interviews with families revealed that they tried to balance housing affordability, neighbourhood safety, access to employment and access to childcare. One in seven experimental-group movers identified the loss of convenient access to public transit as a "price" they paid to get to a safer neighbourhood (ibid, 3). One in ten had moved closer to jobs they already had, which shortened their commute times. The role of social networks was also crucial: because of class and ethnic barriers in their new neighbourhoods, few movers were able to form social ties that could lead to employment or training opportunities. Some lost access to the useful social resources they had in their old neighbourhoods. The researchers recommend that future policies or programs consider linking transportation assistance with housing vouchers by focusing on employment opportunities that are close to transit routes; in suburban areas with poor transit, programs should consider linking housing vouchers with affordable financing for a reliable car. Project leaders should also help families stay in areas where rents are rapidly increasing, and help them make social ties in their new neighbourhoods.

5.1.6 Summary

The methods used in this first body of research indicate researchers' desires to describe the transportation patterns of the largest ethnocultural groups in the US using readily available data.

When examining ethnocultural differences in transportation choices, the American literature consistently links poverty with public transit use. This is problematic on several levels. Researchers assume that reliance upon public transit is detrimental to full participation in the labour market. Many researchers suggest that being a carless immigrant in the US is a major barrier to labour market and social integration; some advocate policies that would make car ownership more affordable for low-income families. Vehicle ownership is already quite high even among the low-income population. The notion of a transit-dependent population, largely made up of low-income African American, Hispanic, and Asian individuals, is consistent with the Chicago School "underclass" thesis, which is firmly linked to Burgess' models of concentric cities and spatial assimilation. Indeed, the numbers seem to indicate that only those with no other choice use public transit in the US, with the exception of a small group of high-income riders in its largest cities. Low-income transit riders are typically ignored in major transportation investments: instead of making improvements to bus transit, which would benefit the transit-dependent population, transit authorities continually make improvements to rail transit, which represents choice riders (those who own a car but commute to work by transit).

Once public transit became linked with poverty and spatial mismatch, it became easier for researchers to characterize public transit as a barrier to spatial assimilation ideals. Its use confines the low-income and largest minority groups in American cities to segregated inner city neighbourhoods, which cannot offer the wealth of employment, social, and educational opportunities that suburban residents enjoy. This reinforces aggregate transportation model ideas of the inner city as unworthy as a place of residence. This assumption is the basis for projects like MTO, which assumed that moving residents out of poor inner-city neighbourhoods would improve their employment prospects, give them a wider range of middle-class social networks, and remove spatial mismatch barriers. The mixed results of this forced spatial assimilation illuminate the complexity of "rational" housing and transportation choice in ethnocultural groups.

Research that shows many of the families living in transit zones are single and non-family households, two of the fastest-growing household types in North America, counters the prevailing trend in American research. There is also a high percentage of rental housing in these areas. This mix of household and housing types explain the high levels of income diversity in transit zones, as well as their high level of ethnic diversity. This research is unusual because it places transit dependence in the context of a public service that benefits a variety of economic and social classes. Although Reconnecting America and its research divisions view this as ideal, and advocate policies that retain and expand income and ethnic diversity in transit-accessible areas, they are clearly in the minority. The prevailing models of urban structure and growth, as well as the assumptions of aggregate transportation models, seem to equate the slow drive into suburbia, with its lower rates of income diversity and ethnic diversity, as the fulfillment of The American Dream.

In Canada, transit riders are not as closely linked to poverty or segregation in inner cities. In both Toronto and Vancouver, immigrant transit riders showed a more dispersed housing pattern than native-born transit riders.

Context Specific: Immigrant Housing and Transportation Choices in Toronto

Montreal followed the traditional pattern, with both immigrant and native-born transit riders concentrated in its city center. One-fifth of the Canadian population remains carless. Our three largest cities show robust transit ridership among a range of ethnocultural groups, even after controlling for income. There is also variation among ethnocultural groups, with Caribbean, Southeast Asian, Central and South American immigrants showing the highest transit ridership. This suggests that income, access to the labour market, and "spatial mismatch" may not be as significant in spatial assimilation in Canada as in the US; however, given the scarcity of Canadian research it is impossible to make this assumption.

Finally, individuals and households are undoubtedly making tradeoffs in housing and transportation choice: for those making the sustainable choice of living in high-density cities with multi-use neighbourhoods, the tradeoff may be higher housing prices for lower transportation costs. For others, the lure of low-cost housing ends up increasing their transportation costs so that the combined transportation and housing burden is very high. Aggregate transportation models have undoubtedly created a distinct social geography, particularly in American cities, where the low-income transit-dependent population lives in the city center while the high-income car-dependent population lives in the suburbs. Again, this pattern may not apply to Canadian cities, with their strong urban centers, high rents, and high concentration of professional and management employment in city centers.

Research that continually associates public transit dependence with a variety of perceived societal ills such as unemployment, poverty and segregation can hardly be instrumental in effecting more sustainable lifestyle choices. While assessing "rational" transportation choice, researchers tend to emphasize the inferiority of any choice that does not offer complete independence in accessing housing and employment opportunities; hence, the suggestion that automobile-based solutions are the most equitable. Viewing public transit through a poverty- and segregation-biased lens means that even high rates of cycling, walking or carpooling among immigrants, Hispanics and African Americans are not celebrated. They are, rather, seen as emblematic of the lack of opportunities available to middle- and high-income Whites; in the case of immigrants it is seen as a triumph to "assimilate" to the native-born pattern of automobile dependence. This view is problematic during the climate change era, when many municipalities and non-profit organizations are trying to encourage the use of sustainable transportation modes. Again, we need to ask the question, what is the concern? Are we concerned that certain groups cannot access labour market opportunities, or that they are entrenched in segregated neighbourhoods? Or are we merely concerned that they cannot participate in the consumer auto culture, that is, they do not have the ability to choose among a variety of transportation modes, the most efficient being the car? Similar to the housing questions, these concerns lead to research that will affect transportation policy and initiatives.

5.2 Research focusing on special population groups through economic geography and built form

Economic geographers examine the relationship between transportation and life-cycle stages, dual-earner households, and space-time constraints. Landscape architects and planners have also been devoting more attention to structural factors impacting transportation choice, such as gender constraints, land use, urban design, and attitudes towards different transportation modes. While this body of work does not address the transportation patterns of ethnocultural groups, it does begin to bridge housing and transportation choice by focusing on women

and the low-income population, two groups that tend to use public transit in different ways than middle-class men. This work begins to dissect the close relationship between the household and workplace, and argues that outdated models focused on work-based travel and single-income households do not help in understanding today's transportation patterns. Women and the low-income population are also overrepresented in public transit ridership. Research in this area uses complex suite of methodological approaches and methods, including regression analysis, interviewing, travel diaries, space-time analysis, and factor analysis. This body of work often demonstrates the use of mixed methods approaches to answer complex transportation choice questions.

5.2.1 Regression analysis

Kain's 1967 study was one of the first to show the emerging interdependence between housing density and car ownership. His study of 54 US cities and towns in the Boston Metropolitan region, using 1950 and 1960 Census data, showed that family size and labour force participation were the most important determinants of residential density. However, income was a much better determinant of car ownership. He concluded that increased income was the most important factor underlying higher postwar levels of car ownership and declines in residential density. However, he acknowledged that his regression models only offered a partial explanation, because he was unable to include transit service variables (they did not exist in the Census data) and there was not a lot of detail on employment location. Kain's study shows the interdependence of transportation modeling (which assumes the choice of an automobile at higher income levels) and transportation choice (which is constrained by new highway infrastructure and the decline of inner city neighbourhoods).

Blumenberg (2000) argues that female welfare recipients face particular barriers in using public transit, such as station and vehicle designs that do not allow room for strollers, shopping carts, parcels, or young children; flat transit fares which cost the same for short as for long trips; and safety concerns. Women are more likely to trip chain than men, in order to run errands during the commute. She points out that in Los Angeles,

> …welfare participants can reach only 4826 low-wage jobs within a 30-inute bus ride, whereas in neighborhoods immediately southwest of the downtown area (the Pico/Union area), they can get to more than 14 times as many jobs in the same 30-minute commute.

While she relies upon the spatial-mismatch hypothesis, Blumenberg points out that most studies using this hypothesis focus on African American women, who make up 26% of the welfare participants in Los Angeles. She also argues that the spatial mismatch research has been inconclusive. However, she favours public transit enhancements in job-rich neighbourhoods and car programs in job-poor neighbourhoods.

