

Places Left Behind? Declining Inner Suburbs in the Toronto Census Metropolitan Area, 1981–2016

Steven Pham

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Executive Summary

North American inner suburbs are facing disinvestment, dilapidation, impoverishment, and, in some cases, population loss. Their decline has occurred concurrently with local, national, and global processes and policies that have transformed the inner city and outer suburbs into prosperous geographical spaces in the neoliberal era.

In transitioning from the Fordist to Post-Fordist era, new patterns of zonal and neighbourhood inequalities have emerged across the Greater Toronto Area as a result of structural adjustments in global capitalism that have positioned Toronto as a burgeoning global city. Instead of prosperity within the inner suburbs, a "suburbanization of poverty" is occurring broadly across this zone and is leading to new patterns of poverty, vulnerability, and racial segregation.

These patterns occur unequally across the inner suburbs; varying across axes of age, gender, income, education, employment, housing, and race. Through the literature review, the author shows that a common trend for the inner suburbs, based on summaries of data and findings from American cities, is that racialized and immigrant populations bear the cumulative social, economic, and financial brunt and costs of poverty; within the Toronto context, these groups were found to be concentrated in aging, high-rise neighbourhoods that have been financially preyed upon through the rent-squeezing tactics of predatory landlords.

Exploratory data analysis of the municipal zones across the Toronto Census Metropolitan Area (CMA) confirms the declining nature of the inner suburbs based on declining household incomes, relative dwelling values, and their modern roles as immigrant reception neighbourhoods. The paper contains a regression analysis of socio-economic variables that captures changes in demographic and socio-economic status in order to delineate the determinants of inner suburban decline in Toronto, including their degree, significance, and geographical variation, and to identify potential casual relationships.

This paper addresses how deindustrialization, the rise of the knowledge-based economy, shifting market preferences, and the financialization and commodification of housing have transformed the social ecology of Toronto's inner suburbs, and differentiates their past and present geographies by comparing their neighbourhood typologies in 1981 versus 2016 via cluster analysis. This paper concludes by discussing potential neighbourhood, municipal, and provincial planning-based policy solutions to inner suburban decline.

Author

Steven Pham is a graduate from the Masters of Science in Planning (MScPI) program at the University of Toronto, having specialized in Urban Planning and Development. His undergraduate honours thesis, from which this paper has been drawn, won the Best Thesis in Geography award in 2017. His research interests include gentrification, neighbourhood change, the racialization and suburbanization of poverty, and municipal/regional planning. Currently, Steven is working as a land use planner at a GTA-based consulting firm, providing professional planning opinion to landowners, developers, real estate firms, and social institutions.

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1. Introduction

In the period after the Second World War, North American metropolitan regions experienced dramatic transformations across their central cities, inner and outer suburbs, and the exurbs. Each zone has seen decline and prosperity in the transition from Fordist policy regimes to neoliberalist regimes. The postwar suburbs are of particular interest in geographical literature since their inception, having been touted as places of future prosperity marked by homeownership, which are now declining unevenly across the landscape (Cooke and Denton 2015; Green Leigh and Lee 2005; Hanlon, Vicino, and Short 2006; Kim, Chung, and Blanco 2013; Pavlic and Qian 2014).

Pavlic and Qian (2014) remark how factors such as industry decentralization, the construction of national highway networks, consumer adoption of an auto-dependent life style, national building codes, zoning, and subdivision controls restrained diversity in the inner suburbs at their inception, accommodating mostly middle- and upper-income residents. Yet, as these inner suburbs matured and became more diverse, scholars began to lament that the diversity of suburban contexts is not often understood, and that the image of a homogenous suburban landscape is widely accepted. At the same time, research on inner-suburban decline is limited by the fact that a clear, consistent definition of their geographical boundaries is absent from the literature.

The inner suburbs have received much attention not only because of their secular decline, but also because of their changing role from working-class, industrial neighbourhoods (Walks 2001) to immigrant reception neighbourhoods, often for lower-income and racial minorities (Green Leigh and Lee 2005; Walks 2014). The "suburbanization of poverty" within these inner suburbs is leading to new patterns of poverty, vulnerability, and racial segregation (Hulchanski 2010). These patterns occur unequally across the inner suburbs; varying across axes of demographics, income, education, employment, housing, and race (Hanlon 2009).

However, this secular decline should not be understood as a separate, isolated phenomenon occurring coincidentally in the urban landscape. From the gentrification of inner-city neighbour-hoods, inner-suburban decline and racialization, to outer suburban market booms, these processes do not occur independently of one another. Rather they occur concurrently as a result of local and global processes characterizing the transition from the Fordist to the post-Fordist

era. In particular, this paper will seek to address how deindustrialization, the rise of the knowledge-based economy, and market preferences transformed the social ecology of Toronto's inner suburbs. A typology of Toronto's inner suburbs will be developed to illustrate their subsequent change from 1981 to 2016.

The author cautions that the work to analyze and describe the phenomena, patterns, and trends outlined within this paper was, for the most part, conducted prior to the start of the COVID-19 pandemic that emerged in early 2020. The pandemic has reduced the average global lifespan, disrupted the global economy, induced massive social isolation, and forced many to question long-standing thoughts and practices, effects that are beyond the scope of this paper. It is likely that many of the patterns described in this paper have changed in response to pandemic-induced impacts for either the short or long term. Significant new research from private industry, government, and academia will be required to discern any and all short and long-term pandemic-induced patterns and trends.

1.1 The uneven results from post-Fordist regimes

One of the defining features of the post-Fordist era is the deindustrialization of industries across the developed world, and the resulting occupational polarization. For example, Walks (2001) noted the increasing division of urban social space following the withering of Fordist regimes and its replacement by post-Fordism. Social polarization is argued to be the result of occupational polarization, characterized by increasing numbers of high-skilled and low-skilled tertiary jobs, and decreasing middle-income jobs (Harrison and Bluestone 1988; Noyelle and Stanback 1984; O'Loughlin and Friedrichs 1996; Walks 2001).

Occupational polarization is predicated on the transition towards flexible accumulation and labour regimes (Walks 2001) – from high levels of unionization, the Keynesian welfare state, and relatively high working-class wages, to outsourcing, union busting, vertical disintegration, and the proliferation of precarious part-time, low-skilled work. Zonal inequality is evident, based on participation in high-skilled financial and information services versus low-skilled services and the remaining industrial sectors within a zone. The transition to post-Fordism has led to new geographies of disadvantage and prosperity at local and national levels, resulting in intra-zonal and inter-zonal inequalities, depending on the extent of a neighbourhood or zone's connection with global markets of housing, finance, and professional services.

1.2 Deindustrialization and postwar urban-suburban dichotomies

The deindustrialization of virtually all inner cities across Canada and other Western countries began approximately in the 1960s. For many decades, the inner suburbs, alongside the inner city, were the industrial nuclei of metropolitan regions, providing well-paid, full-time unionized employment for working-class households. However, industry within metropolitan regions decentralized from their cores, including the inner suburbs, although the latter still contains the highest concentration of industrial employment across cities, despite decentralization. Jobs, investment, and employment growth have become increasingly suburbanized (Vicino 2008), only more recently filtering back into the inner cities, with the exception of industry. Hanlon, Vicino, and Short (2006), in their nationwide study of 1,742 declining inner suburbs in the United

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States, remarked how "suburbia increasingly represents a divergent set of landscapes as suburbs have become sites of immense change."

Helping transform metropolitan regions has been the vertical disintegration of various sectors in production industries at the regional scale. Following Harvey's theorization of the circuits of capital switching (Harvey 1978), Jauhiainen (2006) hints at capital's ambition to increase profits through optimal use of the land rent-gap – finding new, cheap locations at the urban fringes of cities to minimize property costs while locating close to an increasingly suburban worker population. Automation of production helped relieve the constraints of locating to the largest labour markets in expensive inner cities. This is also outlined in Alan Scott`s (1982) work, which described the decentralization of capital-intensive industrial activities into the suburbs as increasing efficiencies in production, cheaper land costs, and wages at the peripheries reduced these firms' dependence on locating close to labour markets.

Yet at the same time, vertical disintegration and outsourcing was occurring at a global scale, whereby production industries, particularly manufacturing, were outsourced to peripheral countries where wages can be kept low under lax labour regulations, while FIRE (finance, insurance, and real estate) industries, and knowledge-rich, more locale-dependent occupations concentrated within the largest cities in the Global North (Bolton and Breau 2012; Dicken 1992; Duranton and Puga 2005; Gertler 1992; Walks 2001). Occurring concurrently with deindustrialization and decentralization of employment from the inner city and suburbs, the outer suburbs have seen extensive office park and retail developments along with relocated industrial activities (Lang 2003; Short, Hanlon, and Vicino 2007).

It is no surprise that, with the loss of the industrial employment base that had anchored its prosperity for so long, North American inner suburbs are facing disinvestment, population loss, and dilapidation in contrast with the booming outer suburbs (Short, Hanlon, and Vicino 2007). Deindustrialization and decentralization have resulted in a redistribution of employment and, by extension, income across the metropolitan landscape, serving to create an outer-inner suburban dichotomy of prosperity vs. decline.

1.3 The rise of the knowledge-based economy and polarization

As deindustrialization occurred across North America, another process occurred simultaneously to transform its metropolitan regions. The international concentration of corporate management functions and professional services in global cities and, in the Canadian context, larger Canadian cities, completed the occupational polarization – a growing labour force of high-skilled, high-income professionals and business class, the growth of which has increased demand for low-level service workers to meet the needs of this new class (Brunelle 2013; Sassen 1991, 1994, 1995; Walks 2001).

As earlier discussed, this polarization deepened the division of urban social space, creating new social ecologies of inequality (Walks 2001). The expansion of this class, more specifically professional services and FIRE industries, has created a pool of gentrifiers out-competing the urban poor in inner-city housing markets (Ley 1992, 1996). At the time, Walks (2001) found professional workers to be far less spatially differentiated in 1991 relative to manufacturing or low-skilled services; however, this trend appears to have morphed into concentration in the inner-city and outer suburbs by 2016. Altogether, deindustrialization, tertiarization, and

gentrification in inner-city and suburban neighbourhoods have pushed the working-class into the suburbs, particularly the inner suburbs (Badcock 2000; Bourne 1993, 1997; Caufield 1994; Walks 2001, 2011).

For the Toronto Census Metropolitan Area (CMA) in particular, higher-than-average proportions (relative to the metropolitan average) of low-level service workers were found to be filtering outwards from the inner city into the inner suburbs after 1971, along with increasing numbers of households with income below the metropolitan average (Walks 2001). Ades, Apparicio, and Séguin's (2012) more recent study of the intrametropolitan distribution of poverty in Canadian Census Metropolitan Areas (CMAs) helps validate the migration of poverty from the inner city into the inner suburbs, marked by decreasing education levels, growing unemployment rates, and declining homeownership rates (Ades, Apparicio, and Séguin 2012; Murdie 1994) – patterns also indicative of the rise of an increasingly racialized, less educated, and impoverished "third city" (the inner suburbs) within the Toronto CMA (Hulchanski 2010).

The increasing racialization of the inner suburbs, combined with increasing poverty rates and declining education levels, is concerning with regards to occupational polarization, as recent immigrants, particularly visible minorities from Africa, Latin America, and the Middle East, suffer disproportionately from low incomes (Morissette 2000; Picot and Hou 2003). Foreign work experience and credentials seem to be devalued and not recognized (Bauder 2003), which is likely contributing to occupational polarization as these recent immigrants are forced into low-skilled service jobs that are concentrated in many inner-suburban neighbourhoods (Walks 2001).

In considering all these analyses and commentaries on the transformation of North American suburbs, it becomes easy to understand why Hanlon (2009) lamented the tendency in academic literature and popular imaginaries to group U.S. inner suburbs as one homogenous entity, glossing over the diverse typologies uncovered by researchers she reviewed, such as Orfield (2002), Mikelbank (2004), and Hanlon, Vicino, and Short (2006).¹ The rise of the knowledge-based economy has resulted not only in intra- and inter-zonal occupational polarization, but also income polarization and racial segregation, driving and accelerating diverging trajectories between the inner suburbs and the other zones.

It should be noted that smaller cities, relatively unconnected to global financial markets, remained specialized in productive activities rather than FIRE industries or professional services; unfortunately, for most of them their situation resembles that of the U.S. Midwest rustbelt cities, suffering from stagnation, little economic diversity, decreasing population, and disinvestment (Filion 2010). Their situation is remarkably similar to Toronto's inner suburbs, a zone with remnants of production-related occupations that once fostered its prosperity, now declining largely in part to its disconnect from global financial and professional markets. What is different, however, about Toronto's inner suburbs is that being part of a large metropolitan region means their function will change over time. At present, they are the new immigrant reception zone.

¹ Hanlon noted differences in race, ethnicity, employment, and income across the typologies of inner suburbs identified by the authors listed. Orfield (2002) identified, for example, at-risk, impoverished inner suburbs with segregation by race. Mikelbank (2004) identified bedroom suburbs that were predominantly middle-class and white.

1.4 Shifting Market Preferences and Places Left Behind – The First Suburbs

Contributing to inner-suburban decline, inner-suburban houses lack the size and amenities to compete with newer housing stock in the outer suburbs and the inner city (Hanlon and Vicino 2007; Short, Hanlon, and Vicino 2007). Within the United States context, the typical contemporary house is more than 2,200 square feet, more than double the average size of houses built in 1950 (Short, Hanlon, and Vicino 2007). Smith (1996) in his analysis of gentrification in Baltimore suggested that inner-city properties were devalued and devalorized following the reallocation of capital into the suburbs and deindustrialization from the inner city. Now that capital has flown back into inner cities (with strong financial industries and a foothold in the global circulation of capital across markets), investment and upgrading is occurring within inner-city neighbourhoods accessible to downtowns, major transit lines, large institutions, amenities, and elite areas (Walks and Maaranen 2008; Short, Hanlon, and Vicino 2007).

The gentrification of inner-city neighbourhoods is problematic, as low-income households have fewer choices within the inner city, where affordable housing has traditionally been found, and must now settle for locations less accessible by public transit, farther from work, and with fewer public services (Walks and Maaranen 2008a). The poor – who gain the most marginal utility from living in inner-city neighbourhoods – are relegated to less accessible suburban locations with high densities of aging rental apartments (Walks and Maaranen 2008a), notably located within the inner suburbs. With regards to the outer suburbs, Bier (2001) points out how the main movement in metropolitan housing areas is towards higher prices and newer and larger dwellings, reflecting market preferences for the kind of housing found in the outer suburbs. More recently, inner-city gentrification also reflects current market preferences for dwellings outside the inner suburbs. The inner suburbs are places left behind by changing market preferences for housing near amenities, employment, and transit within the inner city, and the newer, larger developments within the outer suburbs.

