Long-Term Change Around SkyTrain Stations in Vancouver, Canada: A Demographic Shift-Share Analysis

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ABSTRACT

This study examines the long-term demographic implications of the SkyTrain, a light-rail rapid transit system, on surrounding neighbourhoods in Vancouver, Canada. Using demographic Census data from 1981 and 2006, shift-share analysis shows the residents’ characteristics change over time. Results demonstrate that SkyTrain neighbourhoods near stations have become physically denser, wealthier and more educated compared to Vancouver as a whole. From these results, the article explores the contextual reasons why denser development occurred around the SkyTrain stations and the effect on residential demographics in the area.

Key Words: transit, SkyTrain, shift-share, demography, Vancouver.

INTRODUCTION

Grand public transportation projects garner press and political debate during the planning, construction, and initial operating stages. However, the last stage, the evaluation of impacts, receives the least attention although it is arguably the most important. This neglect is problematic, since completed projects are often the starting points for future plans. This case study determines the long-term demographic trends after the completion of Vancouver’s first elevated automated light-rail system, the SkyTrain Expo Line. By surveying surrounding neighbourhoods’ demographic changes between 1981 and 2006, the study demonstrates how numerous contextual factors, in addition to the presence of the SkyTrain, determine the changes that occurred in the vicinity of the Expo Line.

Since 1975, Vancouver’s regional plans included the SkyTrain. However, for many years, it existed only on paper, since the project required significant capital. When the Expo 86 World Fair was awarded to Vancouver in 1980, the plan for a rapid
transit system was finally transformed into reality (BC Transit ND). Heightened global attention around major events offers cities the opportunity to “fast-track” infrastructure construction and renewal (Chalkley and Essex 1999). Vancouver used Expo 86 as leverage to receive government funding for infrastructure projects, most notably the SkyTrain. As a showpiece of the transportation-themed Expo 86 World Fair, the SkyTrain quickly gained the requisite funding and push to prompt completion (BC Transit ND).

The SkyTrain was feasible due to the political history and regional geography of transit in Vancouver. During the 1970s, North American cities welcomed freeway construction to solve growing transportation needs. Outside of Vancouver’s city limits, low-density auto-oriented suburbs cluster around freeways. In contrast, Vancouver residents successfully lobbied to prevent freeways from cutting through their city. As a result the regional freeways end at Vancouver’s city limits. Consequently, Vancouver’s land-use patterns in the 1980s resembled 1950s street-car neighbourhoods: integrated low-rise commercial areas pocketed in residential neighbourhoods. Indeed, Price (2009) argued that Vancouver remains essentially a “street-car city” characterized by local roads instead of major highway arterials. However, as Vancouver’s population grew, so did traffic congestion. This led the City of Vancouver to choose a rapid transit system to, in part, relieve its traffic woes (Olson 2007). The city also used the opportunity to increase densification along the SkyTrain line. Vancouver, along with other municipalities bordering the rapid transit route, redeveloped and rezoned old industrial districts, relocated government buildings to SkyTrain stations, and encouraged private high-density development by means of various incentives (Babalik-Sutcliffe 2002).

The SkyTrain made use of existing thin strips of land that traversed the city and region – former railway lines. While the SkyTrain shuttled tourists between downtown Expo event sites, the 22-kilometre Expo Line extended beyond Expo grounds and ran through residential neighbourhoods and light industrial lands (Fig. 1). Since then, two additional lines have been built to connect Vancouver with its suburbs, and two more routes are in the planning phase. As the SkyTrain extended into these neighbourhoods, it began to reshape them. This study evaluates the effects that the SkyTrain has had on the neighbourhoods nearest its stations over the intervening decades. Such understanding will be an asset to academics and city planners as they develop future rapid transit plans.

TRANSPORT AND DEVELOPMENT

Rapid transit is often a large-scale public endeavour and is thus susceptible to political influence. As politicians usually hold the purse strings for large projects, planning for such investment is steeped in partisanship and re-election goals. Currying public favour is extremely important for politicians and the “image benefits” brought with advocating for a new rapid transit system are too attractive to ignore (Mackett and Edwards 1998). Because politicians can claim credit for implementing a project, they have often flocked to attractive rail transit proposals based more on its political image-boosting potential than on sound, objective analysis. In the words of one critic, “their enthusiasm has outweighed their judgement” (Mackett and Edwards 1998). British Columbia’s Premier1 at the time, Bill Bennett, said that Vancouver’s “SkyTrain [is] an investment of public dollars that will pay dividends for decades to come…” (Martin Communications 1986). Bennett’s statement indicated his confidence that the rapid transit system would bring future development and prosperity for the region.