Joh et al (2008) conducted a study on the walking behaviour of White, Hispanic American, African American, and Asian American groups in eight neighbourhoods in South Bay county, Los Angeles. They used data from the South Bay Travel Survey, a 155-question web-based and mail survey conducted annually from 2005-2007. Participants completed a one-day travel diary dealing with trip purpose, mode choice, trip distance, and attitudes toward walking, driving, crime, and neighbourhood amenities. Their multiple regression models show that built environment factors, such as the number of residential units per acre and the number of four-way intersections,

Context Specific: Immigrant Housing and Transportation Choices in Toronto

impacted walking trips more than attitudes towards crime. However, their results are far from generalizable, showing that a range of sociodemographic, environmental, attitudinal and sociological factors impact the decision to walk, and the factors vary across race/ethnicity, income and gender. For example, African Americans made more walking trips than Whites, and renters made more walking trips than homeowners. Those who place a greater importance on being able to walk to neighbourhood businesses actually walked more. Violent crime had a negative impact on walking trips, while property crime rates did not. Whites are more fearful of crime than non-whites and are more deterred from walking by high violent crime rates. The built environment had a stronger influence on walking trips than crime rates for whites, but this effect was not statistically significant. For non-whites, the built environment variables were statistically significant: percentage of four-way intersections was correlated with a higher number of walking trips, while residential unit per acre was correlated with a lower number of walking trips. There were also significant differences between low- and high-income groups, and between men and women.

5.2.2 Interviewing

Hanson and Pratt (1988) question the link between home and work in their study of households in Worcester, Massachusetts. They argue that it does not make sense to separate the home (place of reproduction) from the workplace (place of production), which has led to social geographers study one and economic geographers the other. Urban transportation models focus on the journey to work, discounting all non-work travel; one set of models deals with the work commute and another set with non-work trips. This has a major impact on measuring women's travel behaviour, since older models also assumed a household with one (male) worker and one (female) full-time homemaker. Female labour force participation is often seen in relation to their education, their husband's income and the number and ages of their children, rather than in relation to the local job market. Hanson and Pratt argue that older models of urban spatial structure "have served to rigidify our way of thinking about cities, to reify the gender division of labor, and to reinforce the status quo." (ibid, 302) In an era of dual-income families, increasing numbers of single-person households and single-parent families, these models are no longer accurate. The individual has become more important, then, than the household; structural changes in work and production processes also shape decisions about work and residential location. Their study, which involved interviews with men and women in over 600 households, revealed that the vast majority found their jobs after finding suitable housing. Women were more likely to find jobs through their neighbourhood and family contacts; men through their work-related contacts. Both men and women working in professional or managerial jobs were more likely to have relocated for jobs than those in skilled manual or skilled nonmanual jobs. This study could have interesting implications on immigrants, who often use social networks to find employment and housing.

Jarvis (2003) conducted an exploratory qualitative study on housing preference, interviewing married or cohabiting couples with children living in Portland, Seattle, and San Francisco. All three are cities with vibrant urban cultures, high-value service economies, little affordable housing and extreme traffic congestion, which can be seen to contribute to the need for two-income families. Using 60 detailed life biographies, she uncovered participants' preferences for living in mixed-use, medium density environments and whether these preferences were borne out in practice. San Francisco residents were more likely to prefer urban settings and cultural diversity; Portland residents were more likely to prefer small-town environments. San Francisco residents in particular

mentioned their competing desires to live in an urban setting with access to cultural activities and restaurants and to own a house with a yard; Seattle and Portland residents were more likely to see a single-family detached house as the norm. However, when Jarvis looked at participants' housing behaviour, she found that "'where' people live rarely matches their preferences for living, their opportunities for working and their goals for parenting" (ibid, 600). She found that respondents were far more likely to accommodate changes in individual job, school and socializing activities than to change their residential location: for example, it was more important that their children attend a good school than that the school be close to their home. Parents would buy a second car to accommodate a distant day care rather than relocate. As Jarvis observes,

> Working parents, for instance, variously move between home, child-care, office, client meeting, school gate, shops, possibly overnight business travel, to the tune of a constantly changing timetable… Moreover, different spheres of daily life are typically associated with multiple, competing preferences and identities. Preference for the 'vitality' of urban living might co-exist with that of the 'good parent' wishing to send offspring to the 'best' (white, middle class, suburban or private) school. In turn this tension between competing preferences, identities and constraints stimulates consumption of 'wasteful' journeys (ibid, 602).

In effect, housing and transportation choice are constrained by household responsibilities and preferences, including societal pressures and norms.

Shearmur (2006) focused on major employment centers in his Montreal study of commute distances. From an economic perspective, distance to work is the outcome of the rational decision-making of rational decision-makers who seek the best tradeoff between wages, housing costs, and transport costs. But Shearmur notes that this tradeoff "becomes more complex as one moves from a monocentric city with fixed job locations and individual decision-makers to polycentric or dispersed cities with dual-income households and mobile employees and employers." (ibid, 332) Using census micro-data files, he explored whether people travelled further to the central business district than suburban centers. Multivariate regression showed that in Canadian cities, high-order financial services are strongly overrepresented in the CBD and certain suburban employment centers, while manufacturing jobs are overrepresented in suburban employment centers. Retail and personal-service jobs are overrepresented outside of employment centers. Occupational categories often have different gender compositions, which also tend to impact travel length: workers in clerical or retail categories have shorter commutes than high-tech manufacturing or construction, for example. He found that differences in commute length could not be attributed differences in sectoral, occupational, income, or gender. Women travelled further to work in all the employment centers, particularly the CBD, while men travelled further to certain suburban employment centers. Shearmur suggests that different types of job location exert attraction differently over men and women. He also suggests that additional information could be obtained by studying subpopulations such as people from different socioeconomic or ethnic backgrounds.

5.2.3 Space-time analysis

Kwan (1999) investigated the importance of non-work activities, such as dropping off children at daycare, in shaping gender-specific travel differences. She used travel diaries to collect data from 60 households in

Context Specific: Immigrant Housing and Transportation Choices in Toronto

Columbus, Ohio for women who worked part-time, women who worked full-time, and men who worked full-time. Using a space-time model to create three-dimensional representations of the space and time consumed by each group, she found that part-time female workers have fragmented travel patterns due to their many non-work activities spread out during the day. Full-time female workers fit in fewer non-work activities, but still more than full-time male workers who have more flexibility in workplace location, schedule, and location of non-work activities. Full-time workers travelled further for non-work activities in the evening, outside of work hours. Kwan also carried out a canonical correlation analysis with her data, a type of factor analysis. She found that women's spatial constraints were most dependent upon the number of adults in the household and the child-to-adult ratio. That is, the presence of someone to share the child-care responsibilities in the household removed constraints from women's travel. Full-time female workers tend to commute longer distances than men, which Kwan suggests is related to occupational status. This sample of European Americans had a median income of $75,000, three-quarters had professional or managerial jobs, and all had good access to cars. It is well known that those in professional or managerial occupations commute longer distances, but in this study women travelled longer distances than men in this occupational sector. Kwan's study highlights some of the major gender differences in travel patterns, which would likely be exaggerated in groups with lower incomes, less access to cars, less access to full-time work and lower occupational status to operate under more constraints.

5.2.4 Factor analysis

Many notable transportation researchers have used the method to explain variations in travel behaviour due to preferences and urban form. Researchers often conduct a survey using a representative sample size, then conduct factor analysis on the resulting data. Large data sets such as the census and the NHTS have also been used for factor analysis. The method has been instrumental in understanding structural change in Canadian cities (Murdie 1969, Maher 1974, Wyly 2007). This approach could also help place immigrants' choices within a context of immigration policy changes, housing policy changes, and decreased recognition of foreign credentials.

Hanson (1980) used disaggregate travel diary data collected over 35 days in Uppsala, Sweden with six pre-defined strata corresponding to six life-cycle stages. It collected data from every household member and accounted for all transportation modes. The study showed the importance of the multi-purpose work trip, as 53% of the work trips involved more than one stop and 57% of households make more stops on work trips than non-work trips. These work trip linkages made a considerable contribution to the success of downtown businesses: nearly a third of all travel activity in the CBD was work-linked. Unable to extricate any land use factors that might have contributed to these patterns, Hanson used Principal Components Analysis (PCA), the first stage in a factor analysis that deals with correlations between interdependent factors, to examine the correlations between land use types and the frequencies by which participants visited them. She found the most-visited group of land uses was linked most strongly to the home (doctors, schools, hospitals, church, cleaners, and train/bus stations for example), and the second linked most strongly to the workplace (restaurants, car repairs, banks, and grocery stores).

Cristaldi (2005) builds upon this earlier research highlighting gender discrepancies in transportation. She focused on commute trips in Italy, since most people commute to work because "there is hardly a municipality actually in a

position to provide employment to a greater part of its residents." (ibid, 270) In Italy, municipalities that exchange over 75% of their daily home-work trips are aggregated in a Local Labour System (LLS); there are 784 LLS in the country. She concentrated on nine of the LLS across the country, allowing for variation in transport mode, geographical variation, climate variation, and production sector. She conducted a Principal Components Analysis (PCA). She found that there were three components accounting for 70% of the variation in data: labour market participation; age and occupational type (service sector versus industrial); and work schedules self-employed late-rising workers versus economically active agricultural sector early risers). Cristaldi concluded that education level was the most significant factor in determining the composition of these factors. She confirmed that women travel shorter distances to work than men, but in Italy most workers travel up to 15 minutes to the workplace, with very few facing commutes over 30 minutes. Women with higher educational levels travelled more than self-employed women. From 1981-2001, trip lengths decreased in agricultural areas as car ownership grew, but increased in urban areas with housing decentralization. Women walked, biked, and used transit at higher rates than men. They were also more likely to be driven to work, particularly in rural areas; indeed, Cristaldi concluded that many gender-related differences were more marked in rural areas of the country.