2. Possible Trends at the Neighbourhood Level?

Researchers have examined inner-suburban decline across Canada and the United States at broader levels of analyses, as well at the neighbourhood scale. The prevailing social ecologies in the inner suburbs and their typologies may be ascertained from previous works profiling their transformation, and provide a reference for what is to be expected in this paper. Pavlic and Qian's (2014) Principal Components Analysis (PCA) and regression-based analysis into variables driving inner suburban decline in Canada's CMAs from 1971 to 2006 helps corroborate the findings in this paper. They found a decrease in prosperity (one of their PCA components) – defined as neighbourhoods with very low unemployment rates and low-income families along with a high proportion of owned dwellings – in Toronto's inner suburbs, as well as a marked decrease in median household incomes and dwelling values relative to other zones.

Higher median household incomes and homeownership are strongly associated with the increasing prosperity of neighbourhoods, while higher proportions of university-educated population and housing values and rents increase their "exclusivity." "Exclusivity," defined as neighbourhoods with very high housing values and rents, increased most in the inner city and exurbs, remaining constant within the outer suburbs, reinforcing the pattern of inter-zonal divergence. Interestingly, exclusivity in the inner suburbs converged with the inner city by 2006, suggesting that socio-spatial polarization in the inner suburbs reached a level rivalling that of the inner city. This is supported by Walks's earlier work (2001) showing that the inner suburbs are increasingly spaces of inequality and disparity, concentrating some of the wealthiest and most amenity-rich neighbourhoods yet at the same time, the poorest, least desirable neighbourhoods.

Indeed, poverty across the Toronto CMA was found to be increasing mainly in the inner suburbs while decreasing in the inner city in Ades, Apparicio, and Séguin's (2012) study on the spatial distribution of poverty across eight Canadian CMAs. Using different indices (evenness, exposure, concentration, clustering, and centralization) and measuring changes across several dimensions of segregation, the authors found an 88.98 percent increase in the clustering of impoverished neighbourhoods in the Toronto CMA and a 13.16 percent decrease in centralization from 1971 to 2006. They observe a decentralization of poverty away from the central city into in the suburbs, forming a distinct "U" of poverty (see also Walks 2001), contained mostly in the

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political boundaries of the former cities of Etobicoke, North York, and Scarborough, lending credence to the justification (discussed in section 6) for demarcating inner-suburban neighbourhoods within their boundaries.

Notably, Ades, Apparicio, and Séguin (2012) point out that this decentralization has resulted in increased social homogeneity in impoverished neighbourhoods, creating social isolation that degrades the quality of the social networks to which residents have access, as well as isolation from the services, transit networks, and employment in the inner city that the poor need most. Transit inaccessibility is a key issue here, as the costs of automobile ownership exacerbate the financial vulnerability of auto-dependent suburban communities (Walks 2013), particularly impoverished ones. In locating to the inner suburbs, the poor risk the loss of more affordable, extensive public transit options that are vital to maintaining social and employment networks (traditionally in the inner city), and bear the high costs of automobile ownership. The question then becomes, what kinds of disadvantaged homogenous neighbourhoods may we expect to find in Toronto's inner suburbs? Insight into this question may be found in the wide array of literature on inner-suburban decline in the United States.

Hanlon's (2009) typologies of 1,742 inner suburbs across the U.S. revealed five key typologies across different regions of the country which may be expected in Toronto's inner suburbs: "vulnerable," "ethnic," "lower-income and mixed," "old," and "middle-class." The caveat of her research is that these are typologies created across all 1,742 inner suburbs and metropolitan regions, rather than in one inner suburb; however, her five typologies could be viewed as broader categories from which more detailed typologies could be developed to suit individual cities. Still, her typologies are remarkably similar to those found in this paper, as will be seen.

Two of her typologies are especially pertinent to Toronto's context: "vulnerable" and "ethnic." Vulnerable suburbs were found mostly in the U.S. Midwest and could be interpreted as deindustrializing suburbs, having the highest percentage of manufacturing occupations of all typologies and decreasing median household income. Ethnic suburbs were found mostly in the Western United States. Interestingly, they had the second-lowest median household income (at \$44,493 – barely above lower-income and mixed suburbs, at \$40,303) and were the fastestgrowing suburb of all five types. However, Hispanics compose a large proportion (45 percent) of inner-suburban populations there, complicating any direct comparison with Canadian ethnic suburbs, where immigrants from Southeast Asia are far more common.

In the Toronto CMA, vulnerable suburbs certainly exist, given the history of deindustrialization and decentralization, but the ethnic suburbs similar to those identified by Hanlon (2009) are certain to be a focal point. With knowledge of immigration patterns in the Toronto CMA, Hanlon's categories can be broken down into more detailed typologies better representing the complexities of Toronto's inner-suburban social ecology. As noted by Walks (2013) in his study on the geographies of household debt in Canadian CMAs, immigrant-reception neighbourhoods and racialized immigrants bear higher levels of indebtedness – however, this is not an equal finding across the diversity of ethnic and minority groups in Canadian CMAs, as neighbourhoods concentrating Chinese or African-Canadian populations are associated with lower levels of debt. Inner suburban decline is thus not only a zonal process, but one creating new geographies of disadvantage, prosperity, and persistence at the neighbourhood scale. Socio-spatial polarization and inequality along axes of income, race, education, occupation, and tenure are evident between zones, but what about *within* them? The inner suburbs in the post-Fordist era show the largest increase in inequality and disparity, containing some of the wealthiest and poorest tracts, the most expensive and the least desirable neighbourhoods, as well as racialized areas (Walks 2001, 2011). Toronto's inner suburbs and their typologies reflect the complexity of the region's interplay of race, income, occupation, and housing.

3. Increasing Vulnerability within Inner-Suburban Neighbourhoods

What are the concerns about the growth of immigrant-reception neighbourhoods in the inner suburbs? Their growing impoverishment relative to the CMA could foster more vulnerability if residents' incomes were to decrease further, or expenses such as gross rent were to increase. Such changes may occur because of upward pressure from the construction of condos, creating more expensive rental units, thereby pushing up the average market gross rent. As well, it may also occur because of the decreasing supply of affordable rental units as a result of gentrification. Occupational polarization, resulting in a spectrum of high-wage, professional jobs vs. low-wage, low-skilled service jobs, and the disappearance of industrial employment, may stymie social mobility for those in immigrant-reception neighbourhoods. Two housing stress variables (one for renters and one for owners) included in the upcoming cluster analysis will indicate whether residents in these neighbourhoods face decreasing affordability, especially for those living in postwar rental apartments – these buildings are a key element discussed in this paper. The physical condition of these older rental high-rises may result in higher rents for residents.

According to a housing survey conducted by the Canada Mortgage and Housing Corporation (CMHC) in the former municipalities of Toronto and York in 1998, which sought to determine the state of repair of multi-use high-rise rental properties in those areas and the costs of extending their longevity, the average cost per unit for repairs over 10 years was \$7,474, or approximately \$62 per month over 10 years (*High-rise Apartment Repair Needs 19*98). This cost factors in repairs to seven physical elements: site, building structure, building envelope, mechanical, electrical, life safety, and elevators. The high-rises studied ranged from pre-1960s (excluding pre-1930s) to post-1970s in terms of age. Sixty-three high-rises were studied from a group of 546 buildings, representing social housing and private rental stock.

The \$7,474 per unit needed for repairs over 10 years excludes costs related to interior spaces and finishes. Since the study was conducted in 1998, it is likely the average cost of \$7,474 per unit over 10 years would have increased by 2016. Noted was the tendency for the managers of these high-rise rentals to defer repairs, and that these were projected costs of repairs, not costs for repairs already performed at the time of the study. It is not clear how many repairs were

performed since the study in 1998, although a 2011 report by the United Way² suggests the costs of deferred maintenance in aging towers have caught up to residents, in addition to the upward pressure from a declining supply of affordable rentals (due to gentrification and changes in land use). Table 1 below (Table 7 in the United Way report) illustrates the drastic increase in rents from 1981 to 2006 for each former municipality across the New City of Toronto. The figures from 1981 were adjusted to 2006 dollars to account for inflation and other economic factors. The rental apartments sampled were not exclusively from the postwar (1946–70) period used in this paper, but included older and newer ones as well.³

Table 1: Average Rent Costs, Buildings of Five Storeys and More, City of Toronto and Former Municipalities, 1981 and 2006 (1981 rents adjusted to 2006 dollars)

	One Bedroom			Two Bedroom			Three Bedroom		
Geographic area	1981	2006	Increase	1981	2006	Increase	1981	2006	Increase
City of Toronto	\$659	\$897	\$238	\$769	\$1,078	\$309	\$905	\$1,296	\$391
Former municipalities:									
East York	\$694	\$973	\$279	\$842	\$1,315	\$473	\$997	\$1,863	\$866
Etobicoke	\$648	\$824	\$176	\$743	\$948	\$205	\$879	\$1,056	\$177
North York	\$646	\$842	\$196	\$769	\$1,067	\$298	\$928	\$1,364	\$436
Scarborough	\$640	\$860	\$220	\$750	\$1,027	\$277	\$883	\$1,249	\$366
Toronto	\$625	\$822	\$197	\$780	\$1,003	\$223	\$907	\$1,356	\$449
York	\$638	\$846	\$208	\$773	\$1,015	\$242	\$930	\$1,216	\$286

Source: Rental Apartment Vacancy Survey April 1981, Canada Mortgage and Housing Corporation Rental Market Report, Greater Toronto Area 2007, Canada Mortgage and Housing Corporation.

For the three municipalities of interest – Etobicoke, North York, and Scarborough – rents increased for all unit types, increasing most for three-bedroom apartments, which are intended for families. Indeed, the postwar towers were described in the United Way report as increasingly concentrating poverty, and are mostly located within the inner suburbs.

Decline within these aging towers may be seen in Table 2 (also taken from the United Way report), showing the declining real median household incomes for households in these buildings. The incomes reported were adjusted to 2006 real dollars, although the report noted that actual incomes did increase from 1981 to 2006. To maintain the relevance of these figures, since Table 1 above uses 2006 Census data for the calculations, it became necessary to update these figures. Using the Rental Market Report for the Greater Toronto Area released by CMHC in 2019, updated rent costs for all private apartments in 2019⁴ by number of bedrooms and geographic area are shown in Table 3.

² For a detailed look into the geographies of poverty and deprivation within the aging rental towers, see Macdonnell et al.'s (2011) complete United Way report on the decline of these towers in Toronto's inner suburbs.

³ While not explicitly stated, the report suggested that rental condominiums were excluded from the analysis, as condos were discussed and considered distinct from the older rental apartments of interest.

⁴ 2019 was used as the reference year because it was the last year before the start of the COVID-19 pandemic.

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Table 2: Median Household Income of Renter Households	in Toronto	Apartment Buildings,	Five
Storeys and More, 1981 and 2006			

Geographic Area	1981	2006	Change	
City of Toronto	\$39,793	\$33,397	-\$6,396	
Former municipalities:				
East York	\$44,146	\$33,545	-\$10,601	
Etobicoke	\$48,045	\$38,352	-\$9,693	
North York	\$43,535	\$34,686	-\$8,849	
Scarborough	\$36,388	\$28,865	-\$7,523	
Toronto	\$36,556	\$34,344	-\$2,212	
York	\$34,492	\$28,099	-\$6,393	

Source: Statistics Canada - Census, 1981 and 2006.

Table 3: Average Rent Costs for Private Apartments by Number of Bedrooms, City of Toronto and Former Municipalities, 2006 and 2019 (2006 rents adjusted to 2019 dollars)

Geographic	One Bedroom			Two Bedrooms			Three Bedrooms		
Area	2006	2019	Change	2006	2019	Change	2006	2019	Change
City of Toronto	\$1,124	\$1,374	+ \$250	\$1,351	\$1,591	+ \$240	\$1,624	\$1,766	+ \$142
Former Munic	ipalities								
East York	\$1,219	\$1,198	- \$21	\$1,648	\$1,468	- \$180	\$2,335	\$1,767	- \$568
Etobicoke	\$1,033	\$1,322	+ \$289	\$1,188	\$1,513	+ \$325	\$1,323	\$1,717	+ \$394
North York	\$1,055	\$1,268	+ \$213	\$1,337	\$1,476	+ \$139	\$1,709	\$1,693	- \$16
Scarborough	\$1,078	\$1,215	+ \$137	\$1,287	\$1,372	+ \$85	\$1,709	\$1,508	- \$201
Toronto	\$1,030	\$1,531	+ \$501	\$1,257	\$1,981	+ \$724	\$1,165	\$2,526	+ \$1,361
York	\$1,060	\$1,301	+ \$241	\$1,272	\$1,551	+ \$279	\$1,524	\$1,851	+ \$327

Table 3 was created using figures from CMHC's Rental Market Report Data Table (2019) and United Way's 2011 report. Figures for 2006 rents were taken from the 2011 report then adjusted to 2019 dollars using the Bank of Canada's official Inflation Calculator. Changes in rent from 2006 to 2019 may be partly attributed to the differences in methodologies employed by the two reports, particularly the 2011 United Way report, which sampled from apartment high-rises (five storeys or more) built between 1950 and 1979, while figures from the 2019 CMHC report included all apartments across the City and all time periods, thus moderating any conclusions that can be drawn from the table.

While it is difficult to draw conclusions from the tables because of differences in the methods used in the two reports, two general trends can be drawn: adjusted for inflation, average rents

are rising across the City of Toronto, and variations in rent are geographically dependent. The most desirable areas of the City of Toronto saw higher rent increases from 2006 to 2019 than desirable areas. The sharpest rent increases occurred within the Old City of Toronto, which the geographical literature describes as experiencing reverse filtering in the past few decades as inner-city living became increasingly desirable.

More distressingly, Real Estate Investment Trusts (REITs) have taken over property management of these aging towers. In today's booming housing market, the REITs are looking to offer more luxurious amenities typical of modern condominiums to attract higher-income residents (also as a way of servicing the costs of repairs for the old towers), and are therefore increasing rents (Charney 2015). As well, REITs are applying rent-squeezing practices to suburban rental high-rises, and are gentrifying by upgrading inner-city high-rises, to capitalize on tenant desperation and market demand (August and Walks 2018). Substantial rent increases (often much higher than needed to cover the cost of repairs or upgrades) are justified by building-wide upgrades, and often well above the rent increase guidelines set by the Province of Ontario (Charney 2015). With increasing rents and decreasing real incomes, the situation appears dire for the residents of these households.

In a study conducted by Emily Paradis for the Neighbourhood Change Research Partnership (NCRP) on homelessness in the new City of Toronto's high-rises, nine in ten families in selected high-rise buildings lived in inadequate housing and were at risk of homelessness (Paradis 2014). Six criteria were defined and used to determine "inadequate housing": unaffordable housing, overcrowded housing, unsafe housing, insecure housing, bad unit conditions, and bad building conditions (Table 4).

Indicator	Description				
Unaffordable housing	50% or more of household income is spent on rent and other housing costs.				
Overcrowded housing	Two or more persons per bedroom (excluding couples and same-gender children sharing a bedroom).				
Unsafe housing	Respondent had changed routine or avoids specific areas of the building due to safety concerns.				
Insecure housing	Respondent had been behind in rent in the past year (risk of eviction).				
Bad unit conditions	The unit required three or more repairs in the past year, and the landlord did not fix them all.				
Bad building conditions	The building has two or more of the following conditions: frequent elevator breakdowns; pests and vermin; broken entrance locks.				