Conversely, most transportation scholars are sceptical of the simplistic claim that economic growth will inevitably follow transit development. Access to rail transportation cannot create economic development on its own; rather, change is dependent on multiple factors (Crampton 2003). Many researchers in this field agree there must be a strong
economy for urban change to occur (Banister and Berechman 2000; Crampton 2003; Babalik-Sutcliffe 2002). Studying rail transit investments, Banister and Berechman (2000) concluded that development only occurs where economic conditions favour expansion; thus, a transit system by itself does not create development, but rather reinforces economic trends that are already in motion. If a city is in decline, construction of a transit system cannot singularly inspire development in proximal neighbourhoods. The rapid transit experience in Buffalo, New York exemplifies this point; the Buffalo Light Rail Rapid Transit is a textbook case that shows how the transit system did not create subsequent development to revitalize the city centre as planned (Hess and Almeida 2007). Furthermore, William Black (2001) argued that transportation is not a guaranteed safe investment; he claimed that private urban transit operators have been replaced by subsidized public administrations in many American cities.

If a favourable economy is found alongside construction of rapid transit, the transit line can influence the form of subsequent development. According to urban economists, a location’s value is established partly by its accessibility; thus by improving transport to a location, it can simultaneously increase the land’s value (Knox and McCarthy 2005, Vickerman 2008). The amenity of rapid transit attracts developers to construct high-density residences near transit stops. When more units can claim transit access, the potential profits are greater for a developer; hence, condominium development is often used in such areas. Thus, property owners near transit stations are poised to gain additional profit because of the locational proximity to a rail station (Smith and Gihring 2006).

Besides private profit-motivated developers, the public sector has great interest in high-density Transit-Oriented Development (TOD). Indeed, rapid transit proponents and city planners believe that transit investments may be used as a strategy to limit the extent of urban sprawl and contribute to high-density development (Smith and Moore 1993, Handy 2005). However, such strategies require effective comprehensive planning. If local authorities, such as city development planners and local public trans-
port providers, do not integrate new transit projects with neighbourhoods, ridership can lag behind predicted levels (Babalik-Sutcliffe 2002). Besides a strong economy, successful transit systems also require complementary zoning that ensures that the most desired development types actually occur (Cervero and Landis 1993). The City of Vancouver passed individual bylaws to create specially-zoned areas that dictated the high-density form of development, such as around the SkyTrain’s Joyce Street station (City of Vancouver 2008). As a result, this area contains clusters of high-rises today. These zoning changes initiated by the local municipalities along the SkyTrain line, including the City of Vancouver, enabled TOD to occur in accordance with regional plans aimed at creating dense development around SkyTrain stations (Babalik-Sutcliffe 2002).

Public assistance and appropriate policies are necessary to encourage higher density development (Handy 2005). In addition to complementary zoning, Vancouver city planners decreased the relative supply of other developable land. They placed restrictions on large retail and office towers far from the SkyTrain or transit routes; moreover, they offered financial incentives, fewer requirements for parking spaces, and tax reductions to stimulate TOD (Babalik-Sutcliffe 2002). As a result of the SkyTrain and its associated development schemes, Mackett and Babalik-Sutcliffe (2003) reported that Vancouver’s city centre and “slum areas” were successfully revitalized.

When city planners and private developers build TODs, the new high-density developments have an impact on existing local residents. The increase of new, costlier housing often causes a change in the demographics of the area. In particular, the wealthy directly benefit from urban development schemes, since new developments often attract top market prices (Molotch 1976).3 Socio-economic diversity also increases, as TODs mix new high-rises commanding top market prices amidst less-wealthy residents still residing in older buildings.