Cervero and Kockelman (1997) considered how density, diversity, and urban design affect trip rates and mode choice of San Francisco Bay residents. They used travel diary data and land use records from the census, regional inventories and field surveys for 50 neighbourhoods. They used multiple regression to predict vehicle miles travelled and a binomial logit model to predict mode choice. Factor analysis was also useful since it

> …helps elucidate some of the underlying, though not always observable or readily measurable, dimensions of the built environment…it enriches the analysis since multicolinearity among the many descriptions of the built environment can conceal the consequences of their individual contributions to travel demand. (ibid, 210)

Two factors accounted for 66% of the total variation in the twelve built environment variables used. The factor explaining the most variation was the intensity of land uses in a neighbourhood, and the second was the quality of the walking environment. Incorporating these two factors into the regression models increased their explanatory power. The authors conclude that higher densities, diverse land uses and pedestrian-friendly designs must co-exist if meaningful transportation benefits are to accrue; neighbourhood characteristics influenced mode choice the most for non-work trips. Cervero and Duncan (2003) used factor analysis in another similar study in the San Francisco Bay area, where the main urban design factors accounting for variation in walking and cycling were street and city block characteristics along with the mix of land uses.

Kitamura et al. (1997) used both regression and factor analysis to examine individuals' travel choices in five San Francisco neighbourhoods, specifically whether people who used transit chose denser, inner city neighbourhoods while people who drove chose less dense, suburban neighbourhoods. The factors considered were demographic and socioeconomic attributes, transit and highway accessibility, pedestrian/bike facilities, accessibility to opportunities, reasons for residential choice, perception of neighbourhood quality, and attitudes towards transportation, the environment and other aspects of urban life. This data was collected by the use of

Context Specific: Immigrant Housing and Transportation Choices in Toronto

travel diaries that were randomly mailed to addresses in the five neighbourhoods. The factor analysis revealed eight factors that explained 43.3% of the total variation in the data: pro-environment attitudes, pro-transit attitudes, suburbanite attitudes, car mobility, time pressure, "urban villager" attitudes, traffic control measures, and workaholic attitudes. When integrating these factors into their six regression models, the attitude factors added significant explanatory power to the models. The authors conclude that "attitudes are certainly, and perhaps more directly, associated with travel than are land use characteristics." (ibid, 156)

5.2.5 Summary

The economic geography and built form approaches have informed questions of transportation choice in many ways. Economic geographers have highlighted gender barriers in using public transit due to the particular time and space constraints that women face; interestingly, it is one of the only areas in transportation literature that is dominated by female researchers. It has characterized lifestyle preferences as complex, and not always borne out in behaviour. It has also underlined the contribution of individuals' occupational sectors on housing and transportation patterns and choices. There is a deeper understanding of how transportation patterns vary depending on household responsibilities and trip purpose. Researchers concentrating on the built form have also noted the influence of infrastructure and land use on transportation choice, parti cularly for non-motorized modes. Structural changes, then, have a major impact on transportation choice.

Researchers have exposed the futility of maintaining the separation between workplace travel and home-based travel, between commuting for work and travelling for household and social purposes. There are some obvious links between housing and transportation choice and some evidence that people make trade-offs in order to have the lifestyle they desire. For example, workers in professional and managerial occupations may travel farther to work than those in service-sector jobs, and households with children and dual incomes face a number of time- and activity-based constraints. The complexity of these travel patterns has led to mixed methods approaches to address both patterns and behaviour.

These research results may apply to Canadian immigrants because they are likely use public transit as they search for suitable work and housing, and show higher rates of transit use after many years in Canada. With the trend towards higher education in recent immigrants, many may end up working in professional and managerial occupations. Because immigrants are more likely to have larger families and to live in households with children, their transportation patterns would likely show significant time and space constraints. Their transportation choice may not reflect their preferences, but rather the reality of juggling many household and employment responsibilities. Their tendency to locate in the suburban areas of Canadian cities means that their built environments would have a further impact on their transportation choice.

5.3 Summary of research on transportation choice

The literature on immigrant and ethnocultural patterns of transportation choice is still very limited. The older aggregate models focused on transportation efficiency and tended to ignore social and environmental impacts, one reason the travel patterns of specific population groups is still so underdeveloped in both the US and Canada. Perhaps unintentionally, aggregate models still manage to have a major impact on the urban structure and growth

of American and Canadian cities. Combined with the concentric, housing career, spatial assimilation, and spatial mismatch models, they have created an urban form typology that makes sustainable lifestyle choices very difficult. The persistent segregation and spatial mismatch problems in American cities are a direct social consequence of housing and transportation policies, particularly the relentless push towards homeownership and car ownership. Recent studies using disaggregate models have confirmed the complexity of choice in postmodern society. Yet many Canadian municipal planning documents outline policies and programs around sustainable transportation.

National data in the US indicates that African Americans, Hispanic Americans and in some cities, Asian Americans, travel further to access jobs, health care, recreational activities and services. Those with lower incomes spend a greater proportion of their incomes on transportation. The concentration of African Americans and Hispanic Americans transit users in the inner city, low-income population means that they have less reliable access to suburban labour market opportunities. These groups also show higher rates of walking and cycling. New immigrants, in particular, show a higher rate of carpooling than the native-born population. While improvements to public transit would primarily benefit African Americans and Hispanic Americans, the de-emphasis on transit-dependent individuals and continued investment in higher-income choice riders through rail infrastructure has resulted in a polarization in transit users. However, researchers assert that transit improvements cannot be the only solution, since they equate transit reliance with decreased labour market participation and decreased social, economic, and spatial assimilation. Car ownership in the US is also extremely high even in the low-income population. Since non-motorized travel is so prevalent among the dominant ethnocultural groups in the US, it could be assumed that improvements to walking and cycling infrastructure would also benefit these groups.

In general, this research treats transit dependence as a significant liability because it exists in an economic framework that places a high value on rational choice. The ability to choose from a variety of options is highly valued, particularly when the car is considered the most efficient option. However, some researchers have found car-free experiences, transit experiences, and increased knowledge about sustainable transportation modes considerably impact future transportation behaviour. Vehicle Miles Travelled (VMT) has dropped in both the US and Canada in 2008 due to high gas prices, the first decrease since the 1970s oil crisis. Some research has shown that households living in mixed-use neighbourhoods with transit access have the lowest combined expenses of housing and transportation. Transit zones were found to have more income and ethnic diversity than areas further from transit, but whether or not this is beneficial is questionable in a research paradigm that equates transit use with the disadvantages of poverty, unemployment, and spatial segregation. Yet even the MTO project, which aimed at increasing employment opportunities for low-income families used to living in segregated neighbourhoods, decreased transportation choice. For new immigrants, spatial assimilation would seem to decrease the tendency to carpool.

This work draws upon all five classic models of urban form and growth. Although the models are only occasionally mentioned, researchers assume that assimilation, social or spatial, is beneficial; or rather, its opposite, residential segregation, is harmful. Assimilation should generally follow a concentric pattern so that households can free themselves of deprived inner city neighbourhoods and achieve homeownership. And assimilation, particularly to the car-dependency of the suburban White population, frees African American and Hispanic American populations

from spatial mismatch. Carpooling, transit, walking, and cycling in this context would seem to be barriers to immigrant assimilation.

There is a significant body of research that shows transportation choice is tied to lifestyle choices and demographic patterns, such as the presence of children and the growth of dual-earner households. Housing and transportation choice are constrained by household responsibilities and preferences, including gender assumptions and norms. Land use, the quality of the walking environment, and residential neighbourhood preferences also factor into transportation choice, with mixed-use neighbourhoods with good quality walking environments and transit access fostering more transportation choice. Structural changes, such as increased female participation in the workforce, a transition away from two-parent, two-child families to single-person and nonfamily households, and an increasing preference for transit-oriented and neotraditional neighbourhoods, seem to question decades-old transportation assumptions.

Residential choice seems to be remarkably fixed, and individuals and households seem more likely to make adjustments to job, school, and social activities rather than relocate. Workers in professional or managerial occupations seem to travel further to access these jobs; people travel farther to make all their other choices work. There is, then, some indication that housing choice is prioritized over transportation choice: housing acts as the nucleus around which the electrons of employment, school, and social activities rotate.

A good deal of this research may not be applicable to Canadian cities, where there seems to be a broader demographic using public transit, including many immigrant groups. The links between poverty and public transit use does not seem as firmly established in Canada. Some researchers highlight the vibrancy of Canada's inner cities, with their concentration of managerial and professional jobs, which differ significantly from American cities. Canada's inner cities also seem to house the majority of transit users, although immigrant transit users are dispersed in Toronto and Vancouver. Because Canada has fewer cities than the US, and only a handful with extensive transit systems, transit zones in Canada may not be as income or ethnically diverse as US transit zones; in the larger American cities, housing prices in transit zones were quite high. Toronto and Vancouver in particular have high rents and high homeownership rates in their core areas. Canada also has significantly higher gas prices than the US, and many have been switching to public transit, cycling, and walking in 2008, resulting in decreased trips by car.