Table 4: Indicators of Inadequate Housing

Source: Paradis (2014).

A total of 1,566 families with children responded to the survey across Etobicoke, North York, Scarborough, York, and East York. These families lived in high-rises five storeys or higher, built between 1950 and 1979. The families were randomly selected. The sample included both social housing (218 units) and private market rental housing (1,348 units), and oversampled from the more impoverished buildings. These types of high-rises house approximately half of Toronto's renter population. Pertinent to this paper, 32 percent of respondents were considered to be living in unaffordable housing, and 22 percent lived in insecure housing. Any increase in

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gross rent due to repair costs of aging postwar high-rises could further marginalize these respondents.

Although 46 percent of respondents were living in poor building conditions and 27 percent lived in poor unit conditions, comparability to the CMHC study is limited because the definitions of these indicators differ from those used to determine repair costs in the CMHC study, and the building sample also differs. Nonetheless, these are concerning results if the costs of sub-par building conditions are passed onto financially stressed renters. Only about 11 percent of all families were considered adequately housed, while 56 percent had one of two indicators of in-adequate housing, putting them at a moderate risk of homelessness, and 30 percent had three or four indicators, which put them at a severe risk of homelessness. Additionally, immigrants and racialized groups⁵ were strongly over-represented in the survey sample, with 82 percent of all respondents being immigrants and 81 percent belonging to a racialized group.

The precarious living conditions for residents of postwar rental towers are extremely concerning. Rising real rents and decreasing real incomes – as indicated by Macdonnell (2011) – are greatly increasing the risk of homelessness and the degree of deprivation experienced by residents of these towers. For residents living in postwar high-rises, mostly concentrated in the inner suburbs, the proportion that could be considered living in unaffordable housing could be much greater depending on the criteria used (for example, if using the criterion of households paying 25 percent or more of household income on gross rent).

With approximately one in five households living in insecure housing according to the NCRP study, the increases in gross rent as indicated by the CMHC study are resulting in increased financial stress for these people and pushing more into the criteria for insecure or unaffordable housing. Rent increases could also come from the poor unit and building conditions indicated by the NCRP study if conditions deteriorate further. This is concerning, as impoverished conditions intensify the effects of poverty from increased crime, diminished life opportunities, diminished quality and number of social networks, and increased feelings of desperation (Gov.uk 2015). Rising rents also exacerbate issues of insecure and unaffordable housing, thus increasing the risk of homelessness.

As will be seen later in this paper, decline in the inner suburbs is very much linked to the proliferation of immigrant-reception neighbourhoods and their deepening impoverishment, which contain a large amount of the remaining affordable rental units across the CMA. They concentrate more disadvantaged groups such as racial minorities or recent immigrants due to their relative affordability, but the age of these postwar rental high-rises is catching up to these structures, threatening to result in increased rents for already financially stressed households. Homelessness is a very real potential outcome as suggested by the NCRP study. The emergence of new immigrant reception-areas, growing income polarization (which will be seen later in this paper), the rent-squeezing practices or REITS, and the repair costs for aging rental highrises is a challenge that requires provincial-municipal collaboration to prevent these costs from being passed onto precariously housed families.

⁵ The survey did not define what is a "racialized group" is. It is assumed the author meant a non-Caucasian race.

4. From Renters to Owners – Financially Stressed Households

The focus of this paper is the growing polarization among neighbourhoods within the inner suburbs, with particular attention to financially stressed renters in aging apartment buildings. Owners generally have higher disposable incomes and wealth than renters (which means they should be more well-off), especially those discussed in this paper. However, in recent years skyrocketing prices across the Toronto CMA raised concerns over the affordability of homeownership within the region. The growing unaffordability of homeownership in Toronto may be attributed in part to the commodification of homes as individualized welfare by policymakers since the 1980s.

Walks (2016) aptly summarized the current policies encouraging homeownership that have transformed metropolitan housing markets. Government policies of many nations are predicated on an asset-based welfare approach – that is, promoting social welfare through wealth accumulation – an approach vastly different from direct subsidization of social programs and income supports typical of the traditional welfare state (Doling and Ronald 2010; Ronald 2008; Schwartz and Seabrooke 2008).

Homeownership through asset-based welfare approaches is rooted in the idea of individuals' accepting greater responsibility for their own welfare needs through investments in financial products and property assets, which increase in value over time; theoretically, these assets can be converted into income that serves as the welfare net during retirement or periods of unemployment, or for funding postsecondary education, thus relieving governments from subsidizing such programs directly (Doling and Ronald 2010; Izuhara 2006).

Following this approach, states have adopted policies encouraging financial institutions to increase mortgage lending and facilitate equity extraction from the home (Walks 2016). This trend is most evident in the securitization of mortgages into mortgage-backed securities (MBS), which shift mortgage loans away from banks' balance sheets, freeing them to lend anew on the premise that this change provides more choice of mortgages at lower rates (Walks 2016).

Directly tied to this financial innovation is the idea of accurate risk-based pricing, that is, that varying levels of risk depending on the borrower's credit history and income profile can be accurately priced to reflect the risk of lending to them. Ashton (2009) discussed how financial

institutions, regulators, and governments were able to "complete" the mortgage market through the development of risk-pricing innovations that allow them to distinguish and price two separate commodities – credit for low-risk prime borrowers, and credit for higher-risk subprime borrowers (Chinloy and Macdonald 2005). Because of this change, credit became more readily available to much of the middle- to upper-income groups, even to traditionally underserved markets in lower-income brackets, on the assumption that risk was being accurately profiled and priced for all borrowers.

Critically, Ashton (2009) went on to discuss how competition between financial institutions to come up with new innovations to capture mortgage market shares resulted in lower mortgage standards – including lower interest rates, longer amortization periods, interest-only mortgages – which not only led to the blurring of risk categories, but made credit more accessible and encouraged all segments of the market to take out mortgages.

While the Canadian housing and banking systems are quite different from those in the United States (Bordo, Redish, and Rockoff 2011), housing markets in many Canadian cities appreciated, even boomed, in the aftermath of the 2008 global financial crisis, thanks to easily accessible credit which households and speculators used freely (Walks 2013). Bordo, Redish, and Rockoff (2011) cited structural differences between banking systems in Canada and the United States, which created a competitive drive in the United States for financial innovations to circumvent state geographical restrictions on capital flow. Rivalry among investment and commercial banks for high-yield, high-risk securities resulted in the accumulation of risk and lax mortgage standards in search of more mortgage-backed securities.

Meanwhile, Canada's banking system had developed into an oligopoly, which limited innovation among the big banks and remained tightly regulated, in exchange for protection for the big banks from competition (including the shadow banks) by the Canadian government. In recent years, however, Canadian banks began following variations of the practices adopted by their American counterparts. The booming Canadian housing market after the global financial crisis serves as a reminder of the effects of debt-fuelled policy changes and lax mortgage standards, and has reached such levels that even the banking oligopoly is now sounding the alarm (Sorenson 2016). Now, with property ownership becoming a lucratively profitable venture for landlords, property values and ownership costs have increased, which feed into rising rents due to landlords' need to cover their mortgage costs.

Changing market preferences favouring housing within the outer suburbs and inner city, along with easy credit and lax mortgage standards, resulted in disproportionately high housing prices relative to the inner suburbs. However, asset-based welfare policies encouraging homeowner-ship have increased housing unaffordability, levels of indebtedness, and foreclosures or repossessions – raising the question of which zones and even neighbourhoods benefit from asset accumulation (Foster and Kleit 2015; Grinstein-Weiss, Key, and Carrillo 2015; Montgomerie and Büdenbender 2015; Walks 2013).

Walks (2013) found that immigrant-reception neighbourhoods in larger Canadian cities with multi-family households and visible minorities experience higher levels of indebtedness, after controlling for other variables. Asset-based welfare policies may be creating a new class of owners who are "house poor" – a term used to describe households paying a significant amount of their income towards their mortgages and other housing expenses (Harris 2015) –

with high levels of debt, repossessions, and/or significant psychological and financial stress (Ford 1994, 1997; Montgomerie and Büdenbender 2015). Indeed, asset-based welfare policies are significantly associated with higher levels of neighbourhood segregation of wealth, both financial and real estate wealth, across Canadian CMAs (Walks 2016). The benefits are not realized evenly between neighbourhoods, with wealthy homeowners being the main recipients of this debt-fuelled redistribution of wealth to the detriment of lower-income households, which have accumulated significant debt (Walks 2016).

5. Secular Change across the Toronto CMA, 1981–2016

In emphasizing the concurrent nature of prosperity and decline, it is important to first place the inner suburbs within a descriptive, metropolitan-level analysis, to situate them as part of the changing metropolitan region. The inner suburbs are well documented in terms of their declining incomes, deindustrializing neighbourhoods, aging housing stock and population, increasing racialization of neighbourhoods, and increasing poverty (Walks 2001).

In this section, using data collected from the 1981 and 2016 Canadian Censuses and Statistics Canada geospatial data collection, location quotients illustrating the pattern of decline and prosperity in each zone are calculated. The 2016 Canadian Census was the latest mandatory long-form census conducted at the time this paper was written.⁶ The 1981 Census was chosen as a comparison year as this was the first census to feature income-related variables comparable to recent censuses, such as gross rent, owner major payments, and households paying 25 percent or more of income on gross rent or owner payments.

Census tracts are the unit of analysis in this section and throughout the paper. They are small, stable geographic areas delineated by Statistics Canada to be socioeconomically homogenous, and are proxies for neighbourhoods. Location quotients (LQs) were used to compare proportional difference to the metropolitan average for each variable and zone. LQs measure the concentration of a variable in a census tract relative to its concentration across the entire CMA. LQs range from 0 to infinity, where 1.00 indicates that a census tract has an identical concentration of the variable in question as the CMA average, while values above or below 1.00 indicate greater or lesser concentration, respectively. The main advantage of using LQs (and income ratios constructed on the sample principle) pertains to the normalization of income variables; LQs/income ratios convert social variables, household payments, incomes, and rents in each year to a standardized unit (a ratio) which permits year-to-year comparisons without having to control for inflation and other exogenous monetary factors. As well, their use of proportional calculations controls for the population size of each census tract. LQs for each census tract are derived from the following formula:

⁶ It is acknowledged that the 2021 Canadian Census is the most recent census conducted, although the results were not available yet at the time of writing or publication.

$$LQ = (X_i / \Sigma X_i) / (Y_i / \Sigma Y_i)$$

$$_{i=1}^{i=1}$$

where i is the census tract in question.

X changes depending on the variable of interest. X represents the number of people employed in a particular occupational grouping or belonging to a particular racial, age, or immigrant group. X also represents the number of households belonging to a particular age, tenure, or size grouping. X is also the number of families belonging to a particular family structure.

Y is the total population, employed labour force, dwellings, owned or rented dwellings, households, and families within the particular tract depending on the variable of interest.

The sigma function adds up data for all census tracts within the Toronto CMA. A similar ratio, comparable to LQs, for income-related variables were also calculated as:

where INC_i is the average household income, gross rent, owner major payment, or dwelling value within a tract, and INC_{cma} is the average provided by Statistics Canada for the entire CMA. Ratios for the average number of rooms and unemployment rate are calculated in the same manner as income. This also provides comparable normalized scores for these variables.⁷

For the metropolitan-level analysis, the region is divided into four municipal zones: the inner city, inner suburbs, outer suburbs, and the exurbs. Municipal boundaries delineated the municipal zones (following the jurisdictional hypothesis) on the general significance of city-suburban political polarizations regardless of using urban form or municipal boundaries (see Figure 1).

The development of outer-suburban municipalities occurred rapidly, with most of their neighbourhoods emerging from the 1960s to the 1990s. Thus, most of their neighbourhoods could already be classified as outer suburban. Indeed, for a broad, descriptive glance of trends from 1981 to 2016, this method of division will suffice and become grounds for further demarcation of inner-suburban neighbourhood boundaries later in this paper. LQs and IRs were averaged according to zone and year, and then graphed according to their corresponding zone. The results are shown in the following figures.

⁷ In this paper, I often use the term LQ to refer to such ratios, since they serve the same function.





Note: the inner city includes the old cities of Toronto, York, and East York.

Figure 2: Change in Location Quotient for Average Household Income Across Municipal Zones in Toronto CMA, 1981–2016



Between 1981 and 2016, the inner city and inner suburbs traded places in their patterns and trajectories in terms of average household income (Figure 2). The inner city became more prosperous, jumping from an LQ of 0.87 to 1.06 over 25 years, while the inner suburbs sharply declined from 3 percent above the CMA average in 1981, to 14 percent below the average by 2016.

The decline of manufacturing and the professionalization of cities across the developed world have clearly reorganized the locations of the economic engines of these cities. Accompanying this reversal of fortunes is the change in immigrant population from 1981 to 2016 for the inner suburbs in Figure 3, from 4 percent above the CMA average to 17 percent above the CMA average. This substantial increase correlates with the sharp decline in immigration population within the inner city, declining from 15 percent above the CMA average in 1981 to 22 percent below the CMA average by 2016.

Interestingly, the outer suburbs increased by 25 percent to 1.07, which is above the CMA average for immigrant population, yet is unaccompanied by notable changes in income or unemployment rate. This may suggest a lifecycle process of filtering, whereby immigrants eventually build up the necessary wealth and desire to relocate out of the inner city. Should this be true, this also indicates the general lack of affordable rental housing built in the outer suburbs, a factor serving to discourage recent immigrants from settling or moving there.

On the other hand, the dichotomy between the inner suburbs and city indicates their symbiotic relationship in the postwar period. As the first suburbs of burgeoning cities, the inner suburbs became a pathway for middle- to upper-income households to escape the industrial city, leaving behind the urban poor (Short, Hanlon, and Vicino 2007). Prosperity thus concentrated in the inner suburbs while the industrial inner city concentrated poverty. Meanwhile, the inner city still

functioned as the traditional immigrant-reception area because of the availability of affordable rental units, social services, transit services, and community networks (Walks and Maaranen 2008).





The inner city began to prosper as early the 1960s, as the old City of Toronto deindustrialized and began concentrating professional functions in the latter half of the 20th century. Figure 4 illustrates the declining share of manufacturing occupations held by inner-city residents compared to the rest of the CMA. The results show the trajectories of the inner suburbs and city have reversed, establishing the inner suburbs as the new immigrant-reception areas as affordable rental options are displaced out of the inner city.

Consistent with these new trajectories, Figure 5 illustrates the divergence in unemployment rate between the inner suburbs and city, the former having increased to 17 percent above the CMA average since 1981, while the latter decreased 20 percent to below the CMA average.





Figure 5: Change in Location Quotient for Unemployment Rate Across Municipal Zones in Toronto CMA, 1981–2016



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Interestingly, the notable divergence in unemployment rate is unaccompanied by similar changes in LQ for professional occupations (Figure 6). Overall, the occupational make-up of the inner suburbs relative to the CMA has remained consistent since 1981. This finding, however, does not account for the diversity of neighbourhood trajectories within the inner suburbs. Deepening occupational polarization amongst neighbourhoods is also occurring, yet a quick glance at averages disguises these trends.