This trend has inherent implications for locational equity issues. For instance, Olson (2007) showed that in any given Vancouver Census Tract, there has been an overall relative decrease in the percentages of low income during the 1980s and 1990s. Part of this demographic change is due to the changing nature of the housing stock. Over a 15-year period in Vancouver during the 1980s and 1990s, the pace of construction of rental units lagged while the development pace for owned dwellings surged ahead. Thus, fewer rental units were built which culminated in what Olson (2007) described as a relative ‘loss’ of 10,500 rental dwellings since more new dwellings were built for private ownership.4

Relatively expensive new housing developed near transit stations has the added effect of pushing poorer residents further away from areas with easy transit access. This may have the potential to increase dependence on public assistance among the poor, since they are farther removed from transit and thus less able to travel to distant jobs (Cervero, Sandoval and Landis 2002). Furthermore, besides welfare recipients, students and seniors are other transit users who often depend heavily on transit systems. Relatively expensive new housing developed near transit stations hinders close proximity to transit for poorer residents. The result is less equitable access for the less affluent.

**METHODOLOGY**

To evaluate the changing demographics of SkyTrain station neighbourhoods in Vancouver, this study employs shift-share analysis. Academics developed shift-share analysis in the 1960s to study locational employment trends by job type or sector (Herzog and Olsen 1977). Shift-share analysis displays the relative change of employment across different categories of industry or occupation. Researchers compare employment changes for a city, regional, or national context. Traditionally, shift-share analysis has been confined to the study of occupations. In this
study, however, I apply the method of shift-share analysis to demographic data instead of employment data. This will measure the changing traits of residents in certain neighbourhoods and compare it to the characteristics of Vancouver as a whole. This application is sound because shift-share analysis measures the relative change of two areas.

Shift-share analysis comparatively analyzes the change of a smaller local area in relation to a broader reference area. The smaller area in this study is a set of Vancouver Census Tracts (CTs) that include or are near SkyTrain stations in Vancouver (Fig. 2). Using Canadian census data from 1981 and 2006, this time frame allows long-term demographic changes to emerge, since it takes several years for populations to respond to infrastructural change (Statistics Canada 1981, Statistics Canada 2006, Cervero and Landis 1993). The larger reference area is the Vancouver Census Metropolitan Area (CMA). Although the Expo Line SkyTrain extends beyond Vancouver city limits, only the stations within the city are included in the analysis. Additionally, I excluded SkyTrain stations in Vancouver's downtown core because the predominant land-use since 1981 has been non-residential office space, thus the downtown core does not significantly contribute to the study of demographic change among residents.

Shift-share analysis involves two measurements, “shift” and “share”. The “share” component, or “mix” effect, measures the change in the local area that reflects the change in the mix of indicators at the regional level. For instance, if a particular indicator increased more rapidly than others over time, it would stand to enjoy a greater increase. In this case, I measure the share effect for high-density dwellings compared to total dwelling units (Table 1):

\[
\text{Share} = \text{Number of Sky Train high-density private dwellings in 1981} \times (\text{the percentage change of Vancouver’s high-density private dwellings between 1981 and 2006} – \text{the percentage change for Vancouver’s total number of private dwellings between 1981 and 2006})
\]

\[
\text{Share} = 1,365 \times (121.2/100)-(71.4/100))
\]

\[
\text{Share} = 680 \text{ new high-density private dwellings}
\]

Table 1: Dwelling shift-share analysis.

| HIGH-DENSITY DWELLING UNITS - Number of Dwellings | SkyTrain Census Tracts | Vancouver CMA Census Tracts |  
| --- | --- | --- | --- | --- | --- |
|  | 1981 | 2006 | % change | 1981 | 2006 | % change |
| Number of private dwellings - Apartments with 5 or more stories | 1,365 | 12,820 | 839.2 | 47,130 | 104,270 | 121.2 |
| All other private dwelling types | 21,560 | 32,670 | 51.5 | 429,625 | 712,955 | 65.9 |
| Total, all private dwellings | 22,925 | 45,490 | 98.4 | 476,755 | 817,225 | 71.4 |

<table>
<thead>
<tr>
<th>SHIFT-SHARE: Dwellings</th>
<th>Share (Mix)</th>
<th>Shift (Local Growth)</th>
<th>Combined Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of private dwellings - Apartments with 5 or more stories</td>
<td>680</td>
<td>9,800</td>
<td>10,480</td>
</tr>
<tr>
<td>All other private dwelling types</td>
<td>-1,178</td>
<td>-3,108</td>
<td>-4,287</td>
</tr>
<tr>
<td>Total, all private dwellings</td>
<td>-498</td>
<td>6,193</td>
<td>5,695</td>
</tr>
</tbody>
</table>
Figure 2. SkyTrain Census Tracts. The outlined Census Tracts show the SkyTrain neighbourhood study area. The dots are SkyTrain stations. Reproduced from Statistics Canada 1981.
In this example, the share figure measures the number of new high-density dwellings that can be accounted for by the particular mix of housing types in SkyTrain neighbourhoods. Since high-density dwellings grew faster across the region than other dwellings types, the SkyTrain area stood to gain units at a faster rate than the region overall because it has significant numbers of high-density units.