Many Canadian municipalities now acknowledge the importance of public transit and balanced transportation planning, although they lack a steady source of funding such as the US Intermodal Surface Transportation Equity Act (1991) and its successors. The City of Brampton, adjacent to the City of Toronto, acknowledges that "a major shift from automobiles to transit use also requires senior government funding of transit, together with proportional reductions in the many hidden subsidies for roads that promote automobile use." (2008, 166) As a city whose population is largely shaped by immigration, Brampton's Official Plan objectives include the implementation of a balanced, integrated and accessible transportation system (2008, 166). They aim to create strategic links and regional services in cooperation with transit authorities in Mississauga, Toronto, York region and other adjacent municipalities. Toronto's Transit City Plan (2006) proposes seven new Light Rapid Transit lines, which have now

been approved and funded by the Province of Ontario. The new lines will link the existing subway lines to the inner suburbs of Etobicoke, Scarborough and Don Mills, all of which have significant immigrant populations; they are currently in the community consultation and environmental assessment stages. The Toronto Transit Commission has attempted to ease the transition for new immigrants by providing information and services in 140 languages. Metro Vancouver has included "increase transportation choice" as one of its four strategic objectives since the Livable Region Plan was passed in 1975. With the adoption of the Livable Region Strategic Plan in 1996 and formation of the Greater Vancouver Transportation Authority (TransLink in 1998), the region began to plan for long-range transportation infrastructure. Montreal's First Strategic Plan for Sustainable Development (2005) includes actions to bolster cycling infrastructure, promote car sharing, and encourage sustainable transportation to workplaces. Transit agencies have also been instrumental in increasing transit mode share through programs like the U-Pass in Vancouver, Edmonton and Windsor, which allows university and college students discount passes for unlimited travel. Considering the high percentage of immigrants who must pursue further education or training once they arrive in Canada, U-Pass programs are likely having a considerable effect on high transit ridership rates for these groups.

How useful are transportation models in explaining and predicting immigrants' transportation choice in Canadian cities? Do urban structure and growth models help us to disentangle complex transportation patterns and choices? The scarcity of Canadian research in this area leaves many of these questions unanswered. However, American research indicates an increasing pressure on the single-family car-dependent American Dream, which has been very difficult for low-income people, renters, immigrants, and members of certain ethnocultural groups to achieve. Certainly, large Canadian municipalities may differ because of their high costs of housing, high public transit ridership, concentration of employment in city centers, and lack of inner city segregated neighbourhoods. Many Canadian municipalities have made significant attempts to improve their current public transit infrastructure and increase transit's modal share, although funding from the upper levels of government is not always secure.

6.0 Bridging the gaps: A preliminary research design

6.01 Bringing housing and transportation research together

Housing and transportation research are two bodies of work that still exist in virtual isolation from one another, despite the interesting work done by economic geographers and Reconnecting America. This reflects the traditional models, which were fairly simplistic in nature and generally did not anticipate the impacts of housing, tenure, or location on transportation choice. While municipal and regional planning documents often contain strategic directions around housing and transportation infrastructure, they are increasingly beginning to link the two policy areas.

Canadian researchers have accomplished a lot in the area of immigrant housing choice and spatial settlement patterns, but they have not delved very far into issue of immigrant transportation choice. The wide spectrum of immigrant and ethnocultural preferences and constraints on housing choice makes it difficult for researchers to uncover generalizable trends or patterns. Similarly, in the few studies done on immigrant transportation choice, there seem to be significant differences between ethnocultural groups. This inability to reach generalizable

Context Specific: Immigrant Housing and Transportation Choices in Toronto

conclusions raises several questions. First, what is the purpose of this research? If the impetus for housing and spatial settlement research is the desire for better immigrant integration into the housing and labour markets, what are the implications of a variety of ethnocultural experiences? Why do models of urban structure, urban growth, and aggregate transportation demand persist in the research despite inaccuracies in their application? Are they normative rather than explanatory? Finally, how useful are these models, and the methods which seem to accompany them, in a study on immigrants' housing and transportation choices in the Toronto CMA?

The underlying goal of American research on these issues seems to be to document inequities in the housing and transportation choices of African Americans and Hispanic Americans, as the two largest ethnocultural groups in the US. This is problematic for several reasons. These two groups seem to face particular challenges in labour market and housing discrimination because of entrenched racism in American society. This in effect may make them somewhat atypical in ethnocultural groups, although they are in fact the largest minority groups in American cities. That is, their realities may not be the same as the realities of immigrants from a variety of ethnocultural backgrounds. As Canadian research shows, there are many variations between ethnocultural groups; the experiences of two groups cannot be generalizable. The realities of segregated neighbourhoods, spatial mismatch and public housing concentration seem to be linked to these two groups in the US, which is a pattern not typically seen in Canadian cities.

The concentration of low-income African American and Hispanic American individuals in both transit ridership and segregated neighbourhoods draws a Chicago School link between poverty, unemployment, spatial segregation, and public transit use. The resulting perception among some researchers is that there is a "transportation underclass". This perception guides most American research on the use of public transit by minority groups, and encourages the conclusion that public transit use is in no way beneficial; in fact, we had better start buying low-income households their own cars if we want them to succeed. This viewpoint encourages assimilation in all its forms, from social to spatial, even extending the model to "transportation assimilation." In a culture that prizes objectivity and rationality, it is difficult to understand the viciousness with which public transit is attacked in the literature.

One can only conclude that the concern of these researchers is that the transit-dependent are unable to make the most efficient transportation mode choice, which is very significant in a paradigm that values rationality. Paradoxically, while seeming to encourage choice, both housing and transportation policy is biased towards a single, pinnacle of desirability: the single family home and car. And yet, racism towards the African American and Hispanic American groups is systemic, affecting housing policy, public perceptions of neighbourhood choice, mortgage policy, and transportation decision making. It is in fact so ingrained in American society that it has created a distinct urban structure and growth pattern in US cities, which would be dangerous to apply to Canadian cities. This makes it very difficult to take any of the American transportation research, for example, and apply it to the Toronto CMA.

Canadian housing research may initially have been motivated by the persistence of spatial segregation, housing market and labour market discrimination in the African American and Hispanic American populations in the

US. Balakrishnan and Wu (1992), for example, speculate that housing market discrimination may have been one reason behind differences in homeownership among ethnocultural groups; they draw upon American urban sociology research. Walks and Bourne (2006, 273) write that residential clustering of ethnic groups and spatial concentration of poverty in Canadian cities "raise[s] the spectre of ghettoization." The five classic models of urban structure and growth, each of which has a unique American context, are often applied to Canadian cities. However, Canadian studies on general immigrant housing patterns, which have been careful to include at least six major ethnocultural categories, have not uncovered persistent segregation or poverty levels in any one group; to quote Walks and Bourne, "…ghettoization along US lines is not a factor in Canadian cities." (ibid) Ray and Bergeron (2004) among others argue that the absence of an entrenched history of racial discrimination and segregation makes Canadian cities different from American cities. Interviews with immigrants indicate that they rely upon their social networks and ethnocultural contacts to find housing and jobs, and many seem to stay in the same neighbourhood in which they first settled and have relatives. Some groups do not follow this pattern, and are dispersed across regions. Home ownership is becoming increasingly difficult in Toronto and Vancouver because of the high rents and high housing prices. Many Canadian neighbourhoods are becoming more ethnically diverse, and new immigrants seem content with their jobs and lives in Canada. The two glaring structural issues for policy makers are the provision of public and rental housing and the recognition of foreign credentials, the latter of which has already attracted considerable policy solutions at the Federal, Provincial and Municipal level (in Ontario and Toronto). There does not seem to be a strong link between spatial and social integration in Canadian cities, which would have been an alarming research finding in a multicultural country.

Having failed to find evidence of this link, researchers are free to move beyond general trends into the experiences of immigrant groups in finding housing upon their arrival. Understanding how people make the decision of where to live, which agencies or community networks assist them, and how best to help them in this transition has become a growing concern. This type of research focuses on the transnational social contacts, information sources, housing histories, and cultural traditions of giving and receiving help, factors that might influence housing choice in a particular immigrant group. It also allows policy makers, planners and non-profits to develop services that would meet immigrant needs in terms of finding housing, finding employment, and integrating into Canadian society. Immigrants cannot be left to the mercies of real estate agencies, car manufacturers and housing developers, who act as social filters rather than providing unbiased information on housing and transportation choice. Given the weak links between spatial and social integration in Canadian cities, perhaps this is the best way to ensure immigrants adjust to their new lives, which should be a primary concern of this type of research.