Figure 6: Change in Total Population Employed in Professional Occupations Across Municipal Zones in Toronto CMA, 1981–2016



It is important to note that changes (or the lack of them) in occupational variable LQs do not reflect the absolute increases or decreases in their proportional share of the overall labour force. Further analysis based at the neighbourhood level will have to use proportional variables as well as LQs to properly account for the effects of occupational polarization.

Overall, this brief metropolitan-level analysis serves to situate the inner suburbs as a zone declining relative to the revitalized inner city and outer suburbs, and as a springboard into more detailed neighbourhood-based analysis.

Figure 7 illustrates the effect of changing market preferences towards larger homes in the outer suburbs and exurbs. This may act as a pull-factor for middle-income family homebuyers, drawing them away from the inner city and suburbs where traditionally smaller housing sizes are concentrated. On the other hand, whether market preferences lean towards the amenities offered by the inner city or the larger homes of the outer suburbs and exurbs should be demonstrated by trends in household income, as more desirable locations should contain concentrations of higher-income households.

Figure 7: Change in Location Quotient for Average Number of Rooms Across Municipal Zones in Toronto CMA, 1981–2016



And as Figure 2 illustrated, trends have reversed and the inner city has surpassed the outer suburbs in terms of average household income (as LQ), and may in fact have the highest LQ when considering its population size compared with the outer suburbs or exurbs.

Gentrification, along with professionalization, has changed inner-city neighbourhoods into spaces of consumption for affluent households (Davidson and Lees 2005). The increasing desirability of neighbourhoods is thus facilitated by social upgrading and their subsequent transformation into spaces of consumption to facilitate new lifestyles within them. Amenities in the inner city have changed to reflect the changing incomes and types of residents from 1981 to 2016. Now, trends in household incomes (Figure 2) across the municipal zones now reflect the popularity of modern urban lifestyles.

It will be interesting to await and analyze the results of the 2021 Census of Canada which, with a data collection start date of May 3, 2021, would have captured the statistical impacts of the COVID-19 pandemic upon residents of the Toronto CMA. The pandemic may have affected the noted trends in average household income and dwelling value, for example (see Figure 8), as a result of former residents leaving the City for farflung exurbs within the CMA, as reported by local media (for example, Alini 2021).



Figure 8: Change in Location Quotient for Average Dwelling Value Across Municipal Zones in Toronto CMA, 1981–2016

6. Neighbourhood Change Design Methodology

For an analysis of change at the neighbourhood scale, neighbourhoods must be further demarcated to differentiate inner-suburban areas, even within municipal boundaries. One common way to construct such a neighbourhood-level analysis is to discern the most relevant neighbourhoods based on their dominant housing stock age (Walks 2001), a method which differentiates between inner and outer suburban, inner-city, and exurban areas based on postwar or prewar development.

Also, the 1998 amalgamation of Etobicoke, North York, East York, York, Scarborough, and the Old City of Toronto into one city meant policy differences based on these former municipal boundaries have mostly disappeared, as have differences in tax rates with the implementation of a single citywide market value property tax assessment system. The amalgamated City of Toronto locally applies its policies across the city, regardless of these former boundaries, while evolving in an attempt to satisfy new constituents. This means that policy differences between the former municipalities and Old Toronto previously worked to differentiate suburban vs. urban neighbourhoods.

Thus, using the predominant housing age of a neighbourhood along with the former municipal boundaries becomes an important component towards differentiating inner-suburban neighbourhoods from others, as the age of development indicates the era in which a neighbourhood developed (postwar or prewar). However, the post-amalgamation era is only 23 years (as of 2021) relative to Toronto's 200+ years of existence, including 34 years of the early postwar (1946–1970) period. Therefore, for this analysis the former municipal boundaries are included in the demarcation, as prior political differences helped shape the trajectories of inner-suburban and inner-city municipalities in that early postwar period and throughout most of Toronto's history.

Based on the availability of Canadian census data at the census tract level, and using the methodology Walks (2001) employed in defining them, inner-suburban neighbourhoods are defined as tracts having twice or more the 2006 CMA average of dwellings built between 1946 and 1970 within the three pre-amalgamation municipalities of Toronto, York, and East York. Using the 2006 Census to determine inner-suburban neighbourhoods is also a practical exercise, as definitions of the age of development variables changed for the 2016 Census and thus, the "postwar" variable as defined below could not be constructed using the 2016 Census. As well, from this point on, the term "postwar" will designate dwellings built between 1946 and 1970. Similarly, inner-city neighbourhoods were demarcated within the boundary of the old City of Toronto, further differentiated by census tracts having two or more times the 2006 CMA average of buildings built before 1946. The most outward and contiguous line of inner-suburban and city neighbourhoods were then used to delineate the inner-suburban and inner-city zones, inside which all neighbourhoods were classified as inner-suburban or inner-city depending on which municipality they resided in, to form contiguous zones. The resulting neighbourhood zones are shown in Figure 9.

Figure 9: Inner-suburban and inner-city neighbourhoods defined by municipal boundaries and age of development using 2016 Census boundaries.



Note the contiguity of the zones, save for eight census tracts removed due to suppression of data or absence of population.

To determine how the social ecologies of income in the inner suburbs have changed between 1981 and 2016, linear regression analysis was performed. Variables representing change over time in various socio-demographics and housing stock were regressed on changes in average household income and against recent immigrants. Census tracts are the units of analysis.⁸

⁸ Inner-city neighbourhoods were included in this analysis to aid with the regression analysis. It was hypothesized that including the inner city in the analysis would allow the regression to detect processes of divergence which might not be detected if the analysis were restricted to the inner suburbs. This hypothesis was later confirmed to be true. Both the inner city and inner suburbs were included as they were already well developed during the postwar period. The inner suburbs and city exhibited a strong symbiotic relationship as earlier described, which the other two zones lack owing to their later development and rural status. Two regression models emerged, one

Twenty-two variables were considered for the regression analysis to assess changes based on race, housing characteristics, tenure, occupation, education, household and family size and structure, unemployment, and age. Principal Components Analysis (PCA) was used to reduce five of the 27 variables to two components (see Table 5).

PCA is a statistical method of reducing variables to a specified set of linearly uncorrelated variables called Principal Components. Varimax rotation with Kaiser Normalization produced rotated component matrices for each component. Each Principal Component between the two models differs in its variable loadings due to the different amount of tracts in each model.⁹ The components were saved as factor scores and included as variables in the regression analysis. This left 22 change variables in the regression analysis (Table 5).

The regressions were performed as backwards regressions, a method which starts with all candidate variables and incrementally eliminates single variables whose removal will cause only insignificant decline in the fit of the regression model, until no further variables can be deleted without resulting in statistically significant loss in model fit. The loadings for each component are displayed in the rotated component matrices and may be found in Tables A1 and A2 (see the Appendix), along with their Eigenvalues.

Note that any of the variables reduced to components included both static single-year and long-term (1981–2016) change variables. Static variables capture proportional concentration in either 1981 or 2016, while change variables measure the change over this period. Nine variables were input into the regression as change variables and were not reduced to components after trial and error analysis, as reducing them resulted in components that were afterwards difficult to interpret or that reduced the explanatory power of the models. Results from the linear regressions may be seen in Tables 7 to 12.

The unstandardized coefficients are the key coefficients of interest in aiding interpretation in this analysis. They show the actual change in an independent variable per unit of change in the dependent variable. Most of the variables in this analysis have already been standardized to a common measurement scale (i.e., as a proportional variables), except for the lone Principal Component, making unstandardized variables the ideal choices for interpretation in this analysis.

However, the standardized coefficients account for different measurement scales and will be useful for interpreting the Principal Component. Each table includes a Variance Inflation Factor (VIF) column, which is an indication of collinearity. VIF values between 5 and 10 indicate moderate to high collinearity and are grounds for removal of a variable from a regression. None of the variables in the regressions had VIFs between 5 and 10, so all variables were input in the models.¹⁰

using only the inner suburbs and one including both zones, which are then compared to determine the processes picked up or missed by the models. The latter model is herein referred to as the "combined model." Eight census tracts from the inner suburbs and inner city were excluded due to data suppression or absence of population.

⁹ However, after user interpretation, the Principal Components were determined to be consistent between the models. This is validation that the resulting trends are not due to arbitrary boundary demarcation, but are instead real and interpretable.

¹⁰ The variable "Families with Children" was found to have a VIF above 10, prompting exclusion of this variable from the regression models and results in the final regression tables.

Table 5: Change Variables Input as Independent Variables in the Linear Regression Models

Variables
Aboriginal population as a proportion of total population
African-Canadians (Blacks) as a proportion of total population
Chinese population as a proportion of total population
South Asian population as a proportion of total population
Young adults (aged 18-34) as a proportion of total population
Seniors (aged 65+) as proportion of total population
Recent immigrants (Immigrants who arrived within 0-15 years of Census year) as a proportion of total population
Established immigrants (Immigrated who arrived 25+ years ago of Census year) as a proportion of to- tal population
Unemployment rate as a proportion of the total labour force
Total population employed in manufacturing as a proportion of total labour force
Total population employed in professional occupations as a proportion of total labour force
Total population employed in FIRE as a proportion of total labour force
Total population employed in sales and service occupations as a proportion of total labour force
Total population employed in arts, recreation, and culture as a proportion of total labour force
Total population completed university as a proportion of total population (aged 15+)
Families with children as a proportion of total census families
Lone-parent families as a proportion of families with children
1-person households as a proportion of total households
2-person household as a proportion of total households
Postwar dwellings (built between 1946 and 1970) as a proportion of total dwellings*
Prewar dwellings (built before 1946) as a proportion of total dwellings*
Recent housing (built within 10 years before the census year) as a proportion of total dwellings
Note: These variables were computed in the regression only as change variables.

*From the 2006 Census of Canada

Table 6: Principal Components for Linear	[.] Regression
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	Entered Variables	Principal Components	Definitions
1. 2.	Apartment dwellings as a proportion of total dwellings Single-detached dwellings as a proportion	1. Single family owned dwelling tracts	This variable loads strongly positive on single- detached dwellings, owned dwellings, and average number of rooms
3.	of total dwellings Rented dwellings as a proportion of total dwellings	2. Tenure deconcentration	This variable exhibits increases in owned dwellings, single-detached dwellings, and average number of rooms; along with
4.	Owned dwellings as a proportion of total dwellings		decreases in rented dwellings, apartment dwellings, and average number of rooms from 1981 to 2016.
5.	Average number of rooms per dwelling as LQ		

Note: Variables were entered as both static and change variables into the PCA, as seen in Tables A1 and A2 in the Appendix.
7. Regression Results and Discussion

7.1 Regressions against average household income

A key variable in this paper to help measure neighbourhood change is income. The inner suburbs as a whole were observed to be declining in average household income relative to other municipal zones; however, this decline occurs unevenly across neighbourhoods. To discern different neighbourhood trajectories across the inner suburbs, socio-demographic and economic variables were regressed against income to examine which factors are driving decline or prosperity. The results of this regression are illustrated in the cluster analysis, which demonstrates the extent of income polarization as a result of divergence in neighbourhood trajectories.

Consistent between both models are the clear roles that household size, occupations, immigration status, race, dwelling type and age, level of education, and residents' age play in change in average household income. They are all statistically significant at the 95 percent percentile in describing the increase or decrease in average household income.

Interestingly, Tables 7 and 8 and Figure 11 show that FIRE occupations have the highest positive unstandardized coefficient that accounts for income in the combined model at 3.933, but are second place to arts and recreation occupations in the inner suburbs–only model, which has an unstandardized coefficient of 5.078 and thus the highest explanatory power of all variables in the inner suburbs model. FIRE occupations accounting for the largest positive increase in household income is not a surprising result, given the occupations' direct connection to managing local, national, and global flows of capital, and the extremely high salaries that often accompany this responsibility of capital management. What is surprising is the large explanatory power that the arts and recreation variable wields in the inner suburbs–only model.

Perhaps the variable's large explanatory power indicates the process which facilitates the rapidly increasing affluence of neighbourhoods: gentrification. The increasing presence of artists has been often cited as a catalyst for gentrification – for example in Ley's (2003) work, which details a general stage-model of gentrification in which artists move into a neighbourhood and increase its social-economic and cultural value, only to be succeeded and forced out by increasingly affluent, wealthier newcomers. This is all to suggest that gentrification is the largest factor driving higher household incomes within the inner suburbs.

	Unstar Coef	ndardized ficients	Standardized Coefficients		
	В	Std. Error	Beta	Sig.	VIF
(Constant)	1.795	0.192		0.000	
Change in 1-person households as aproportion of total households, 1981–2016	-2.169	0.376	-0.254	0.000	1.978
Change in populations employed in arts and recreation occupations as a proportion of total labour force, 1981–2016	1.965	0.878	0.100	0.026	2.053
Change in Chinese population as a proportion of total population, 1981–2016	-1.354	0.315	-0.154	0.000	1.315
Change in populations employed in FIRE industries as a proportion of total labour force, 1981–2016	3.933	0.849	0.204	0.000	1.987
Change in established immigrants (25 years +) as a proportion of total population, 1981–2016	-0.662	0.235	-0.137	0.005	2.406
Change in lone-parent families as a proportion of total families with children, 1981–2016	-1.063	0.343	-0.150	0.002	2.393
Postwar housing (1946-1970) as a proportion of total dwellings, 2006	-1.107	0.149	-0.357	0.000	2.357
Change in populations employed in professional occupations as a proportion of total labour force, 1981–2016	-2.599	0.548	-0.196	0.000	1.746
Change in recent housing (0-10 years) as a proportion of total dwellings, 1981–2016	0.725	0.129	0.236	0.000	1.791
Change in populations employed in sales and service occupations as a proportion of total labour force, 1981–2016	-1.620	0.480	-0.164	0.001	2.424
Change in total population that completed university as a proportion of total population, 1981–2016	-1.418	0.435	-0.213	0.001	4.332
Single family owned dwellings	0.305	0.031	0.455	0.000	2.216

Table 7: Linear Regression Coefficients for Combined Model, Regression 1

Dependent variable: Change in average household income as LQ, 1981–2016

Model Summary					
R	R Square	Adjusted R Square	Std. Error of the Estimate		
0.790	0.625	0.613	0.414		

	Unstandardized Coefficients		Standardized Coefficients		
	В	Std. Error	Beta	Sig.	VIF
(Constant)	2.227	0.289		0.000	
Change in 1-person households as a proportion of total households, 1981–2016	-1.926	0.568	-0.200	0.001	2.180
Change in populations employed in arts and recreation occupations as a proportion of total labour force, 1981–2016	5.078	2.041	0.125	0.014	1.584
Change in Chinese population as a proportion of total population, 1981–2016	-1.119	0.367	-0.169	0.003	1.930
Change in populations employed in FIRE industries as a proportion of total labour force, 1981–2016	2.571	1.100	0.139	0.020	2.238
Change in recent immigrants (0-15 years) as a proportion of total population, 1981–2016	-0.602	0.349	-0.113	0.086	2.717
Change in established immigrants (25 years +) as a proportion of total population, 1981–2016	-1.015	0.409	-0.211	0.014	4.520
Change in lone-parent families as a proportion of total families with children, 1981–2016	-1.237	0.469	-0.164	0.009	2.433
Postwar housing (1946-1970) as a proportion of total dwellings, 2006	-0.997	0.215	-0.303	0.000	2.680
Prewar housing (before 1946) as a proportion of total dwellings, 2006	0.594	0.320	0.107	0.065	2.087
Change in populations employed in professional occupations as a proportion of total labour force, 1981–2016	-3.567	0.683	-0.257	0.000	1.522
Change in recent housing (0-10 years) as a proportion of total dwellings, 1981–2016	0.748	0.171	0.311	0.000	3.173
Change in populations employed in sales and service occupations as a proportion of total labour force, 1981–2016	-1.419	0.589	-0.149	0.017	2.409
Change in total population that completed university as a proportion of total population, 1981–2016	-1.671	0.579	-0.242	0.004	4.422
Change in seniors (population aged 65+) as a proportion of total population, 1981–2016	-1.406	0.604	-0.157	0.021	2.866
Single family owned dwelling tracts	0.292	0.042	0.493	0.000	3.136

Table 8: Linear	Regression	Coefficients for	Inner Suburbs	Only Model	Regression 1

Dependent variable: Change in average household income as LQ, 1981–2016

Model Summary				
R R Square Adjusted R Square Std. Error of the Estimate				
0.830	0.688	0.664	0.343	





To continue with the interpretation of the occupational variables, sales and services are part of the low-skilled, low-paying occupations that characterize one pole of occupational polarization, the other being high-paying, professional occupations. Thus, the moderate negative correlation (unstandardized coefficient of -1.620 in the combined model, -1.419 in the inner suburbs only model) with household income in both regression models is not a surprising result. On the other hand, the results indicate that professional occupations are strongly negatively correlated (unstandardized coefficient of -2.599 in the combined model, -3.567 in the inner suburbs only model) with household income in both models.

