

## MAPPING THE URBAN DEBTSCAPE: THE GEOGRAPHY OF HOUSEHOLD DEBT IN CANADIAN CITIES

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*Abstract:* Vulnerability resulting from debt is part and parcel of the risk society and a salient characteristic of current neoliberal times under financialized global capitalism. Rising indebtedness increases the susceptibility of homeowners to housing and labor market restructuring, and if the degree of leverage is very high, can threaten the solvency, living standards, and social stability of local communities. However, very little is understood regarding how levels of household indebtedness are spatially distributed within or across cities, and how private debt maps onto the geography of race, class, housing, urban form, and other social variables, especially outside of the United States. It remains unknown whether and how higher and unsustainable levels of indebtedness might be associated with urban growth, decline, suburbanization, gentrification, immigration, racialization, and/or greying. This article examines the spatial distribution of household debt in Canadian cities at multiple scales of analysis. It analyzes how levels of household debt relate to a number of key socio-demographic and housing variables from the census, including those related to changes occurring over the 2000s. It simultaneously models the geography of debt at the metropolitan and neighborhood scales using multi-level hierarchical linear modeling methods, and in doing so, it identifies some key drivers and correlates of household debt and the scales at which they operate. The article concludes by discussing the implications of the empirical findings for understanding the role of the emerging urban debtscape in the restructuring of the social geography of the city.

The global financial crisis (GFC), recession, and its aftermath have brought into sharp relief some of the problems and implications of rising private debt. While much of the increase in household debt is linked to mortgage loans, other kinds of credit—lines of credit, credit cards, student loans—have also grown in tandem. Coupled with stagnant or declining median earnings, lower and middle-income households often have to resort to credit financing, as funds that once were devoted to everyday expenditures must be given over to pay for less affordable housing (Sullivan et al., 2000; Montgomerie, 2007, 2009; Barba and Pivetti, 2009; Crouch, 2009; Lapavistas, 2009; Martins, 2011). One result is that the economic vulnerability of households, communities, and entire metropolitan areas has increased significantly. Central banks, including the Bank of Canada, now routinely issue reports warning households and governments against taking on extensive new credit commitments (e.g., Carney, 2011).

Growing household debt and the vulnerabilities it imparts can be conceptualized in relation to the rise of risk society under modern financialized capitalism (Beck, 1999,

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2009). Many of the financial innovations at the heart of the GFC were in fact created to manage, hedge against, redistribute, disperse, capitalize on, and/or hide financial risks. Financialization—the increasing dominance of finance in the economies of the developed world and the subjugation of production to finance (see Epstein, 2005; Krippner, 2005)—has been actively promoted by the deregulatory neoliberal agenda, and financial risk is now a key attribute of “neoliberal times” (Saegert et al., 2009; Walks, 2009). Reliance on financialization for economic growth, and the asset bubbles it creates, is not only tied to rising household debt—it is also both an artifact, and driver, of declining relative returns to production, and hence to the deindustrialization of cities of the developed world and subsequent risks to the sustainability of employment (Walks, 2010; Peet, 2011). Efforts on behalf of nation states to bail out the banks and to stimulate the construction and real estate industries have only exacerbated the intensification of such risks and contradictions (Walks, 2010).

Leverage-related risk does not take the same forms, nor is it felt at the same intensities, among different segments of the population. In many Anglo-American nations, debt and debt-induced risk are regressively distributed, with younger and poorer quintiles particularly burdened. It is argued that rising housing values and the rising debts associated with them are a mechanism for the transfer of wealth from younger to older generations (Mortenson and Seabrooke, 2008; Schwartz and Seabrooke, 2008; Toporowski, 2009). However, the system is unstable and contradictory, as it relies on those at the bottom of the income and ownership pyramid, whose jobs are increasingly vulnerable, to be willing to indebt themselves ever more in order to get into asset ownership, while the benefits mainly flow to those at the top (Toporowski, 2010; Walks, 2010).