The few studies that have been done on immigrants' transportation choices highlight the reliance of immigrants on public transit, particularly in their first decade in the country and in our three largest cities, as well as the importance of providing a variety of transportation choices. In the US there is a higher reliance upon walking and cycling among African American and Hispanic American groups. New immigrants also have a higher occurrence of carpooling. American researchers seem to focus on public transit use, walking, cycling, and carpooling as barriers to labour market participation and spatial assimilation, with the exception of those advocating more mixed-use neighbourhoods. A wider spectrum of ethnocultural groups seems to use transit in Canadian cities than in American cities, where African Americans and Hispanic Americans make up the vast majority of transit

ridership, travel significantly farther and face decreased access to employment opportunities. In Toronto and Vancouver, immigrant transit users are dispersed throughout the city; lacking segregated neighbourhoods, the link between spatial and "transportation assimilation" seems unlikely.

While some researchers have bridged housing and transportation, either in economic geography or in studies on built form preferences, planning policy has also begun to bridge this gap. In Metro Vancouver's Livable Region Strategic Plan, the objective of increasing transportation choices has always been linked to the objectives of building more complete communities and achieving a more compact urban region. The City of Toronto Strategic Plan calls for a wider range of housing types to suit people of all income levels as well as more transportation choice. The Toronto Transit Commission has traditionally developed residential and commercial properties in conjunction with the Bloor and University subway lines. The Province of Ontario's Places to Grow initiative encourages the establishment of twenty-five urban growth areas as centers of commercial, recreational, economic and population growth that will accommodate major transit infrastructure (2008). Toronto's Official Plan suggests that (2006, 60)

> Lands along Toronto's arterial roads have been identified as being underutilized and providing significant opportunity for redevelopment to accommodate future growth. They offer the opportunity to increase the number of people living along major transit routes and to make use of underutilized infrastructure. Staff examined the arterial corridors throughout the City, and identified transit corridors that were already generally commercial of mixed-use in nature and that had significant large lots or had an underdeveloped character as being candidates for reurbanization. These are the Avenues (approximately 160 kilometres).

Peel Region, which includes Brampton and Mississauga, has five Livable Peel Objectives, including managing the impacts of growth (immigration, housing, infrastructure, and intensification) and achieving a sustainable land use and transportation system. Their Official Plan Review process, currently underway, includes focus areas on managing growth, transportation and a regional housing strategy. The City of Brampton's Official Plan includes an objective "to promote the development of an efficient transportation system and land use patterns that foster strong live-work relationships and encourage an enhanced public transit modal share." (2008, 168) At the mega-regional scale, a report by the Neptis Foundation (Taylor and Van Nostrand 2008) predicts that the already changing housing mix (away from single detached housing) will likely deliver higher densities for the Greater Golden Horseshoe region, while the provision of more transportation alternatives and the creation of more complete communities will be harder to accomplish in the region's postwar suburbs.

Research on housing and transportation choice tells us a great deal about the urban structure and growth of our cities. The research paints a picture that appears more garish each year: municipalities sprawling further out into farmland, car ownership increasing steadily, home ownership becoming increasingly unaffordable, the sub-prime mortgage crisis, inner cities faced with gentrification or entrenched segregation, and increased income polarization. Cities and regions are also affected by structural changes such as increased female workforce participation, fewer traditional families, more non-family households, and sustained high immigration rates. Professional and managerial jobs tend to be concentrated in Canada's inner cities, while manufacturing jobs

are overrepresented in suburban areas. Decreased foreign credential recognition, professionalization, and a diminishing supply of affordable housing, also have an impact on urban structure and growth. Transportation infrastructure has also tended to prioritize highway and road construction, with improvements to public transit infrastructure falling behind. Segregated land uses often limit the viability of non-motorized modes. Governance is also an issue: in both housing and transportation policy, municipalities often struggle to fund services and infrastructure without the support of the Provincial and Federal Governments.

In this portrait, immigrants face increasingly unsustainable alternatives. The scale of immigration to Toronto, Vancouver, and Montreal, our three main immigrant-receiving cities, is far too large to be accommodated in inner city neighbourhoods following the concentric model. The supply of rental and public housing plays a significant role in the spatial settlement patterns of new immigrants, and the persistence of ethnic neighbourhoods in these cities. Faced with high rental costs in these large cities, immigrants increasingly choose to live in the suburbs. They are pressured, through housing policy that favours homeownership at the expense of rental and public housing, high rents, and their own social networks and norms, to buy. Many choose to use public transit rather than devote money to car ownership, despite their suburban residential locations. Canadian inner cities show a concentration of professional and managerial jobs and vibrant neighbourhoods, while the suburban areas of large cities may show a prevalence of manufacturing jobs and downfiltered housing. This picture shows evidence of a crumbling American Dream.

How useful are models of urban structure and growth in studies of housing choice, spatial settlement and transportation choice? Unable or unwilling to follow the concentric or spatial assimilation model because of high housing costs, and the diminishing supply of public and rental housing, recent immigrants have settled in suburban areas, particularly in Toronto and Vancouver. Some choose to live in ethnic neighbourhoods, many of which are in suburban areas, despite high levels of homeownership and labour market participation. Many are unable to follow the housing career model because of decreased labour market participation, lower incomes, and very little affordable housing. The sectoral model, which may be the most useful of the five classic models of urban structure and growth for the dissertation research because it addresses high-rent areas as barriers to spatial assimilation and the uneven growth of cities due to transportation infrastructure, is rarely used in housing or transportation research. Canadian immigrants to not seem to suffer from spatial mismatch, as American inner city residents do. Postwar aggregate models that prioritize the private car as the most efficient, independent, and rational transportation choice continue to influence transportation infrastructure, which in turn effects the urban structure of our cities. Older models also assume that suburb-to-center commute trips from single-income households are the dominant trip type, which in turn assumes single-family housing in the suburbs is the dominant housing type. Dual income families, increased interest in neotraditional neighbourhoods, sustainable housing and transportation choices, and complex home-work interactions have informed a new transportation reality. Newer disaggregate models are still struggling to explain and predict increasingly complex trip patterns in the context of structural changes. Are the models guiding the research, or do they serve only to perpetuate outdated ideas about urban structure, transportation infrastructure, and urban growth?

Context Specific: Immigrant Housing and Transportation Choices in Toronto

Rather than informing research, the models seem to exert a normative influence upon researchers' attitudes toward homeownership, spatial assimilation, urban form, and transportation choice. There seems to be no other reason to rely upon models that show so many inaccuracies in their application. Using these models as benchmarks by which to measure our social progress and urban growth is problematic at a time when many municipalities, non-profits, and citizens' groups are advocating a variety of housing types and transportation options.

These models stay with us because they offer us The American Dream: the progression from renting in the inner city to buying a home in the pleasant, leafy suburbs with the middle and upper classes; the eventual assimilation of immigrants; the network of highways that allow us to zip back and forth in our cars. This image of the city also includes the gritty inner city where poor immigrants live, there are decreased walking and cycling opportunities, and public transit systems that offer minimal service to the low-income and minority population. This postwar urban structure is problematic for a variety of social and environmental reasons; many have argued it is completely unsustainable. Researchers use them because they believe the models to be representative of a desirable reality. But does it still make sense to view our cities as expanding concentrically forever, for immigrant groups to spatially assimilate in an increasingly diverse context, for the car to be the most rational transportation choice? In a more environmentally conscious world, should we not be celebrating the anomalies of high transit ridership, carpooling, walking, cycling, and dense inner city living among some immigrants and ethnocultural groups? The models do not allow us to do so. In a study of immigrant housing and transportation research, it is more useful to be aware of these models, their assumptions, and their normative qualities than to use them to frame the research. Two exceptions seem to be the sectoral and housing trajectory model, particularly in a study based in the Toronto CMA. These two models, which allow for variation in low-income and ethnocultural housing and transportation choice due to structural and cultural factors, would be useful in framing the research.

Many gaps in the current research have arisen from the chasm separating housing and transportation research. For example, what is the connection between housing choice and the location of employment and training opportunities for new immigrants? What is the influence of immigrants' housing history on their housing choices in Canada? What is the connection between transportation infrastructure and housing choice? Is public transit used in the housing search process, and does this impact housing choice? How do housing decisions impact transportation choice? For new immigrants, what are the barriers to using public transit or to buying a car? Planning policies are beginning to bridge these gaps with the recent emphasis on creating complete communities with transportation choice. The City of Toronto, City of Brampton and Region of Peel all acknowledge the importance of immigration on population growth and therefore housing demand, although they do not yet link immigration to increased transit demand.

6.02 A methodological approach

A methodological approach for a study on housing and transportation choice for immigrant groups in Toronto needs to integrate some of the methods used in each discipline. The main question is whether it is possible to do a study of the general housing and transportation choices of recent immigrants to the Toronto CMA, or whether it is more feasible to explore the choices of one or two immigrant groups. Some methodologies are more useful

in finding general patterns using large sample sizes, such as data comparison, the index of segregation, index of dissimilarity, surveys, logit models, and the housing + transportation index. Others are more applicable to a study involving specific ethnocultural groups and smaller sample sizes, such as interviewing, and space-time analysis. Factor analysis, surveys, and regression are three methods that seem applicable in either case. The more complex economic geography methodologies usually involve mixed methods approaches, such as a combination of factor analysis and interviewing, factor analysis and regression, or the use of travel diaries and interviewing.