This is an unexpected result and may be an artefact of the regression models. However, the cause of these strong, negative correlations may be rooted in the nature of the analysis itself. This paper examines the relationships amongst various social variables across urban neighbourhoods. However, the social composition of neighbourhoods has changed dramatically in the past 40 or so years in countries across North America and Western Europe as a result of deindustrialization and professionalization. These two processes resulted in rapid and far-reaching transformations of national economies in their totality.

At the neighbourhood level, their impacts are seen in the rapid increases in the proportions of workers employed in professional occupations across virtually all neighbourhoods in the Toronto CMA. If these rapid increases occurred in neighbourhoods at the same time that average household incomes decreased in them, then it would not be unreasonable to surmise that the regression models may have picked up on this trend, even if it should defy expectations to an observer. And, as seen in Table 14, various neighbourhood clusters have a significant number of census tracts in which household incomes declined.

Postwar housing is another variable that is moderately negatively correlated with household income, with unstandardized coefficients of -1.107 in the combined model and -0.997 in the inner suburbs–only model. This variable likely reflects the high-density postwar rental districts and apartments across Toronto that concentrate lower-income households. The increasing emphasis, importance, and profitability (both for individuals and corporations) of homeownership across not only Toronto, but Canada as well, means that tenure deconcentration is accelerated. As rental units are converted to owner-occupied units, renters and groups traditionally associated with lower incomes (such as immigrants and racial minorities within the Toronto context) may be forced into the last remaining bastions of affordability: the postwar apartment towers.

Most of the remaining affordable rental units within the inner city were built during the postwar period (Kesik and Saleff 2009), while most inner-city single detached homes, many of which are experiencing or have experienced gentrification, were built in the prewar period. The other remaining or new rental units, due to decreasing supply, would see rents increase such that they become only affordable to higher-income households. The higher coefficient for the combined model may be the regression model picking up on this trend, as tenure deconcentration is a more widespread issue in the inner city, and also serves as validation for this hypothesis.

Chinese households, lone-parent families, and established immigrants are more likely to reside in affordable postwar apartment towers, as they are all low to moderately negatively correlated with household income, with unstandardized coefficients of -1.345, -0.662, and -1.063 respectively in the combined model, and -1.119, -1.015, and -1.237 respectively in the inner suburbs– only model. Their negative correlation with household income indicates that the location of race, single-parent households, and immigrants are associated with neighbourhoods that have lower incomes after controlling for other variables. It is vital to note here that Canadian immigrants are overrepresented in poverty rates compared to non-immigrants (Kazemipur and Halli 2001). Particularly in Toronto, the poverty rate for immigrants was 17.5 percent compared with 11.2 percent for non-immigrants.

There is a correlation between immigrants and poverty, which was also suggested by a 2017 Statistics Canada report on higher rates of chronic low-income status amongst immigrants compared to non-immigrants (Picot and Lu 2017). For Chinese Torontonians, it is likely that most are immigrants (established or otherwise) given the changes to Canada's immigration system that occurred in 1967; before that time, most immigrants to Canada were Western Europeans. Thus, the connection between visible minorities (Chinese, in this instance), immigration status, and poverty is very close in the Toronto context, particularly given the results of the regressions and the NCRP report (Paradis 2014) mentioned earlier.

Interestingly, concentrations of seniors are statistically significant only in the inner suburbs–only model, as the variable is moderately negatively correlated with household income with an unstandardized coefficient of -1.406. This may partly be a product of lifecycle effects for aging. As people age, they save or invest their income to accumulate wealth such that when employment income ends upon retirement, they have funds to sustain themselves. This trend is reflected in the correlation with declining household incomes for census tracts where seniors are concentrated, who decided to age in place in their neighbourhoods. Thus, declining incomes in places with more seniors could reflect these lifecycle effects or suggest the spatial concentration of impoverished seniors. A 2016 article by the *Globe and Mail* suggested that the majority of Canadians aged 55 to 64 without pension funds have inadequate savings, only enough to last a year after retirement (McCarthy 2016). On the other hand, the poverty rate among seniors in Canada has been declining over time thanks to the Canadian Pension Plan (CPP) and other government subsidies such as Old Age Security (OAS), so that Canada has one of the lowest seniors' poverty rates in the developed world (Conference Board of Canada 2013). However, poverty was noted as recently starting to increase among seniors in that very report.

7.2 Regressions for recent immigrants

The changing role of the inner suburbs from a working-class, industrial zone to immigrant reception area has many consequences. As seen, recent immigrants concentrating within the inner suburbs are correlated with declining average household incomes, although an earlier result indicated this was (barely) statistically insignificant. On the other hand, the abundance of scholarly literature on inner-suburban decline and the changing function of the inner suburbs into immigrant reception areas warrants further investigation in the Toronto context.

Often, the inner suburbs lack the connectivity to global flows of capital and finance to attract young professionals. Aging is thus a large component in inner-suburban change and decline; the statistical insignificance of young adults in the inner suburbs–only model for income characterizes the zone as distinctly old and disconnected from global trends. Critically, it becomes important to analyze which socio-demographic variables are correlated with concentrating recent immigrants, to see if they are spatially associated with neighbourhoods disconnected to global trends.

Tables 9 and 10 and Figure 12 show the results of regressing the proportional change in recent immigrants against the other socio-demographic variables.

	Unstandardized Coefficients		Standardized Coefficients		
	В	Std. Error	Beta	Sig.	VIF
(Constant)	0.409	0.033		0.000	
Change in 1-person households as a proportion of total households, 1981–2016	-0.374	0.069	-0.189	0.000	2.277
Change in 2-person households as a proportion of total households, 1981–2016	-0.403	0.072	-0.177	0.000	1.848
Change in Aboriginal population as a proportion of total population, 1981–2016	1.544	0.407	0.100	0.000	1.303
Change in populations employed in arts and recreation occupations as a proportion of total labour force, 1981–2016	-1.037	0.171	-0.228	0.000	2.626
Change in Black population as a proportion of total population, 1981–2016	0.195	0.073	0.084	0.008	1.855
Change in established immigrants (25 years +) as a proportion of total population, 1981–2016	-0.653	0.041	-0.581	0.000	2.454
Change in populations employed in manufacturing as a proportion of total labour force, 1981–2016	0.454	0.078	0.191	0.000	1.993
Postwar housing (1946-1970) as a proportion of total dwellings, 2006	0.076	0.026	0.105	0.003	2.361
Change in recent housing (0–10 years) as a proportion of total dwellings, 1981–2016	0.159	0.024	0.224	0.000	2.102
Change in total population that completed university as a proportion of total population, 1981–2016	0.300	0.065	0.194	0.000	3.292
Change in seniors (population aged 65+) as a proportion of total population, 1981–2016	0.181	0.098	0.077	0.067	3.261
Single family owned dwelling tracts	0.028	0.005	0.182	0.000	1.863

Table 9: Linear Regression Coefficients for Combined Model, Regression 2

Dependent variable: Change in recent immigrants (0-15 years) as a proportion of total population, 1981– 2016

Model Summary						
R	R Square	Adjusted R Square	Std. Error of the Estimate			
0.892	0.795	0.788	0.071			

	Unstandardized Coefficients		Standardized Coefficients		
	В	Std. Error	Beta	Sig.	VIF
(Constant)	0.352	0.039			
Change in 1-person households as a proportion of total households, 1981–2016	-0.313	0.095	-0.172	0.001	1.619
Change in 2-person households as a proportion of total households, 1981–2016	-0.390	0.100	-0.209	0.000	1.700
Change in Aboriginal population as a proportion of total population, 1981–2016	1.155	0.519	0.096	0.027	1.120
Change in established immigrants (25 years +) as a proportion of total population, 1981–2016	-0.627	0.052	-0.691	0.000	1.979
Change in lone-parent families as a proportion of total families with children, 1981–2016	0.209	0.096	0.147	0.030	2.710
Change in recent housing (0-10 years) as a proportion of total dwellings, 1981–2016	0.158	0.024	0.350	0.000	1.654
Change in total population that completed university as a proportion of total population, 1981–2016	0.237	0.085	0.183	0.006	2.568
Change in young adults (population aged 20-34) as a proportion of total population, 1981–2016	0.097	0.057	0.077	0.091	1.236
Change in unemployment rate, 1981–2016	0.554	0.253	0.108	0.030	1.456
Single family owned dwelling tracts	0.038	0.006	0.339	0.000	1.967

Table 10: Linear Regression Coefficients for Inner Suburbs Only Model, Regression 2

Dependent variable: Change in recent immigrants as a proportion of total population, 1981–2016

Model Summary						
R	R Square	Adjusted R Square	Std. Error of the Estimate			
0.814	0.663	0.646	0.066			



Figure 12: Recent Immigrants as LQ by Census Tract Across the City of Toronto, 2016

Interestingly, recent housing and university-educated individuals are common to both regression models. Relative to the other coefficients, they are both moderately positively correlated with the percentage of recent immigrants. Recent housing has unstandardized coefficients of 0.159 in the combined model and 0.158 in the inner suburbs–only model, while university-educated individuals have unstandardized coefficients of 0.300 and 0.237 in the combined model and inner suburbs–only model respectively.

Single family owned dwellings are also common to both models, with positive standardized coefficients of 0.182 and 0.339 for the combined model and inner suburbs–only model, respectively. This amalgamation of variables illustrates that neighbourhoods with concentrations of recent immigrants are increasingly characterized by low-rise built forms, new investment in the built environment, and higher proportions of highly educated residents. Perhaps these correlations indicate increasing affluence within neighbourhoods with higher proportions of recent immigrants.

However, the moderate to high positive correlations between the percentage of lone-parent families and of recent immigrants in both models (unstandardized coefficients of 0.454 in the combined model and 0.209 in the inner suburbs–only model) complicates that suggestion. In considering the high positive correlation of unemployed workers (unstandardized coefficient of 0.554) with recent immigrants in the inner suburbs–only model, these correlations suggest a process of increasing social polarization in neighbourhoods with greater concentrations of recent immigrants.

The moderate positive correlation for manufacturing occupations (unstandardized coefficient of 0.454) with that of recent immigrants in the combined model offers support to the social polarization hypothesis postulated earlier. Recent immigrants may be concentrating in the remaining industrial, working-class neighbourhoods that are now seeing reinvestment and interest in the

form of newly added housing and higher-educated individuals. The positive correlations between lone-parent families and of unemployed workers with concentrations of recent immigrants support this explanation.

Many of these industrial, working-class neighbourhoods are also predominantly tracts characterized by single family owned dwellings. This could be an interesting trend warranting further research, as the scholarly literature has suggested that the postwar apartment neighbourhoods should be where recent immigrants are mainly concentrating within the inner suburbs. However, not all recent immigrant households have low incomes. Furthermore, the percentage of recent immigrants are only weakly positively correlated with concentrations of postwar housing in the combined model, suggesting that their settlement patterns do not strongly favour postwar apartment neighbourhoods.

The notable absence of two racial groups associated with recent immigrants in this analysis – Chinese and South Asians – from both regression models suggests a changing spatial pattern of (racialized) recent immigrants across the inner suburbs and the CMA. Perhaps these two racial groups are becoming increasingly dispersed throughout the region, no longer concentrating in neighbourhoods that also have concentrations of recent immigrants. Further analysis with more racial variables will be needed to confirm or disprove this possibility.

7.3 Regressions against tenure deconcentration

With the rise of a knowledge-based economy supplanting an industrial-based economy, along with the increasing role of asset-based welfare and homeownership for financial well-being, To-ronto has seen upward pressure on not only housing prices, but also the cost of living as a new, professional urban culture arose, alongside a growing occupational mismatch between the new dominant professional industries within the inner city and neighbourhoods dependent on industry. Tenure deconcentration is a symptom of these trends as the ratio between owned to rented dwellings skews towards the former.

Unfortunately, this Principal Component does not directly measure the conversion of rental units into owned dwellings, which is a distinguishing feature of gentrification. However, indirectly measuring the changing ratio between owned to rented dwellings allows one to make inferences about pressure to convert rental units to owned units: census tracts that proportionally gained owned dwellings and lost rental dwellings would be more likely to be areas in which rental units are converted to owned dwellings. Gains in owned dwellings are likely the result of high development pressures (for condos) in an area, which may become the impetus for tenure deconcentration.

Tables 11 and 12 and Figure 13 show the results of the analysis.