The second component of shift-share analysis is “shift” or “local growth” effect. Shift isolates an indicator and measures how it changed in the local area compared to the broader region. In this instance, the shift effect measures the change of high-density units in SkyTrain neighbourhoods compared to Vancouver CMA (Table 1):

\[
\text{Shift} = \text{Number of SkyTrain high-density private dwellings in 1981} \times (\text{the percentage change of the SkyTrain CTs' high-density private dwellings between 1981 and 2006} - \text{the percentage change for Vancouver CMA's high-density private dwellings between 1981 and 2006})
\]

\[
\text{Shift} = 1,365 \times ((839.2/100) - (121.2/100))
\]

\[
\text{Shift} = 9,800 \text{ new high-density private dwellings}
\]

In this example, the shift component shows that SkyTrain neighbourhoods gained a surplus of 9,800 high-density dwelling units due to local advantages. In other words, the SkyTrain CTs had a greater proportional increase than the Vancouver CMA as a whole.

Lastly, combined effects are calculated by adding the shift and share figures together. The sum accounts for both the “mix” of characteristics and the effects of local factors.

Before discussing the data results, it is important to note two precautions of shift-share data. First, if both the local and regional areas (SkyTrain CTs and Vancouver CMA) change at the same rate, a regional shift does not occur (Stevens and Moore 1980). Second, a negative shift-share value does not necessarily denote decline although this is possible. Often a negative value merely demonstrates that the indicator increased more slowly (Stevens and Moore 1980).

**DATA**

To begin, population growth occurred in both SkyTrain CTs and Vancouver CMA. As Table 2 shows, population of the SkyTrain CTs increased 54 percent, while Vancouver CMA rose 67 percent. Although the SkyTrain CTs followed Vancouver’s trend in population growth, the characteristics of residents in SkyTrain CTs and Vancouver CMA differ, as well as the pace of dense residential development.

High-rise construction had an overwhelming locational preference for SkyTrain neighbourhoods. In Table 1, shift demonstrates that SkyTrain neighbourhoods experienced rapid development between 1981 and 2006. Developers constructed 9,800 more high-density units in SkyTrain areas than they would have had if the neighbourhoods followed the same trends as the greater Vancouver region.

While Vancouver densified, its population changed demographically as well. In Table 3, the share component shows that the region gained educated residents in each

Table 2: Population change, 1981-2006.

<table>
<thead>
<tr>
<th>POPULATION CHANGE</th>
<th>1981</th>
<th>2006</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>SkyTrain Census Tracts</td>
<td>68,268</td>
<td>105,282</td>
<td>54.2</td>
</tr>
<tr>
<td>Vancouver CMA</td>
<td>1,268,183</td>
<td>2,116,581</td>
<td>66.9</td>
</tr>
</tbody>
</table>
Table 3. Education shift-share. Many who begin education do not officially complete their program, thus the numbers of certified educated individuals likely makes up a smaller sample than perhaps anticipated. Regardless, it is the comparative nature of this analysis that is of interest.

* Note that CEGEP is similar to a community college in the francophone province of Quebec. It is often required as a pre-requisite for university in Quebec.

<table>
<thead>
<tr>
<th>EDUCATION - Highest Level Achieved</th>
<th>SkyTrain Census Tracts</th>
<th>Vancouver CMA Census Tracts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1981</td>
<td>2006</td>
</tr>
<tr>
<td>High school certificate or equivalent</td>
<td>5,745</td>
<td>23,135</td>
</tr>
<tr>
<td>Apprenticeship or trades certificate or diploma</td>
<td>1,315</td>
<td>6,755</td>
</tr>
<tr>
<td>College, CEGEP* or other non-university certificate or diploma</td>
<td>6,200</td>
<td>13,505</td>
</tr>
<tr>
<td>University degree or certificate</td>
<td>3,100</td>
<td>19,625</td>
</tr>
<tr>
<td>Total population for whom completed education attainment is measured</td>
<td>16,360</td>
<td>63,020</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHIFT-SHARE: Education</th>
<th>Share (Mix)</th>
<th>Shift (Local Growth)</th>
<th>Combined Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school certificate or equivalent</td>
<td>3,383</td>
<td>904</td>
<td>4,287</td>
</tr>
<tr>
<td>Apprenticeship or trades certificate or diploma</td>
<td>2,901</td>
<td>-461</td>
<td>2,441</td>
</tr>
<tr>
<td>College, CEGEP* or other non-university certificate or diploma</td>
<td>-8,914</td>
<td>2,078</td>
<td>-6,836</td>
</tr>
<tr>
<td>University degree or certificate</td>
<td>2,611</td>
<td>6,844</td>
<td>9,455</td>
</tr>
<tr>
<td>Total population for whom completed education attainment is measured</td>
<td>-19</td>
<td>9,346</td>
<td>9,327</td>
</tr>
</tbody>
</table>