The research questions, as outlined in Section 2.0, are as following:
- How do recent immigrants make housing and transportation choices in the Toronto CMA?
- How does transportation choice fit into larger structural patterns of immigrant settlement, suburbanization, transportation infrastructure, and employment opportunities in the Toronto CMA?
- How do established models of structure, growth, and transportation choice influence our understanding of immigrants' housing and transportation choices in the Toronto CMA?

Considering the wealth of information in the Canadian Census related to housing, ethnocultural groups and immigrant country of origin, it may seem that a study looking at general patterns is most appropriate. The small number of studies on immigrant transportation choice seems to reinforce the need for a study with a large sample size, which would reveal general patterns. One could then use a method such as the index of segregation combined with a logit model, for example. However, there is no national transportation data that includes household or individual characteristics such as ethnocultural identity except the Census, which only has one question related to transportation. This effectively rules out the possibility of doing a study on the general patterns of immigrant housing and transportation patterns in Toronto, unless a survey with a large enough sample size was designed; American studies tend to use large national or state-wide datasets. Existing literature using large sample sizes across Canadian cities and using regression analysis, the index of dissimilarity, and the index of segregation have failed to identify general trends in immigrant housing choice and spatial settlement. Similarly, regression or logit models have not identified general trends in transportation choice. Factor analysis and interviewing, however, stand out as identifying trends in specific population groups. Factor analysis would require data collection in the form of a survey, from which interviewees could be recruited.

A study that attempts to draw together previously unrelated knowledge on housing and transportation should also aim to inform our models of urban structure and growth. In particular, the study should use the sectoral and housing trajectory models, which seems to show the most potential for explaining patterns of immigrant housing and transportation choice. The research should not rely upon the concentric, spatial assimilation, housing career, or spatial mismatch models; nor should it rely on assumptions of rational choice in transportation. Breaking away from these models will allow the research to outline a new understanding of the Toronto CMA in light of structural change and recent sustainable housing and transportation developments. The sectoral and housing trajectory models, on the other hand, will be useful because of their ability to accept less dichotomous housing and transportation choices. For example, the sectoral model allows an understanding of urban structure, growth, and immigrant spatial assimilation in the context of specific barriers such as high-income neighbourhoods and high-speed transit infrastructure. Housing trajectory, rather than housing career, is more accepting of factors

such as housing market discrimination, decreased incomes, ethnocultural preferences, and other factors that may influence immigrants' housing choices.

Since there is no rich database for transportation choice, a survey would have to be designed. Certain immigrant groups show a tendency to congregate residentially in Canadian cities (Italian, Jewish, Chinese, Polish) while others do not (Latin American, Indian Bengali, Filipino). Some have a tendency to use public transit in our major cities (Caribbean, Southeast Asian, Central and South American) and some do not (East Asia, Europe, West Asia, North America). There is some evidence that housing choices are made before transportation choices, and that people are relatively fixed in their neighbourhood choice. Therefore, it makes sense to approach the study through the housing lens. Given the time constraints and scope of a dissertation, an in-depth case study approach examining the housing and transportation choices of a particular immigrant group over time would be ideal. This would allow the questions of choice to be explored but also give insights to the structural change context: how changes in immigration policy, housing policy, and transportation infrastructure influence housing and transportation choice. Some initial interviews could be carried out to develop and test the survey instrument. The survey data could be used for factor analysis, which could offer insights on urban structure and the context in which choices are made considering the immigrants' period of arrival.

The survey would include a final question that asks respondents whether they would like to do a follow-up interview. Interviews could also be arranged with the help of ethnocultural community groups and immigrant service providers. The survey would need to address:

- Factors influencing housing choice (social networks, language and cultural retention, home ownership preference, housing type preference, neighbourhood preference, housing history)
- Factors influencing transportation choice (housing choice, income, labour market participation, presence of children, dual incomes, attitudes towards different modes, transportation history)
- Housing and transportation barriers to immigrant spatial assimilation (high price of housing, location of rental and public housing, high price of car ownership, high price of fuel)
- Environmental awareness and preferences (sustainable modes of transportation, density, multi-use neighbourhoods)

The sampling method should be carefully chosen. Figure 2 is a comparison of the different types of sampling most appropriate for a survey administered to certain immigrant groups in the Toronto CMA. Many of the sampling methods involve non-profit or immigrant service providers in order to get access to recent immigrants, such as those used by Murdie (2002) and Ghosh (2007). It is assumed that for a purposeful sample, one would have to include early questions to "screen out" participants such as, "What is your mother tongue?", "What is your ethnocultural background?", "Were you born in Canada?", and "What year did you immigrate to Canada?" in order to get respondents from the desired immigrant groups and the desired immigrant period. This is commonly done in phone and web surveys. Simple random sampling could be done using a market research firm, as they have random dialing methods that use residential telephone listings. A mail survey could also be done, targeting one suburban and one urban neighbourhood for each group. The neighbourhoods would be chosen using Census data comparison.

Figure 2. Sampling methods most appropriate to the survey.

Sampling method	Advantages	Disadvantages
Convenience sampling	-Could target certain neighbourhoods, street intersections, community centers, or transit routes -Could balance urban and suburban areas by choosing some locations in each -Relies on in-person survey rather than phone, mail, or web	-Identifying the distinct locations in the Toronto CMA -May not offer a good mix of individuals within an immigrant group
Judgment sample	-Could use immigrant service providers and cultural associations to provide a phone or mail list	-May not offer a good mix of individuals within an immigrant group, as the judgment of the service provider/cultural association would be used -Not all immigrants use immigrant services or belong to cultural associations
Simple random sample	-Could be seen as more accurate and objective -Could use mail, phone, or web survey -Could choose one suburban and one urban neighbourhood for each group	-Would have to choose certain census tracts and target individuals within them, either by mail or by phone -More time intensive because it would require trial an error to get individuals in the specific immigrant group and immigration period
Purposeful sampling: Snowball sample	-Could use immigrant service providers and cultural associations to provide a phone or mail list to start with, or ask them to pass along a web survey -More efficient in attracting people from a specific immigrant group and immigration period	-Seems to be frowned upon by UBC Ethics Committee -May not offer a good mix of individuals within an immigrant group -Not all immigrants use immigrant services or belong to cultural associations -May have difficulty balancing urban and suburban individuals
Purposeful sampling: Criterion sample	-Could use immigrant service providers and cultural associations to provide a phone or mail list, or ask them to pass along a web survey -More efficient in attracting people from a specific immigrant group and immigration period	-May not offer a good mix of individuals within an immigrant group -Not all immigrants use immigrant services or belong to cultural associations

The survey would need to be translated into the language most appropriate to the chosen group. This fact also impacts operationalization: surveying only one ethnocultural group limits the need for translation to only one language. Immigrants will make up the majority of the interviews, but interviews with immigrant service providers will also be held. Translators will be recruited as necessary, and interviews will be held in transit-accessible public locations such as community centers. Interviews will be digitally recorded for later analysis.

Context Specific: Immigrant Housing and Transportation Choices in Toronto

This methodological approach is by no means complete or finalized. It will be further investigated in the Prospectus paper, which will be developed in the spring of 2009 in conjunction with Colloquium and Methods courses.

Bibliography

Methodological approaches

Bourassa, S., Hamelink, F., Hoesli, M. and MacGregor, B.D. 1999. Defining housing submarkets. Journal of Housing Economics 8:2 (160-183).

Bourne, L.S. and Murdie, L.S. 1972. Interrelationships of social and physical space in the city: a multivariate analysis of Metropolitan Toronto. The Canadian Geographer 16:3 (211-229).

Cervero, R. and Kockelman, K. 1997. Travel demand and the 3Ds: Density, diversity, and design. Transportation Research Part D: Transport and the Environment 2:3 (199-219).

Cervero, R. and Duncan, M. 2003. Walking, bicycling, and urban landscapes: evidence from the San Francisco Bay Area. American Journal of Public Health 93:9 (1478-1483).

Cristaldi, F. 2005. Commuting and gender in Italy: a methodological issue. The Professional Geographer 57(2) 268-284.

Goddard, J. and Kirby, A. 1976. An Introduction to Factor Analysis. Norwich: Geo Abstracts.

Harris, R. 1984. Residential segregation and class formation in Canadian cities: a critical review. The Canadian Geographer 28:2 (186-194).

Horner, M.W. 2004. Spatial dimensions of urban commuting: A review of major issues and their implications for future geographic research. The Professional Geographer 56(2) 160-173.

Johnson, R.J. 1970. Geographica: on spatial patterns in the residential structure of cities. The Canadian Geographer 14:4 (361-367).

Kitamura, R., Mokhtarian, P.L., and Daidet, L. 1997. A micro-analysis of land use and travel in five neighbourhoods in the San Francisco Bay Area. Transportation 24:2 (125-158).

Logan, J.F. 1976. Industrialization and the stratification of cities in suburban regions. The American Journal of Sociology 82:2 (333-348).