	Unstar Coe	ndardized fficients	Standardized Coefficients	0.5	
	В	Std. Error	Beta	Sig.	VIF
(Constant)	-0.540	0.259		0.038	
Change in 1-person households as a proportion of total households, 1981–2016	-7.822	0.639	-0.610	0.000	2.825
Change in 2-person households as a proportion of total households, 1981–2016	-3.278	0.615	-0.223	0.000	1.982
Change in Aboriginal population as a proportion of total population, 1981–2016	7.728	3.415	0.077	0.024	1.332
Change in populations employed in arts and recreation occupations as a proportion of total labour force, 1981–2016	-2.879	1.492	-0.098	0.054	2.925
Change in Chinese population as a proportion of total population, 1981–2016	-1.947	0.458	-0.147	0.000	1.371
Change in populations employed in FIRE industries as a proportion of total labour force, 1981–2016	4.380	1.187	0.151	0.000	1.919
Change in established immigrants (25 years +) as a proportion of total population, 1981–2016	1.386	0.343	0.190	0.000	2.520
Change in lone-parent families as a proportion of total families with children, 1981–2016	-1.394	0.527	-0.131	0.008	2.792
Change in populations employed in manufacturing industry as a proportion of total labour force, 1981–2016	-2.690	0.703	-0.175	0.000	2.381
Postwar housing (1946–1970) as a proportion of total dwellings, 2006	0.977	0.201	0.210	0.000	2.125
Change in populations employed in professional occupations as a proportion of total labour force, 1981–2016	1.421	0.844	0.071	0.093	2.042
Change in recent housing (0-10 years) as a proportion of total dwellings, 1981–2016	-0.998	0.206	-0.216	0.000	2.272
Change in South Asian population as a proportion of total population, 1981–2016	-1.078	0.418	-0.096	0.010	1.581
Change in total population that completed university as a proportion of total population, 1981–2016	-1.359	0.614	-0.136	0.027	4.263
Change in seniors (population aged 65+) as a proportion of total population, 1981–2016	-1.439	0.813	-0.094	0.078	3.237

Table 11: Linear Regression Coefficients for Combined Model, Regression 3

Dependent variable: Tenure deconcentration

Model Summary					
R	R Square	Adjusted R Square	Std. Error of the Estimate		
0.816	0.666	0.653	0.589		

	Unstandar Coefficie	rdized ents	Standardized Coefficients	<u> </u>	
	В	Std. Error	Beta	Sig.	VIF
(Constant)	-1.902	0.436		0.000	
Change in 1-person households as a proportion of total households, 1981–2016	-10.495	0.913	-0.644	0.000	1.908
Change in 2-person households as a proportion of total households, 1981–2016	-4.505	0.959	-0.269	0.000	2.000
Change in Aboriginal population as a proportion of total population, 1981–2016	8.132	4.845	0.076	0.095	1.236
Change in Chinese population as a proportion of total population, 1981–2016	-1.747	0.649	-0.156	0.008	2.046
Change in established immigrants (25 years +) as a proportion of total population, 1981–2016	2.297	0.517	0.282	0.000	2.452
Change in lone-parent families as a proportion of total families with children, 1981–2016	2.028	0.852	0.159	0.018	2.724
Change in populations employed in manufacturing industry as a proportion of total labour force, 1981–2016	-4.453	0.909	-0.258	0.000	1.694
Postwar housing (1946-1970) as a proportion of total dwellings, 2006	0.678	0.341	0.122	0.049	2.295
Prewar housing (before 1946) as a proportion of total dwellings, 2006	0.984	0.554	0.105	0.077	2.123
Change in recent housing (0-10 years) as a proportion of total dwellings, 1981–2016	-0.899	0.246	-0.221	0.000	2.220
Change in total population that completed university as a proportion of total population, 1981–2016	1.593	0.831	0.137	0.057	3.081
Single family owned dwelling tracts	0.119	0.069	0.119	0.085	2.859

Table 12: Linear Regression Coefficients for Inner Suburbs Only Model, Regression 3

Dependent variable: Tenure deconcentration

Model Summary							
R	R Square	Adjusted R Square	Std. Error of the Estimate				
.820	0.673	0.653	0.589				



Figure 13: Tenure Deconcentration Across the Toronto CMA, 1981 to 2016

Values below 0 indicate census tracts which gained in rental units relative to the CMA, while values above 0 indicate the conversion of rental units to owner-occupied units. Note that the index mapped is the one created from the combined model. Mapping the index created from the inner suburbs–only model would yield a different map, thus this map is not directly comparable to Figure 14 from the cluster analysis

Which groups are associated with or displaced as a result of tenure deconcentration can be approximated (an educated guess) through the spatial regression of various demographic variables against the tenure deconcentration Principal Component. It is convenient to note here that another Principal Component, derived from the same PCA as tenure deconcentration, was included in the regressions in this section. They are both composed of variables pertaining to changes in housing stock (tenure, number of rooms, housing type – see Table A1 in the Appendix).

The findings in this section should, however, be interpreted cautiously. The analysis here regresses one Principal Component (tenure deconcentration) against other Principal Components originating from the same PCA. There may be some degree of collinearity amongst the Principal Components. However, as discussed earlier, the regressions with the tenure deconcentration index do provide a valuable opportunity to discern which groups are disadvantaged or displaced from neighbourhoods in the process of deconversion.

Both models suggest that tenure deconcentration is occurring in census tracts where there are higher proportions of postwar housing (unstandardized coefficients of 0.977 in the combined model and 0.678 in the inner suburbs–only model) and increasing proportions of established immigrants (unstandardized coefficients of 1.386 in the combined model and 2.297 in the inner suburbs–only model). Interestingly, both these variables were correlated with declining house-hold incomes in a previous section.

Both regression models suggest that tenure deconcentration is occurring in neighbourhoods with increasingly large household sizes, as the percentage of one-person households and of two-person households were negatively correlated with tenure deconcentration (unstandardized coefficients of -7.822 and -3.278 respectively in the combined model, -10.495 and -4.505 in the inner suburbs–only model). The results suggest that smaller households are being displaced from these neighbourhoods, and that tenure deconcentration is occurring in neighbourhoods with higher concentrations of larger, lower-income households.

More specifically, the combined model, with positive correlations between FIRE/professional occupations (unstandardized coefficients of 4.380 and 1.421, respectively) and the tenure deconcentration index, suggests that tenure deconcentration is occurring in neighbourhoods with many postwar built forms, such as postwar tower blocks) that are now experiencing capital reinvestment in the form of development. Renewed capital investment within these neighbourhoods may, as a result, facilitate social changes that may snowball and catalyze wide-reaching transformations such as gentrification.

8. Cluster Analysis Results and Discussion

The K-means cluster analysis is a method of grouping sets of variables to create distinct groupings which may be easily interpreted, in this case to create a typology of inner-suburban neighbourhoods from 1981 to 2016. All the individual variables plus two housing-stress variables are included in the analysis. None of the indices created by the PCA was included, as this would have made interpretation much more difficult. All variables included were static variables from 1981 and 2016, and all variables are standardized in the form of ratios or LQs.

Through a process of trial and error, eight clusters were determined to be the optimal amount, producing clusters that were distinct and thus most easily interpretable (see Table 13). Three inner-suburban tracts were excluded from the cluster analysis due to data suppression or absence of population in the 1981 or 2016 Census.

Cluster	1. Minority Impoverished Apartment Renters	13
	2. Aging Professionals with Chinese Homeowners	21
	3. Aging Postwar Suburban Middle Class	58
	4. Old Wealthy Professional Homeowners	3
	5. Working-Class Industrial with African-Canadians	37
	6. Emergent Postwar Immigrant Reception Areas	47
	7. Gentrification and Professional Homeowners	17
	8. Deindustrializing Working-Class with New Artists and Smaller Households	16
Total Val	id Census Tracts	212
Missing		3

Table 13: Names of Clusters and Number of Census Tracts in Each Cluster, Inner Suburbs Only



Figure 14: Typology of Inner Suburban Neighbourhood Clusters, Toronto CMA, 1981 to 2016

The "Emergent Postwar Immigrant Reception Areas," "Gentrification and Professional Homeowners," and "Deindustrializing Working Class" clusters are those which had emerged by 2016. All other clusters were present in 1981 and persisted into 2016. One of the names of the clusters (shortened from "Deindustrializing Working-Class with New Artists and Smaller Households" to "Deindustrializing Working-Class") were shortened in Figure 14 to keep the legend within a reasonable size.

Figure 14 illustrates both clusters of change and persistence from 1981 to 2016. The variable composition of each cluster is shown in Table 14.

Before discussing changes within or between clusters, it is important to distinguish the "stable" clusters from the "change" clusters, which appeared by 2016. The stable clusters are those that have retained their defining social characteristics from 1981 to 2016. These stable clusters are the first five clusters listed in Table 13. Despite changes in economic well-being or financially stressed households, their defining social indicators such as race, immigrant residents, or occupations have generally persisted over the 35-year period. Change clusters are those that saw significant increases and decreases in social characteristics such as concentration of immigrants or racial groups, which coalesce and define distinct, new clusters that previously had no distinguishingly high or low variable loadings in 1981 and could have otherwise been interpreted as middle-income neighbourhoods.

Clusters 3, 4, and 7 are distinguished by their strong loadings in single detached dwellings and owned dwellings, indicating high homeownership levels within these neighbourhoods. As well, their concentration of recent immigrants has remained below the CMA average from 1981 to 2016. Their variable loadings on visible minorities (Chinese, African-Canadians, and South Asians) in the cluster analysis also indicate averages well below the CMA average from 1981 to

2016, although Cluster 4 loaded higher on African-Canadians and South Asians in 2016, suggesting migration of these two groups into Cluster 4.

Meanwhile, the neighbourhoods which concentrated racial minorities and recent immigrants in 1981 (Clusters 1, 2, and 5) continued along their trajectories as racialized neighbourhoods, and experienced simultaneous declines in their household incomes by 2016. Although the five stable clusters (Clusters 1 to 5) persisted in their defining social indicators into 2016, the consequence of this persistence has been a multi-faceted polarization along axes of tenure, education, occupation, and other social indicators which are notable determinants towards a neighbourhood's relative economic well-being.

Table 14: Centred Variable Loadings for Toronto Inner-Suburban Neighbourhood Clusters, 1981 to 2016

Cluster								
	Minority Impoverished Apartment Renters	Old Wealthy Professional Homeowners	Emergent Postwar Immigrant Reception Areas	Aging Postwar Suburban Middle Class	Aging Professionals with Chinese Homeowners	Gentrification and Professional Homeowners	Deindustrializing Working-Class with New Artists and Smaller Households	Working- Class Industrial with African- Canadians
Average household income as ratio, 1981	0.79	3.29	1.05	1.07	1.32	1.33	0.85	0.78
Average household income as ratio, 2016	0.53	6.75	0.99	0.80	1.04	2.15	0.72	0.58
Total Aboriginal population as LQ, 1981	0.62	0.00	0.29	0.52	0.30	0.29	3.51	1.08
Total Aboriginal population as LQ, 1981	0.60	0.40	0.89	0.97	0.37	0.99	1.38	1.08
Total African- Canadian population as LQ, 1981	2.74	0.20	0.41	0.75	0.82	0.18	1.02	2.54
Total African- Canadian population as LQ, 2016	1.89	0.16	0.63	1.22	0.60	0.21	1.03	3.03
Total Chinese population as LQ, 1981	1.74	0.11	0.61	0.54	2.48	0.40	0.54	0.55
Total Chinese population as LQ, 2016	0.86	1.68	0.63	0.42	3.36	0.33	0.43	0.30
Total South Asian population as LQ, 1981	4.36	0.22	0.50	0.84	0.89	0.23	0.91	1.20
Total South Asian population as LQ, 2016	1.59	0.27	0.37	1.05	0.56	0.19	0.53	1.01
Total population employed in manufacturing occupations as LQ, 1981	1.13	0.37	0.88	1.12	0.76	0.77	1.22	1.25

Places Left Behind?

				Cluster				
	Minority Impoverished Apartment Renters	Old Wealthy Professional Homeowners	Emergent Postwar Immigrant Reception Areas	Aging Postwar Suburban Middle Class	Aging Professionals with Chinese Homeowners	Gentrification and Professional Homeowners	Deindustrializing Working-Class with New Artists and Smaller Households	Working- Class Industrial with African- Canadians
Total population employed in manufacturing occupations as LQ, 2016	1.26	0.44	0.75	1.09	0.78	0.56	0.94	1.26
Total population employed in professional occupations as LQ, 1981	0.86	2.01	1.08	0.73	1.35	1.46	0.72	0.68
Total population employed in professional occupations as LQ, 2016	0.91	1.21	1.14	0.89	1.24	1.20	0.94	0.82
Total population employed in FIRE occupations as LQ 1981	1.21	1.87	1.14	0.92	1.20	1.14	0.87	0.84
Total population employed in FIRE occupations as LQ 2016	0.86	2.25	1.07	0.84	1.26	1.50	0.92	0.70
Total population employed in sales and service occupations as LQ 1981	1.00	0.96	1.05	0.96	1.03	0.91	0.94	0.93
Total population employed in sales and service occupations as LQ 2016	1.25	0.53	0.97	1.14	0.91	0.75	1.14	1.28
Total population employed in arts and recreation occupations as LQ 1981	0.60	1.01	0.93	0.60	0.97	1.11	0.66	0.56
Total population employed in arts and recreation occupations as LQ 2016	0.48	1.71	1.05	0.69	0.79	1.49	0.96	0.54
Total postwar dwellings as LQ, 2016	1.53	1.60	1.84	2.46	1.62	1.81	1.95	1.76
Total prewar dwellings as LQ, 1981	0.05	1.15	0.34	0.14	0.13	1.82	0.69	0.14
Total prewar dwellings as LQ, 2016	0.25	1.48	0.47	0.36	0.15	2.61	0.99	0.39
Total recent housing as LQ, 1981	1.50	0.12	0.64	0.41	1.07	0.08	0.41	1.07
Total recent housing as LQ, 2016	0.44	1.55	0.86	0.33	0.73	0.52	0.29	0.27
Total owned dwellings as LQ, 1981	0.63	1.67	0.94	1.30	1.31	1.42	0.76	0.67

				Cluster				
	Minority Impoverished Apartment Renters	Old Wealthy Professional Homeowners	Emergent Postwar Immigrant Reception Areas	Aging Postwar Suburban Middle Class	Aging Professionals with Chinese Homeowners	Gentrification and Professional Homeowners	Deindustrializing Working-Class with New Artists and Smaller Households	Working- Class Industrial with African- Canadians
Total owned dwellings as LQ, 2016	0.66	1.38	0.81	1.07	1.08	1.22	0.66	0.65
Total rented dwellings as LQ, 1981	1.47	0.14	1.07	0.61	0.60	0.45	1.32	1.43
Total rented dwellings as LQ, 2016	1.67	0.24	1.38	0.87	0.84	0.56	1.67	1.70
Total single detached dwellings as LQ, 1981	0.23	2.38	1.11	1.54	1.47	2.00	0.97	0.56
Total single detached dwellings as LQ, 2016	0.22	1.97	0.79	1.27	1.09	1.87	0.78	0.47
Total apartment dwellings as LQ, 1981	1.95	0.07	1.17	0.55	0.55	0.41	1.33	1.50
Total apartment dwellings as LQ, 2016	1.85	0.38	1.41	0.79	0.95	0.54	1.45	1.50
Total recent immigrants (0-15 years) as LQ, 1981	1.90	0.49	0.74	0.77	0.93	0.38	0.87	1.22
Total recent immigrants (0-15 years) as LQ, 2016	1.23	0.88	1.07	0.89	1.06	0.64	0.99	1.04
Total established immigrants (25+ years) as LQ 1981	0.66	1.38	1.86	0.81	1.00	2.39	1.37	0.80
Total established immigrants (25+ years) as LQ 2016	0.77	1.30	1.02	1.15	0.92	1.61	1.10	0.95
Total seniors (aged 65+) as LQ 1981	0.23	2.38	1.11	1.54	1.47	2.00	0.97	0.56
Total seniors (aged 65+) as LQ 2016	0.22	1.97	0.79	1.27	1.09	1.87	0.78	0.47
Total young adults (aged 18- 34) as LQ 1981	1.09	0.61	0.92	0.88	0.78	0.78	1.07	1.06
Total young adults (aged 18- 34) as LQ 2016	1.05	0.77	0.98	0.89	0.96	0.66	0.99	0.99
Total 1-person households as LQ 1981	0.96	0.51	1.03	0.46	0.61	0.94	1.12	0.91
Total 1-person households as LQ 2016	1.04	0.74	1.24	0.84	0.88	0.93	1.31	1.07
Total 2-person households as LQ 1981	0.99	1.18	1.24	0.92	0.91	1.33	1.18	0.98