Educational category, except for a relative decline of college-educated individuals. In contrast, the shift component shows that SkyTrain CTs gained a significant surplus of 6,844 university-educated residents. Simultaneously, the SkyTrain areas managed to avoid the college-educated category’s downward share trend with a local surplus of 2,078. In particular the large combined effects for university-educated residents at 9,455 persons demonstrates that the SkyTrain CTs benefited from both an increase in the category alone and localized advantages.

The increase in highly-educated individuals in SkyTrain CTs affects income levels. It shows a growing income disparity between high and low earners. The 1981 Vancouver CMA population was nearly evenly divided between income level groups with a slight skew to the higher income bracket of over $40,000. Twenty-five years later, the bulk of Vancouver CMA household incomes fell within the lower half of income levels, with a slight rise in households earning over $100,000 (Fig. 3).

In comparison, the income data of SkyTrain CTs tells a slightly different story.
Figure 3. A) Household income for Vancouver CMA in 1981. Data from Statistics Canada, 1981. B) Household income for Vancouver CMA in 2006. Data from Statistics Canada, 2006. Standardizing income data to a common base year would be ideal for comparative analysis. However, when income categories were standardized, the categories were not comparable because the standardized 1981 income categories did not evenly match the 2006 categories. Therefore, I use bar graphs to display the range of income figures to gain a general idea of the income groupings and skew of incomes.
In 1981, the incomes were approximately evenly distributed, as they were in the Vancouver CMA (Fig. 4). However, a slightly higher proportion of households fell within the low end of the income scale. By 2006, the income distribution of SkyTrain CTs looked similar to that in the Vancouver CMA as a whole, albeit with one notable exception: there was a noteworthy portion of households that earned over $100,000 in the SkyTrain CTs that was not present in Vancouver CMA (Figs. 3 and 4). Thus, while there is still a significant presence of lower-income residents in SkyTrain CTs, there is now a growing proportion of high-earning households in the same neighbourhoods.

Since income often correlates positively with educational attainment, SkyTrain neighbourhoods gained more higher-income residents due to the influx of more highly-educated residents. Consequently, a greater income disparity is present in 2006 between the high-earning and low-earning resident than in 1981. The shift-share data results of long-term demographic change around transit stations show what changes transpired, but cannot explain why those changes occurred.

DISCUSSION

In order to determine how the demographic changes occurred, one must look at the local context. After the SkyTrain was built, subsequent development occurred around the SkyTrain because the rail line was built at the front end of an economic upswing (Penner 2008). Indeed, as Banister and Berechman (2000) argued, a transit system’s success often hinges on the state of the economy at the time it is built. The SkyTrain’s surrounding neighbourhoods experienced renewal because of Vancouver’s post-Expo bull market, when the positive economy made it financially feasible for developers to undertake construction.

Other factors played a role as well in the success of the SkyTrain. In addition to a strong local economy, developers of high-density residences took advantage of the availability of brownfield land. The SkyTrain route followed old railway lines where the surrounding land-use was predominantly light industrial warehouses or single family residences. After the SkyTrain replaced the railway, construction companies subsequently sought parcels of brownfield land for redevelopment. Multi-building developments changed the look and feel of entire city blocks. Potential condominium purchasers thus saw a new neighbourhood rather than a solitary building amidst an industrial zone.