Maher, C.A. 1974. Spatial patterns in urban housing markets: filtering in Toronto, 1953-1971. The Canadian Geographer 18:2 (108-124).

Massey, D.S. and Bitterman, B. 1985. Explaining the paradox of Puerto Rican Segregation. Social Forces 64(2), 306-331.

Murdie, R.A. 1969. Factorial Ecology of Metropolitan Toronto, 1951-1961: An Essay on the Social Geography of the City. Chicago: University of Chicago Department of Geography.

Murdie, R.A. and Teixeira, C. 2006. "Urban Social Space" in Bunting T. and Filion, P.(eds.) Canadian Cities in Transition: Local Through Global Perspectives. Don Mills, ON: Oxford University Press.

Riger, S. and Lavrakas, P.J. 1981. Community ties; patterns of attachment and social interaction in urban neighbourhoods. American Journal of Community Psychology 9:1 (55-66).

Rummel, R.J. 1970. Applied Factor Analysis. USA: Northwestern University Press.

Shaw, F. and Wheeler, D. 1994. Statistical techniques in geographical analysis. New York: Halsted Press, 1994.

Wirth, L. 1938. Urbanism as a way of life. The American Journal of Sociology 44:1 (1-24).

Wyly, E.K. 1999. Continuity and change in the restless urban landscape. Economic Geography 75:4 (309-338).

Wyly, E.K. 2007. Mapping Vancouver's evolving social mosaic. Background paper for GEOG 457, University of British Columbia.

Housing choice

Balakrishnan, TR, and Hou, F. 1999. Socioeconomic integration and spatial patterns of immigrant groups in Canada. Population Research and Policy Review 18, 201-217.

Balakrishnan, TR and Wu, Z. 1992. Home ownership patterns and ethnicity in selected Canadian Cities. Canadian Journal of Sociology 17(4), 389-403.

Bauder, H. 2003. "Brain abuse", or the devaluation of immigrant labour in Canada. Antipode 35(4), 699-717.

Bauder, H. and Lusis, T. 2008. Local, Regional and Transnational Networks and the Integration and Settlement Dispersal of Filipino Immigrants. Joint Centre for Excellence in Research on Immigration and Settlement (CERIS), Ontario Metropolis Centre.

Booth, C. 1902. Life and Labour of the People in London, 3rd ed. London: Macmillan and Co.

Bourne, L.S. and Rose, D. 2001. The changing face of Canada: the uneven geographies of population and social change. Canadian Geographer 45(1), 105-118.

Burgess, E.W. 1925. "The growth of the city: an introduction to a research project", p47-62 in The City, ed. R.E. Park, E.W. Burgess, R.D. McKenzie. Chicago, IL: University of Chicago Press.

City of Brampton. 2008. Official Plan. Brampton.

City of Toronto. 2006. Toronto Plan: Flashforward: Projecting Population and Employment to 2031 in a Mature Urban Area. Toronto.

City of Toronto. 2006b. Toronto Plan: Flashforward Addendum: Projecting Housing Demand by Tenure to 2031. Toronto.

City of Toronto. 2006c. Profile Toronto Bulletin: Rental Housing Supply and Demand Indicators. Toronto.

City of Toronto. 2006d. Perspectives on Housing Tenure. Toronto.

City of Toronto. 2006e. Perspectives on Housing Affordabilty. Toronto.

Florida, R. 2008. Financial recovery needs money – and a massively different mindset. The Globe and Mail. Saturday, November 29, 2008.

Friedmann, J. 1987. Planning in the Public Domain: From Knowledge to Action. New Jersey: Princeton University Press.

Ghosh, S. 2007. Transnational ties and intra-immigrant group settlement experiences: A case study of Indian Bengalis and Bangladeshis in Toronto. GeoJournal 68:223-242.

Gilmore, J. 2008. The Canadian Immigrant Labour Market in 2006. Statistics Canada: The Immigrant Labour Force Analysis Series: Catalogue no. 71-606-X2008002. Ottawa.

Gilmore, J. 2008b. The Canadian Immigrant Labour Market in 2006: Analysis by Region or Country of Birth. Statistics Canada: The Immigrant Labour Force Analysis Series: Catalogue no. 71-606-X2008002. Ottawa.

Gilmore, J. and Le Petit, C. 2008. The Canadian Immigrant Labour Market in 2007: Analysis by Region of Postsecondary Education. Statistics Canada: The Immigrant Labour Force Analysis Series: Catalogue no. 71-606-X2008004. Ottawa.

Haan, M. 2005. The decline of immigrant home-ownership advantage: Life-cycle, declining fortunes and changing housing careers in Montreal, Toronto, and Vancouver. Urban Studies 42(12), 2191-2212.

Hanson, S., and Pratt, G. 1988. Reconceptualizing the links between home and work in urban geography. Economic Geography 64(4) 299-321.

Hiebert, D, Germain, A., Murdie, R., Preston, V., Renaud, J., Rose, D., Wyly, E., Ferreira, V., Mendez, P. and Murnaghan, A.M. 2006. The Housing Situation and Needs of Recent Immigrants in Montreal, Toronto, and Vancouver. Canada Mortgage and Housing Research Report.

Hiebert, D. and Ley, D. 2003. Assimilation, cultural pluralism, and social exclusion among ethnocultural groups in Vancouver. Urban Geography 24:1 (16-44).

Hiebert, D. 2006. Winning, losing, and still playing the game: the political economy of immigration in Canada. Tijdschrift voor Economische en Sociale Geografie 97(1), 38–48.

Hou, F. and Picot, G. 2004. Visible minority neighbourhoods in Toronto, Montreal and Vancouver. Canadian Social Trends. Statistics Canada Catalogue 11-008, 8-13.

Hoyt, H. 1939. The Structure and Growth of Residential Patterns in American Cities. Washington, D.C: Federal Housing Administration.

Hulchanski, J.D. 2007. The Three Cities Within Toronto: Income Polarization among Toronto's Neighbourhoods, 1970-2000. University of Toronto Centre for Urban and Community Studies Research Bulletin 41.

Hutton, T.A. and Ley, D.F. 1987. Location, Linkages and Labour: The Downtown Complex of Corporate Activities in a Medium Size City, Vancouver, British Columbia. Economic Geography, 63(2) 126 -141.

Hutton, T.A. 2004. The new economy of the inner city. Cities 21(2), 89-108.

Context Specific: Immigrant Housing and Transportation Choices in Toronto

Hutton, T.A., Edgington, D., Hanna, B. and Thompson, S. 2001. Urban Governance, Multiculturalism and Citizenship in Sydney and Vancouver. Progress in Planning 55(3) 173-184.

Johnston, R., Forrest, J., and Poulsen, M. 2002. Are there ghettos in English cities? Urban Studies 39(4), 591-618.

Jones, M.D. 2008. Public Housing Redux: Cleveland's Mixed-Income Hope VI. Paper presented at The American Collegiate Schools of Planning/Association of European Schools of Planning Fourth Joint Congress. Chicago, Illinois.

Kain, J. 1968. Housing segregation, Negro employment, and metropolitan decentralization. Quarterly Journal of Economics 82:175-97.

Kain, J. 1969. Race and Poverty: the Economics of Discrimination. Prentice-Hall.

Kain, J. 1975. Race, Ethnicity, and Residential Location. Urban Planning Policy Analysis and Administration Discussion Paper D 75-3, Department of City and Regional Planning.

Krahn, H., Derwing, T., Mulder, M. and Wilkinson, L. 2000. Educated and underemployed: refugee integration into the Canadian labour market. Journal of International Migration and Integration 1(1), 59-84.

Ley, D. and Germain, A. 2000. Immigration and the changing social geography of large Canadian cities. Plan Canada. 40(4).

Li, W. 1998. Anatomy of a new ethnic settlement: the Chinese ethnoburb in Los Angeles. Urban Studies 35:5 479-501).

Liu, C.Y. 2008. From Ethnic Enclave Residence to Ethnic Niche Employment? Understanding Latino Immigrants' Longer Commutes. Paper presented at The American Collegiate Schools of Planning/Association of European Schools of Planning Fourth Joint Congress. Chicago, Illinois.

Murdie, R. 2002. The housing careers of Polish and Somali newcomers in Toronto's rental market. Housing Studies 17(3), 423-443.

Murdie, R. 2007. Diversity and Concentration in Canadian immigration. Centre for Urban and Community Studies Research Bulletin 42.

Muth, R. 1961. The spatial structure of the housing market. Papers in Regional Science 7:1 (207-220).

Muth, R. 1969. Cities and Housing: The Spatial Pattern of Urban Residential Land Use. Chicago: University of Chicago Press.

Myles, J. and Hou, F. 2004. Changing colours: spatial assimilation and new racial minority immigrants. Canadian Journal of Sociology 29(1), 29-58.

Pamuk, Ayse. 2008. Housing Attainment and Location Behaviour of Second and Third Generation Immigrants in San Francisco. Paper presented at The American Collegiate Schools of Planning/Association of European Schools of Planning Fourth Joint Congress. Chicago, Illinois.