Cluster								
	Minority Impoverished Apartment Renters	Old Wealthy Professional Homeowners	Emergent Postwar Immigrant Reception Areas	Aging Postwar Suburban Middle Class	Aging Professionals with Chinese Homeowners	Gentrification and Professional Homeowners	Deindustrializing Working-Class with New Artists and Smaller Households	Working- Class Industrial with African- Canadians
Total 2-person households as LQ 2016	0.97	1.11	1.10	1.01	1.09	1.10	1.09	0.93
Unemployment rate as LQ 1981	1.17	1.03	0.94	0.93	0.91	0.87	1.11	1.20
Unemployment rate as LQ 2016	1.38	0.91	1.01	1.09	1.11	0.86	1.10	1.43
Total rental households with gross rent >=25% of household income as a proportion of all rented dwellings 1981	0.20	0.14	0.14	0.20	0.20	0.11	0.16	0.20
Total rental households with gross rent >=25% of household income as a proportion of all rented dwellings 2006	0.46	0.24	0.48	0.43	0.50	0.39	0.47	0.42
Total owned households with owner major payments >=25% of household income as a proportion of all owned dwellings 1981	0.12	0.10	0.13	0.13	0.14	0.10	0.13	0.15
Total owned households with owner major payments >=25% of household income as a proportion of all owned dwellings 2006	0.33	0.23	0.27	0.23	0.32	0.16	0.25	0.29

8.1 Occupational polarization across neighbourhood clusters

Cluster 2 (Aging Professionals with Chinese Homeowners) strongly concentrates Chinese residents (LQ of 3.36 in 2016) and constitutes a new immigrant reception area (recent immigrants LQ = 1.06 in 2016). These areas make up 21 of the 212 census tracts in this analysis. By 2016, this cluster had declined in average household incomes (LQ = 1.04) and increased in unemployment (LQ = 1.11) from LQs of 1.32 and 0.91, respectively, in 1981. Interestingly, this decline occurred even while Cluster 2 had high proportions of residents employed in professional and FIRE occupations in 2016 (LQ = 1.24 and 1.26, respectively). This partially suggests occupational polarization within these neighbourhoods, and a consequent polarization of affluent vs. non-affluent households.

However, LQs for sales and service occupations, which are mainly low-skilled, low-paying jobs, actually declined from 1981 (LQ = 1.03) to 2016 (LQ = 0.91). Another factor that may be partly responsible for declining incomes is the lifecycle effect of aging, as the concentration of seniors increased from an LQ of 1.01 in 1981 to 1.35 by 2016. While this cluster has remained stable in its defining racial characteristic, it became a minor immigrant reception area by 2016 which, along with its strong loadings in professional and FIRE occupations, contributed to the decline of its overall household income and a potential polarization of household affluence.

8.2 Persistently impoverished and declining neighbourhood clusters

The results indicate that Clusters 1 (Minority Impoverished Apartment Renters) and 5 (Working-Class Industrial with African-Canadians) are persistently impoverished from 1981 to 2016, together totalling 50 of the 212 (24 percent) studied neighbourhoods. However, their degree of impoverishment has also deepened from 1981 to 2016. Average household income declined from an LQ of 0.78 in 1981 to 0.58 by 2016 for Cluster 5, and 0.79 to 0.53 for Cluster 1. Also, the unemployed became more concentrated in these two neighbourhood clusters, increasing from an LQ of 1.20 to 1.43 for Cluster 5 and 1.17 to 1.38 for Cluster 1. These trends should be considered alongside their below-average LQs for professional and FIRE occupations.

Cluster 5 remained well below-average in professional and FIRE occupations in 2016 (LQ of 0.82 and 0.70, respectively), while Cluster 1 declined in FIRE occupations (from an LQ of 1.21 in 1981 to 0.86 in 2016). Professional occupations also remained below average (LQ = 0.91) for Cluster 1 in 2016. Their concentrations of manufacturing occupations are also well above average in 2016 (LQ = 1.26 for Clusters 1 and 5), showing that these neighbourhoods are still dependent on industrial work. These trends suggest that occupational restructuring and its effects on wages and household incomes may be driving their decline, particularly after observing declining average household incomes in Clusters 1 and 5, as neighbourhoods disconnected from professional and FIRE functions are also disconnected from global flows of capital and finance, which now form the backbone of Toronto's economy. As a result, they are also disconnected from higher-paying occupations.

As well, manufacturing occupations are not as well paying as they once were. Clearly, these are concerning trends, as they demonstrate growing impoverishment and disadvantage in some neighbourhoods that were already relatively impoverished in 1981. However, the observed decline in income may also partly be a function of lifecycle effects due to increases in the concentrations of seniors (0.85 to 0.98 for Cluster 5, 0.79 to 1.05 for Cluster 1) between 1981 and 2016. Aging, however, cannot completely explain the substantial increase in unemployment and simultaneous decrease in income.

In contrast, the only clusters that increased in income are those characterized by gentrifiers and substantially higher-than-average income in 1981 – Cluster 4 (Old Wealthy Professional Homeowners) and Cluster 7 (Gentrification and Professional Homeowners). Their continued drastic increase in income starkly contrasts with the decline observed in other clusters, suggesting they have become more prosperous to the detriment of others. Cluster 7 saw household incomes increase from an LQ of 1.33 in 1981 to 2.15 by 2016, while Cluster 4 increased from an LQ of 3.29 in 1981 to 6.75 by 2016. Cluster 4 could now be described as extremely wealthy. In

1981, tracts within Cluster 7 were already upper middle-income as they had an income LQ (1.33), which was comparable to that of Cluster 2 (Aging Professionals with Chinese Home-owners) (1.32). It is clear that the distribution of household income amongst neighbourhoods had become more polarized by 2016.

8.3 Emergent neighbourhood clusters

One of the clusters which emerged by 2016 was Cluster 6 (Emergent Postwar Immigrant Reception Areas), making up 47 of the 212 (22 percent) inner-suburban neighbourhoods analyzed. Its emergence is characterized by its significant increase in the concentration of recent immigrants (LQ = 0.74 in 1981, up to 1.07 by 2016). These neighbourhoods now comprise much of the new immigrant reception areas for Toronto.

Accompanying this change is a decrease in average household income (LQ = 0.1.05 in 1981, down to 0.99 by 2016), and established immigrants (LQ = 1.86 in 1981, down to 1.02 by 2016), the latter of which were likely those of European origin. This reflects the changing function of the inner suburbs, from a zone of suburbia to which middle- to upper-income Torontonians formerly escaped, into one now housing the less affluent.

Cluster 6 also has concentrations of postwar dwellings, rental dwellings, and apartments as indicated in Table 14. To a lesser extent, Cluster 2 (Aging Professionals with Chinese Homeowners) and Cluster 8 (Deindustrializing Working-Class with New Artists and Smaller Households) emerged as new immigrant-reception areas by 2016, further illustrating the changing role of the inner suburbs which is increasingly characterized by declining levels of affluence. In 1981, Cluster 6 neighbourhoods could be considered middle-income, as the income ratio of 1.05 is close to and above the CMA average; this slightly decreased to 0.99 by 2016, which could still be considered middle-income. However, because this decline in income was not accompanied by a simultaneous increase in the concentration of seniors, this change may be a trend to monitor in future censuses for Cluster 6 neighbourhoods.

Perhaps the most interesting development is the emergence of Cluster 8 (Deindustrializing Working-Class with New Artists and Smaller Households). This emergence of this cluster initially suggests gentrification taking root within the inner suburbs, with 8 of the 16 census tracts in this cluster adjacent to Lake Ontario, and two other tracts close to TTC's Line 1. This is a cluster with high LQs in postwar housing (1.95), rental dwellings (1.67), and apartments (1.45) in 2016. And as the name suggests, the cluster increased in the concentration of arts and recreation occupations from an LQ of 0.66 in 1981 to 0.96 in 2016, and remained above the CMA average by 2016 in one-person (LQ = 1.31) and two-person (LQ = 1.09) households.

As well, professional occupations increased from an LQ of 0.72 to 0.94, sales and service occupations increased from 0.94 to 1.14, and manufacturing occupations decreased from 1.22 to 0.94 over the 35-year period. Yet average household income decreased from 0.85 to 0.72 from 1981 to 2016. The increasing concentration of sales and service occupations, alongside the increasing concentration of professional occupations, suggests occupational polarization within this cluster.

With this analysis in mind, closer examination of Cluster 8's geographical location (see Figure 14), suggests it would be more apt to call its transformation a process of "recapture" as

opposed to gentrification. Most of the neighbourhoods built within the inner suburbs were constructed to house middle- to upper-income households. Thus, the movement of more affluent groups into areas designated as Cluster 8 is a "recapture" of higher-income neighbourhoods, rather than the succession-stage model of gentrification which transforms low-income neighbourhoods into affluent areas via the displacement of individuals with low financial capital.

Income polarization is occurring within the inner suburbs. The emergence of Cluster 6 demonstrates the decline of formerly middle-income areas since 1981, while Cluster 7 neighbourhoods upgraded from upper middle–income status in 1981 to being on the cusp of joining the Cluster 4 neighbourhoods. Two neighbourhood clusters which are persistently impoverished, Clusters 1 and 5, actually declined even further relative to the other clusters.

This growing polarization is accompanied by another troubling trend: the drastic increase in the proportion of financially stressed renter households¹¹ by 2016 for all clusters except Cluster 4, which increased relatively slightly. The proportion of financially stressed renter households increased between 22 percent to 38 percent amongst all clusters except for Cluster 4 (which increased by only 10 percent); most clusters had proportions of stressed renter households ranging from 42 percent to 50 percent. The increase in stressed renter households is especially troubling since earlier literature indicated that the inner suburbs were one of the last bastions of affordable rentals across the city. Especially for Clusters 1, 5, and 6, their declining household incomes make them especially vulnerable to the decreasing affordability in rental units.

Households paying 25 percent or more of income towards gross rent in the last year, as a proportion of all renter households.

9. Implications

The upward pressure on rents for residents of aging postwar high-rises in the inner suburbs, as well as the declining real median household incomes of these residents, are concerning trends, given the emergence of new postwar immigrant reception areas in the inner suburbs, and the overall growing income polarization across the zone. This is in addition to the emergence of Cluster 8 neighbourhoods (Deindustrializing Working-Class with New Artists and Smaller Households), the trends in which may culminate in the displacement of lower-income residents.

The drastic increases in proportions of stressed renter households seen in the cluster analysis emphasize the precariousness of living arrangements for tenants of the aging postwar highrises. As noted by the NCRP report (Paradis 2014), the residents of these units face the looming and escalating threat of homelessness. The social impacts along generational lines are also devastating. Living in poverty, particularly in the face of deteriorating affordability and stagnant wages, constrains one's life opportunities for social mobility, thus perpetuating the cycle of poverty. Household debt then becomes a concern, as impoverished households may feel pressured (or preyed upon) to take on debt from mortgage lenders (given very low interest rates currently) or payday lenders to help service growing rents.¹²

As previously mentioned, the growing impoverishment of inner-suburban households further constrains their potential for social mobility. There is a connection between diminished social mobility, growing impoverishment, and occupational polarization. The restructuring of global capitalism resulting in the new international division of labour facilitated the degradation of traditional working-class industries, which offered low-skilled, unionized jobs that provided enough household income to foster a large middle-class in the early postwar era. Consequently, there is a resultant "gap" between the low-skilled, low-wage, precarious service-based occupations disconnected from global capital vs. the high-skilled, high-wage, professional occupations that help facilitate global capital flows.

For low-income households, making the "leap" from low to high-skilled occupations, which is an avenue out of poverty, can be a monumental obstacle. This "leap" requires not only substantial financial capital that may incur significant debt, but also a time commitment and a stable home

¹² See Gallmeyer and Roberts (2009) for their article on the geography of payday lenders and financial predation across distressed communities in Colorado.

environment, among other conditions conducive to academic and professional success – these are luxuries that low-income households may not have.

Also suggested in the cluster analysis is the deteriorating affordability of homeownership across the inner suburbs. The cluster analysis indicated growing financial stress for owners, especially for those in Clusters 1, 2, 5, 6 and 8. Those clusters saw increases in the proportion of financially stressed owner households (households paying more than 25 percent of income towards owner major payments) between 10 percent to 21 percent, from 1981 to 2016. By 2016, in each of those clusters at least 23 percent (close to 1 in 4) of their owner households were financially stressed in terms of servicing their owner major payments.

As their incomes decline relative to the CMA average, households within these clusters are not seeing their income keep pace with the prices of their dwellings. This, along with lax credit standards and subsequent overextending of home finances, was noted earlier to be creating a new class of owners who are "house poor." This poses significant risks for owners – in the event interest rates rise and/or incomes continue to fall (relative to the CMA average and housing prices), households may choose to remortgage their homes (from prime lenders or more predatory sources) in order to make their payments, or borrow money from other sources, including relatives. Of course, this means that the current housing market in the Toronto CMA precariously balances upon the ability of owners to weather increasing interest rates and/or decreasing incomes¹³ – if not, the consequences could be dire, setting off mass foreclosures and potentially a market crash similar to the 1989 Toronto housing crash.

¹³ In the wake of the Bank of Canada's raising its benchmark interest rates in September 2017, a survey conducted from a sample of 2005 Canadian residents aged 18 and up by polling company Ipsos indicated that 42 percent of respondents were \$200 or less away from being unable to pay their monthly bills and debts (Evans 2017); 44 percent of Ontarians polled raised concerns about their ability to repay their debts if interest rates increased.

10. Summary

This paper has identified the divergence of neighbourhood trajectories within the inner suburbs, and probed divergences between the inner suburbs and the inner city. The paper first reviewed the three forces driving inner suburban decline and subsequent prosperity in the inner city: deindustrialization, professionalization, and shifting market preferences.

Inner-suburban decline is not an isolated phenomenon, but rather a result of inter-zonal divergence due to processes and policies that benefit the other zones. Professionalization (both in the making of a new culture and spaces for a new professional class) and gentrification in the inner city has decreased the supply of affordable rental units and pushed would-be renters into certain inner-suburban neighbourhoods with many rental high-rises and into some older neighbourhoods in the outer suburbs.