Developers were able to market the SkyTrain as a unique amenity to prospective buyers. With the SkyTrain’s arrival, the light industrial areas and single detached housing neighbourhoods witnessed an unprecedented clustering of high-rises around the stations. For example, Joyce Street station was built in a predominantly single-family dwelling neighbourhood, but after the arrival of the SkyTrain, developers in the area built skyward (Fig. 5). Likewise, the neighbourhood around the Main Street/Science World station juxtaposes high-density development on the north side of the SkyTrain with old warehouses on the south side (Fig. 6 and 7).

Besides developers, the public sector had influence over the form of development in SkyTrain neighbourhoods. City planners implemented urban planning policies designed to inspire investment in high-density buildings, such as the specially-designed zoning bylaws (City of Vancouver 2008). The City of Vancouver’s coordinated rezoning planning actions resonate with Cervero and Landis’ (1993) statement that integrated planning policies are essential for new transit hubs to successfully integrate with the surrounding neighbourhoods. To make the land attractive to private developers, the city rezoned many areas for residential high-density development. As the shift-share analysis has shown, SkyTrain neighbourhoods experienced a greater increase in high-density residences compared to the Vancouver CMA’s overall trend.

With a large quantity of new high-density residences built around SkyTrain stations,
the demographic characteristics of residents also changed. As the data shows, the income graphs display a rising disparity of income levels between wealthier and poorer residents in SkyTrain CTs. Consequently, there is an increasing level of high educational achievement of residents and a relative decline of less-educated residents in comparison to Vancouver CMA’s trends. At first, it appears that SkyTrain area residents are gaining education and becoming more wealthy. But the data hides the evolving nature of cities by means of its residents moving to different locations to suit their needs or budgets. The data demonstrates that wealthier residents are moving to areas that once were solely characterized by lower-earning, less-educated occupants.

The result is that these demographic changes create unintended consequences that affect people of varying socio-economic status. The relative movement of wealthier, more educated individuals to SkyTrain station neighbourhoods demonstrates that development disproportionately aids the wealthy elite. Equity issues arise when lower classes are displaced by wealthier ones. Less-wealthy residents are indirectly pushed farther from public transit infrastructure. Although cities, including Vancouver, try to create some equity for lower-income residents through affordable housing requirements, it is only a small proportion of total development. The majority of development around the SkyTrain stations has catered to wealthier populations.

**CONCLUSION**

Premier Bennett had promised that the SkyTrain would bring subsequent development. His prediction came to pass to a large extent, but the result was greatly due to elements beyond Bennett’s political control. The
Figure 6. High-density development on the north side of the Main Street/Science World SkyTrain station. Photograph by author, 2008.
SkyTrain contributed to the development of TOD in the form of high-density residential hubs, but the building of the transit system alone did not bring about change; it was dependent on other factors, such as public incentives, rezoning, and a favourable economy which spurs private development interest. Although shift-share analysis has typically been used to examine employment sector data, this study has demonstrated that the method also has utility in examining demographic changes. This analysis has shown that development around SkyTrain stations did not benefit all groups equally; the growth of high-density units attracted residential populations that are comparatively wealthier and more educated than previous neighbourhood occupants. The SkyTrain’s presence contributed to the changing residential demographics. The changes raise cause for concern about whether future rapid light rail projects will push poorer populations farther from close access to rapid transit. Such issues of equity should be taken into account by planners of future rapid transit projects.

NOTES

1. In Canada, a Premier is the elected leader of government for a province or territory. This is the equivalent of an American state Governor.
2. Not all properties near rail transit stations automatically command higher land rents. Smith and Gihring (2006) point out other factors that must be favorable for land value to increase. Such factors include, but are not limited to walkability/accessibility, perceived safety of transit, and frequency of service.
3. Molotch (1976) is referring to market prices for property. He does not refer to affordable housing policies that many cities now mandate. While many cities require a percentage of developments to be affordable housing units, the majority of units are usually regular units sold at market prices.

4. Olson (2007) determined the relative “loss” of units by comparing trends of rental housing construction to owned dwellings. Specifically, Olson reports that rental units composed 16.1% of all dwellings in 1991 and dropped to 14.6% in 2001 which indicates a rise in the proportion of owned dwellings.

5. Located in an urban centre, a CT is a small area with a population ranging from 2,500 to 8,000 residents (Statistics Canada 2008). I confirmed that the CT boundaries remained the same for the 1981 and 2006 Census.

6. The calculations in the examples and in the data tables were not rounded until the end. However, for the sake of space, the numbers presented in the examples and in the tables are rounded.

REFERENCES


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