Pendakur, K. and Pendakur, R. 2002. Colour my world: have earnings gaps for Canadian-born ethnic minorities changed over time? Canadian Public Policy 28(4), 489-521.

Picot, G. and Hou, F. 2003. The Rise in Low-Income Rates Among Immigrants in Canada (Ottawa: Statistics Canada Analytical Studies Research Paper Series) Cat. 11F0019MIE-No. 198.

Province of Ontario. 2008. Places to Grow: Size and Location of Urban Growth Centres in the Greater Golden Horseshoe. Toronto.

Ray, B. and Bergeron, J. 2006. Geographies of ethnocultural diversity in a second-tier city: moving beyond where people sleep. Our Diverse Cities. Metropolis website.

Sandercock, L. 2003. Cosmopolis II: Mongrel Cities. London and New York: Continuum.

Simmons, J. and Bourne, L.S. 2003. The Canadian Urban System, 1971-2001: Responses To A Changing World. University of Toronto Centre for Urban and Community Studies Research Bulletin 18.

Statistics Canada. 2003. Longitudinal Study of Immigrants to Canada: Progress and Challenges of New Immigrants in the Workforce. Statistics Canada: Ottawa. Catalogue no. 89-615-XIE

Statistics Canada. 2005. Longitudinal Study of Immigrants to Canada: A Portrait of Early Settlement Experiences. Statistics Canada: Ottawa. Catalogue no. 89-614-XIE

Taylor, Z. and Van Nostrand, J. 2008. Shaping the Toronto Region, Past, Present, and Future: An Exploration of the Potential Effectiveness of Changes to Planning Policies Governing Greenfield Development in the Greater Golden Horseshoe. Neptis Foundation: Toronto.

Teixeira, C. 1995. Ethnicity, housing search, and the role of the real estate agent: a study of Portuguese and non-Portuguese real estate agents in Toronto. The Professional Geographer 47(2): 176-183.

Walks, R.A. and Bourne, L.S. 2006. Ghettos in Canadian Cities? Racial segregation, ethnic enclaves and poverty concentration in Canadian urban areas. The Canadian Geographer 5(3), 273-297.

Wallace, M. and Moore Milroy, B. 1999. "Intersecting claims: possibilities for planning in Canada's multicultural cities" in Fenster, T. (ed.) Gender, Planning, and Human Rights (USA and Canada: Routledge) 55-73.

Walton-Roberts, M. 2003. Transnational geographies: Indian immigration to Canada. The Canadian Geographer 47(3), 235-250.

Walton-Roberts, M. 2007. Immigrant Settlement and Retention in Second-tier and Small Urban Regions: a Case Study of Kitchener-Waterloo Ontario, Canada. Joint Centre for Excellence in Research on Immigration and Settlement (CERIS), Ontario Metropolis Centre.

Transportation choice, the home-work link, and special demographic groups

Bagley, M.N., Mokhtarian, P.L., Kitamura, R. 2002. A methodology for the disaggregate, multidimensional measurement of residential neighbourhood type. Urban Studies 39:4 (689-704).

Blumenberg, E. and Smart, M. 2008. Getting by With a Little Help From my Friends…and Family. Paper presented at The American Collegiate Schools of Planning/Association of European Schools of Planning Fourth Joint Congress. Chicago, Illinois.

Blumenberg, E. 2008. Immigrants and transport barriers to employment: The case of Southeast Asian welfare recipients in California. Transport Policy 15 (33-42).

Blumenberg, E. 2006. Transportation Assimilation: Immigrants, Race and Ethnicity, and Mode Choice. Paper presented at the Annual Conference of the Transportation Research Board.

Blumenberg, E. 2000. Moving Welfare Participants to Work: Women, Transportation, and Welfare Reform. Affilia 15:2 (259-276).

Boschmann, E.E. and Kwan, M-P. 2007. Toward socially sustainable urban transportation: Progress and potential. International Journal of Sustainable Transportation, forthcoming.

Cain, A., Hamer, P. and Sibley-Perone, J. Teenage attitudes and perceptions regarding transit use. National Center for Transit Research, Center for Urban Transportation Research, University of South Florida. August 2005.

Centre for Neighbourhood Technology. Preserving and Promoting Diverse Transit-Oriented Neighborhoods. 2006.

Center for Neighbourhood Technology. Housing + Transportation: moving the region toward greater affordability. PowerPoint presentation to the Fannie Mae Foundation. 2006b.

Cervero, R. Induced travel demand: research design, empirical evidence, and normative policies. Journal of Planning Literature 17:1 (3-20).

Cove, E., Turner, M.A., de Souza Briggs, X., and Duartes, C. 2008. Can Escaping from Poor Neighbourhoods Increase Employment and Earnings? Washington, D.C: Metropolitan Housing and Communities Center, The Urban Institute. Brief No. 4.

Deka, D. 2003. "Social and environmental justice issues in urban transportation", p332-355 in Hanson, S. and Giuliano, G. (eds.) The Geography of Urban Transportation, 3rd ed. (New York and London: The Guildford Press).

Frumkin, H., Frank, L., and Jackson, R. 2004. Urban Sprawl and Public Health. Washington: Island Press.

Hanson, S. 1980. The importance of the multi-purpose journey to work in urban travel behaviour. Transportation 9(3) 229-248.

Hanson, S. (ed.) 1995. The Geography of Urban Transportation, 2nd ed. New York and London: The Guildford Press.

Hanson, S. and Pratt, G. 1995. Gender, Work, and Space. New York: Routledge.

Hanson, S. and Pratt, G. 1998. Reconceptualizing the links between home and work in urban geography. Economic Geography 64(4) 299-321.

Heisz, A. and Schellenberg, G. 2004. Public transit use among immigrants. Canadian Journal of Urban Research 13:1 (170-191).

Jarvis, H. 2003. Dispelling the myth that preference makes practice in residential and transport behavior. Housing Studies 18(4) 587-606.

Joh, K., Boarnet, M.G., Nguyen, M.T., and Fulton, W. 2008. Interactions Between Face/Ethnicity, Attitude, and Crime: Analyzing Walking Trips in the South Bay. Paper presented at The American Collegiate Schools of Planning/Association of European Schools of Planning Fourth Joint Congress. Chicago, Illinois.

Kay, J.H. 1997. Asphalt Nation: How the Automobile Took Over America and How we can Take it Back. Berkeley and Los Angeles: UCLA Press.

Kitamura, R., Mokhtarian, P. and Laidet, L. 1997. A micro-analysis of land use and travel in five neighbourhoods in the San Francisco Bay Area. Transportation 24: (125-158).

Knight, R.L. and Trygg, L. 1977. Evidence of land use impacts of rapid transit systems. Transportation 6(3): 231-247.

Kwan, M-P. 1999. Gender, the Home-Work Link, and Space-Time Patterns of Nonemployment Activities. Economic Geography 75(4), 370-394.

Litman, T. 2003. Social Exclusion as a Transport Planning Issue in Canada. Victoria Transport Policy Institute.

Muller, Peter O. 2004. "Transportation and urban form: stages in the spatial evolution of the American metropolis", in Hanson, S. and Giuliano, G. (eds.) The Geography of Urban Transportation, 3rd ed. (New York and London: The Guildford Press) 59-85.

Pas, E.I. 1995. "The urban transportation planning process" in The Geography of Urban Transportation, ed. S. Hanson (New York: The Guildford Press) 53-76.

Pilling, A., Murray, S., and Turner, J. Catching them young: a community-based project to increase transport awareness and influence travel behaviour amongst young people. Greater Manchester Transport Resource Unit, Manchester, UK: 1999.

Pucher, J. and Renne, J.L. 2003. Socioeconomics of urban travel: evidence from the 2001 NHTS. Transportation Quarterly 57:3 (49-77).

Sharma, Madhuri. 2004. A Study of Gender and Racial Differences in Trip Chaining Behavior in Columbus, Ohio. Masters Thesis. Ohio: Ohio State University.

Shearmur, R. 2006. Travel from home: an economic geography of commuting distances in Montreal. Urban Geography 27(4) 330-359.

St. Lucie Metropolitan Planning Organization. Teenager Transportation Planners: a New Form of Public Involvement (presentation slides). 2002.

Thomas, Ren. 2007. The Social Travel Patterns of Youth and Young Adults. Masters Thesis. Vancouver: University of British Columbia.

Transportation Research Board. 2006. Research on Women's Issues on Transportation Volume 1: Conference Overview and Plenary Papers. Washington, DC: Conference Proceedings 35.

US Department of Transportation. Travel Patterns of People of Color. 2000. Washington, D.C.

Weston, Lisa Marie. 2005. What Helps and What Hinders the Independent Travel of Non-driving Teens. PhD.
Dissertation. Austin: University of Texas.

Ren Thomas

MA (Planning) PhD Student (Planning)
School of Community and Regional Planning
College for Interdisciplinary Studies
University of British Columbia
433-6333 Memorial Road
Vancouver, BC V6T 1Z2
www.renthomas.ca