Although it is not the focus of this paper, changing market preferences towards larger dwellings in the single detached homes market may also have factored in to inner-suburban decline in Toronto, rendering homes in this zone less desirable for those who have more financial flexibility and contributing to the aging of the zone. More recently, an emerging desire for condominiums and their associated urban amenities may have decreased the appeal of the older, postwar highrises (in the context of the high-rise market), while the rise of a modern, professional middle-class lifestyle in the inner city has transformed urban space to provide the amenities suiting their needs, rendering the inner city increasingly unaffordable to lower-income households.

Deindustrialization has also facilitated the polarization of neighbourhood trajectories within the inner suburbs and between the inner suburbs and inner city. The more affluent neighbourhoods are those connected to global flows of capital and finance, those which concentrated or were already concentrated in professional functions from 1981 to 2016.

Local and global economic restructuring has been accompanied by occupational polarization, seen not only across the Toronto CMA's municipal zones, but also between and within neighbourhoods. The decline of traditional manufacturing and production processes that once provided secure jobs for workers facilitated this occupational polarization, increasing employment in low-skilled, service occupations marked by precariousness, part-time status, and low wages, vs. high-skilled, professional occupations offering high wages and benefits.

This polarization has resulted in increasing income inequality between and within neighbourhoods across the Toronto CMA, with notable divisions along axes of race, ethnicity, education, and age. Poverty has become increasingly suburbanized, shifting from the inner city outwards into the inner suburbs and even parts of the outer suburbs. These impoverished neighbourhoods are predominantly racialized, have high concentrations of recent immigrants, and residents overall have lower levels of educational attainment and lower household incomes. Effectively, these neighbourhoods, largely found within the inner suburbs, have transitioned into new immigrant reception areas, replacing the inner city in this role, while a new professional class has transformed the core. Preliminary descriptive analysis of the Toronto CMA's municipal zones reflect these trends: the inner suburbs and inner city having divergent trajectories from 1981 to 2016, the former with concentrations of immigrants and declining in household income, while the opposite is true for the latter.

The author conducted regression analysis to determine the causality of forces working to drive inner-suburban decline, including the degrees and directions of these relationships. Various de-mographic variables were revealed to have either contributed to an inner-suburban neighbour-hood's decrease or increase in household income. Increasing proportions of immigrants (recent or established), Chinese persons, and seniors occurred alongside declining household incomes, while neighbourhoods with concentrations of postwar dwellings (largely postwar high-rises) were also notably correlated with declining income.

Expectedly, increasing proportions of individuals employed in FIRE occupations were found alongside increasing household incomes in certain inner-suburban neighbourhoods. The subsequent cluster analysis revealed eight distinct neighbourhood clusters that followed the pattern of social and occupational polarization noted in the literature review and the regression analysis. The more prosperous neighbourhoods were more racially homogenous, and contained a higher proportion of homeowners and workers in professional functions linked to global flows of capital, while those which saw declining incomes from 1981 to 2016 were more racially diverse and had high concentrations of renters, were more dependent on manufacturing or production occupations, and had lower educational attainment rates.

The continued impoverishment of inner-suburban residents, particularly tenants living in aging postwar high-rises, presents a significant barrier to upward social mobility. Multiple deprivations resulting from persistent poverty prevent individuals from building the social and financial capital required to escape poverty. With the decline of moderately skilled, well-paid unionized industries, and the resulting occupational polarization of low-skilled service occupations vs. high-skilled professional functions, higher education increasingly becomes a rite of passage to middle-income status or above. However, occupational polarization also means a "gap" between the two extremes: increasingly, there are only either low- or high-skilled occupations, and moving from one extreme to another is a difficult prospect. The financial barrier is perhaps the largest hurdle, as postsecondary education is increasingly necessary but also increasingly expensive. Credit can be used to overcome this barrier, but carries the risk of indebtness in a North American economy where the prospect of employment is increasingly uncertain.

For households looking to amass the financial capital to escape poverty, the deterioration of the aging postwar high-rises, along with the proliferation of REITS, have resulted in an increasing financial burden upon them and even their displacement into more socially isolated

neighbourhoods across the Toronto CMA, disconnected from essential amenities such transit, employment, grocery stores, or immigration services. And as seen from the regressions against tenure deconcentration, the deconversion tactics of REITS, and the emergence of the Deindustrialized Working-Class cluster (suggesting possible gentrification in the future), even the last bastions of affordable rental units in the City or Toronto CMA may not be secure.

The patterns and trends described in the regression and cluster analyses have, of course, been impacted by the ongoing COVID-19 pandemic, and new trends may have even emerged as a result. An abundance of media reports and some limited scholarly works detail the impacts of the pandemic, from former professional urbanites relocating from cities to the exurban fringes (Alini 2021), to disproportionate impacts on visible minorities and low-income neighbourhoods (Wilson 2020).

Although journalists have admirably captured and elucidated some of the short-term geographical impacts of the pandemic, there is an opportunity to explore the possible long-lasting impacts of COVID-19 on the GTA with respect to geographical and planning issues, which cannot be captured through journalistic analysis alone. This gap will need to be addressed by geographers and planners alike such that the scholarly community may then advocate for equity-based policy responses to alleviate the pandemic's impact on vulnerable populations and communities.

11. Addressing the Plight of Inner-Suburban Residents

What must be done to protect current tenants living in postwar, inner-suburban high-rises? And how can the City of Toronto prevent further displacement of tenants from the inner city where they are close to the essential services that can help them escape the cycle of poverty? Although the larger structural issues inherent in global capitalism that have impacted local employment, individual welfare, educational attainment, and housing status are beyond the scope of municipal or provincial policymakers, local mitigating factors do exist and can be used to great effect.

One potential method of alleviating the continued deterioration of inner-suburban high-rises lies in the application of Section 37 of the *Planning Act* in its current form, which permits municipal councils to pass a Community Benefits Charges (CBCs) bylaw that will allow them to impose charges upon the development of land to pay for the capital costs of growth as of 2021. CBCs can be used to fund improvements to parkland or capital infrastructure (such as affordable housing projects, childcare facilities, recreation centres, libraries) that are required as a result of growth. In comparison to the previous Section 37 tool, which operated upon bonusing and an ad hoc "let's-make-a-deal planning" that applied only to zoning bylaw amendments, CBCs represent a formalized and predictable system for imposing growth-related charges on a larger range of development applications (zoning bylaw amendments, minor variances, plans of subdivisions and condominiums, consents, conveyances, and building permits).

The downside to CBCs is that they are capped at 4 percent of appraised land value, whereas the previous Section 37 did not set a maximum range for potential charges. As well, unfortunately, like their predecessors, CBCs can be applied only in the neighbourhoods in which the growth has occurred, as they are intended to pay for increased capital costs that result from said growth. It is the author's opinion that the legislation to amend Section 37 and implement the CBC system could have broadened the application of the charges to neighbourhoods other than where the growth is occurring in order to redistribute the benefits accrued from development. This change would have enabled the use of charges to fund innersuburban high-rise repairs, for example.

Most of the cash benefits accrued under the previous version of Section 37 mainly benefitted a few downtown wards in the City of Toronto (Moussaoui 2013), with approximately \$311 million

accumulating in Section 37 reserves as unspent benefits (Kalinowski 2021). This pattern may well continue under the new version. From a practical perspective and equity-based lens, if there are unspent benefits because the capital costs of growth have already been sufficiently paid for, then it would be more productive to reallocate those funds to one of the identified Priority Neighbourhoods in the city that could use them. It remains to be seen whether the CBC system will translate to greater benefits compared with its predecessor, and if there will be appetite to amend the legislation and redistribute the benefits.

Another revenue stream could come from Toronto's land transfer tax, which also takes advantage of the city's development boom. Bringing amenities closer to postwar high-rise tenants would also help alleviate geographical isolation from amenities and transit, and could be accomplished by rezoning these blocks to allow for commercial uses, such as retail, training and education centres, medical offices, or market gardens, via a new Residential Apartment Commercial zoning designation (City of Toronto 2014). As well, legislative changes could help protect existing tenants, especially from REITs, which have been taking advantage of vacancy decontrol and provisions for above-guideline rent increases (powers introduced in the 1997 *Tenant Protection Act*), to rapidly increase rents in aging high-rises for purposes of rentsqueezing and gentrification.

Increasing the supply of affordable housing, especially within the downtown core and near major transit stations and corridors, would also mitigate the displacement of low-income tenants from the inner city. One tool to promote affordable housing is inclusionary zoning. However, with the passing of Bill 108 in late 2019, the Province of Ontario restricted the use of inclusionary zoning to lands within Major Transit Station Areas and areas designated by the Development Permit System. This restriction amounts to a tremendous lost opportunity, given that condominiums are still being built in large numbers across Toronto. Substantial numbers of housing units could have been purpose-built rentals or purchased by non-profit groups and rented at subsided costs to their clients (Monsebraaten 2016).

In addition, the City of Toronto could also consider reviving Amendment 103 – Revised Official Plan Amendment to Encourage the Development of Units for Households with Children (City of Toronto (2010) – to the City's Official Plan or enacting a newer but similar amendment, which would create a bylaw mandating that a minimum percentage of new condominium units be three bedrooms or more. This would help ensure new market-rate and even affordable rental units are suitable for families. As of 2022, no updates have been announced in relation to this amendment. However, the revival and passing of Amendment 103 could allow the City, in conjunction with inclusionary zoning (in its now limited form), to control the proportion of new condo family units (rented or owned) that must be affordable.

Before the COVID-19 pandemic, Toronto City Council asked the City Planning department to undertake a study on the options and timeline to increase housing options and planning permissions in areas of Toronto designated as "Neighbourhoods" in the Official Plan, popularly known as the "Yellow Belt" – areas that do not allow for mid- and high-rise developments (City of Toronto 2019). The study will look to expand planning permissions to facilitate the development of the "Missing Middle" – duplexes, triplexes, low- and mid-rise apartments – which are currently not permitted in many areas designated as "Neighbourhoods." Currently, development in the City of Toronto is directed to its avenues and certain growth centres. Should this study produce

tangible results and significantly increase the supply of housing across the City, housing affordability should theoretically increase as the supply of housing catches up to the demand for housing.

The "Missing Middle" study would also provide an opportunity to include provisions for developing affordable housing in exchange for redeveloping properties. As well, perhaps the cost of providing affordable housing borne by the developer could be offset by City benefits such as waiving development charges, fast-tracking planning applications, or allowing the redevelopment of properties without requiring a zoning by-law amendment through pre-emptive rezoning. However, a recent analysis provided by City staff on this matter indicated that some neighbourhoods zoned to permit "Missing Middle"–type forms of housing had not seen the growth of those types of housing – factors such as land value, development profit margins, and market demand are also significant determinants of the feasibility of "Missing Middle" housing development (City of Toronto 2021).

It is the author's opinion that while as-of-right land-use permissions within "Neighbourhoods" is a salient issue for housing supply and affordability, perhaps it is the enduring presence and protection of these "Neighbourhoods" (by residents, planners, and politicians) from redesignation to more intensive land uses that is the more significant factor constraining housing supply and large-scale redevelopment in the suburban areas of the city.

At the neighbourhood scale, community organizations and residents may be mobilized to ensure that new developments in the area result in equitable outcomes and benefits. With an emphasis on local democracy and self-determination, a coalition of community organizations and residents can help ensure that new developments are wanted and benefit the neighbourhood. This negotiation would take place during the consultation phase of the planning process.

To take this idea one step further, by representing the community at large, the coalition could negotiate Community Benefits Agreements (CBAs) with developers. These are legally binding contractual agreements negotiated between a coalition of community organizations, their residents, and a developer, whereby the coalition demands benefits such as jobs, parks, or affordable housing in exchange for their support for a development project (Galley 2015; Marantz 2015). If local interests are mobilized and strong enough, a Community Land Trust (CLT) could even be formed, which is a community organization that acquires, owns, and stewards land for community benefit, such as through the provision of affordable housing. The acquired land is removed from the free market and held in trust through local governance (Parkdale Community Economic Development 2016). This is a powerful method for creating new affordable housing that belongs to community Land Trust acquired a commercial-residential property in order to maintain its existing residential and retail units as affordable rentals and community approved retail space for 99 years, and prevent the renoviction of its current tenants (Kensington Market Community Land Trust 2021).

While municipalities have little control over global economic forces, and their socially inequitable outcomes, local policy changes and initiatives can mitigate displacement and rising rents; enhance security of tenure; connect (or reconnect) tenants to amenities, employment, transit, and social networks; and provide affordable housing to those with low incomes. Global forces affect local change, so responses must also be made locally.

As a final note, it will be interesting to see how municipalities respond to the impacts of the COVID-19 pandemic on vulnerable populations and less affluent neighbourhoods. It also remains to be seen how the pandemic will affect the current patterns of socio-spatial polarization across Canadian municipalities.

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13. Appendix

Table A1: Rotated Component Matrix for Single Family Owned Dwelling Tracts and Tenure Deconcentration

	Inner Suburbs Only		Combined Model	
	Single Family Owned Dwelling	Tenure	Single Family Owned Dwelling	Tenure
	Tracts	Deconversion	Tracts	Deconversion
Average number of rooms per dwelling, 1981	0.955	-0.284	0.905	-0.419
Average number of rooms per dwelling, 2016	0.969	0.242	0.994	0.092
Change in average number of rooms per dwelling, 1981–2016	0.376	0.925	0.432	0.900
Owned dwellings as a proportion of total dwellings, 1981	0.833	-0.154	0.821	-0.253
Owned dwellings as a proportion of total dwellings, 2016	0.815	-0.081	0.829	-0.111
Change in owned dwellings as a proportion of total dwellings, 1981–2016	-0.403	0.220	-0.336	0.383
Rented dwellings as a proportion of total dwellings, 1981	-0.832	0.153	-0.822	0.252
Rented dwellings as a proportion of total dwellings, 2016	-0.816	0.081	-0.829	0.110
Change in rented dwellings as a proportion of total dwellings, 1981–2016	0.397	-0.217	0.336	-0.381
Single-detached dwellings as a proportion of total dwellings, 1981	0.790	-0.048	0.787	-0.001
Single-detached dwellings as a proportion of total dwellings, 2016	0.848	0.188	0.838	0.188
Change in single-detached dwellings as a proportion of total dwellings, 1981–2016	-0.121	0.497	-0.119	0.466
Apartment dwellings as a proportion of total dwellings, 1981	-0.858	0.141	-0.783	0.310
Apartment dwellings as a proportion of total dwellings, 2016	-0.883	-0.141	-0.895	-0.097
Change in apartment dwellings as a proportion of total dwellings, 1981–2016	0.123	-0.554	-0.032	-0.676

	Initial Eigenvalues		Rotation Sums of Squared Loadings				
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
Single family owned dwelling tracts (inner suburbs only)	2.835	79.918	79.918	2.815	79.361	79.361	
Tenure deconcentration (inner suburbs only)	0.527	14.865	94.783	0.547	15.422	94.783	
Single family owned dwelling tracts (inner suburbs only)	2.897	79.669	79.669	2.883	79.292	79.292	
Tenure deconcentration (inner suburbs only)	0.556	15.285	94.954	0.570	15.662	94.954	

Table A2: Eigenvalues for Single Family Owned Dwelling Tracts and Tenure Deconcentration