The distributional implications of financialization and growing indebtedness are not confined to their social and economic effects at the scale of households or the nation state. Just like income and wealth, debt commitments and highly leveraged households are unevenly distributed across space, with implications for the financial, social, and political stability of metropolitan regions and local neighborhoods. Financial risk under modern capitalism is articulated in and through what I term the *urban debtscape*. This concept encapsulates not only the social and spatial outcomes of rising indebtedness at multiple scales, but also the various spatial and social relationships produced through and by the use of credit in the city (including those that bind individuals, families, communities, and local governments into different work and property arrangements, creating distinct path dependencies), as well as their effects on prevailing political ideologies, citizen subjectivities, and government policies related to property ownership and development. The urban debtscape is an underappreciated aspect of the multi-scalar processes underlying both uneven development (Smith, 2008) and financialization (French et al., 2011).<sup>2</sup> There is by now a significant literature dealing with financialization, as well as some of its more salient articulations, including predatory lending, foreclosures, and evictions (particularly in the United States [U.S.] and the United Kingdom [UK]). Each constitute aspects of the evolving urban debtscape but nonetheless remain distinct concepts with different relationships to rising household indebtedness. One window on the contemporary urban and regional debtscape in Britain has recently been provided by Dorling and Thomas (2011),

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<sup>2</sup>While relevant to the conceptual discussion, the literature on the construction of scale and multi-scalar geographies is out of the scope of this paper (see Herod, 2011).

who ominously raise the spectre of a “bankrupt Britain” and show how the geography of bankruptcies and repossessions maps onto other measures of social vulnerability at the scale of local authorities.

Financialization and its articulation in the emerging urban debtscape has implications for the way cities of the North are developing in the recent period of late capitalism, and for the kinds of socio-spatial inequalities that are the legacy of “third-wave” urbanization (Scott, 2011). At larger scales of analysis, high and rising housing costs, one of the main factors behind growing household debt, have been linked to globalization and immigration (Ley and Tutchener, 2001; Moos and Skaburskis, 2010). Meanwhile, bankruptcies and foreclosures, two of the many possible outcomes of high levels of debt and growing unemployment, have been particularly evident in many deindustrializing cities in the U.S. (Immergluck, 2011; Martin, 2011). However, less is known regarding how high levels of leverage might be associated with urban growth trajectories or their relationships with globalization, immigration, and/or deindustrialization. Research on such issues is limited by a lack of appropriate data at such scales, yet this means that key structuring mechanisms related to rising household leverage have not been sufficiently incorporated into theoretical models of urban socio-spatial inequality and restructuring.

There remain many unanswered questions relating urban form, neighborhood composition, and household indebtedness. Analyzing the Australian context before the onset of crisis, Dodson and Sipe (2007, 2008, 2009) developed their “vampire” index to highlight the increased vulnerability of auto-dependent, heavily mortgaged neighborhoods in the outer suburbs to potential employment loss and rising energy costs related to possible future shocks (including peak oil, etc.). Their metric examines the proportions of households with a mortgage, and those owning multiple automobiles (but not the actual depth of indebtedness). This work raises questions concerning new forms of vulnerability that might beset sprawled low-density metropolitan regions under contemporary conditions. Yet, it remains unclear how levels of household debt are spatially distributed in the contemporary city and whether debt-related economic vulnerability is more intensely felt in the cores or at the fringes. While automobile dependence might be hypothesized to involve greater incidence of automobile loans, the extent to which this influences the actual depth of household debt remains unknown. Likewise, it is unclear how new forms of suburbanization and/or neighborhood aging might be associated with higher or lower forms of household debt, and what might be the relationship with inner-city gentrification and intensification—particularly new communities characterized by condominium ownership (what has been termed “new-build gentrification”; see Davidson and Lees, 2010). Finally, it remains unknown whether higher debt burdens are associated with poorer or richer neighborhoods, after controlling for the other possible relationships discussed above, and thus whether the spatial distribution of debt might generally be considered regressive or progressive. Addressing these questions allows for a holistic mapping of the contemporary urban debtscape.

Metropolitan areas in Canada act as good models for understanding the thrust of contemporary urban processes. Canada’s cities reveal patterns of urban development, levels of inequality, and rates of growth that follow a middling path between those established in the U.S., UK, and Europe. Nationally, Canada demonstrates a level and distribution of household debt that is very similar to that elsewhere in the Anglo-American world (MGI, 2012). While not immune to recession, housing markets in many Canadian cities continued to witness (uneven) appreciation in the aftermath of the GFC, largely due to government

mortgage insurance criteria and mortgage-backed securities programs that have kept credit flowing, allowed the Canadian banks to offload risky mortgages onto the public purse, and encouraged households and speculators to remain leveraged and in the market (Walks, forthcoming). Repossessions and bankruptcies, two negative outcomes of high levels of debt, actually dropped to very low levels in Canada in the four years after 2008, even as household indebtedness rose, producing new latent yet potentially volatile forms of socio-economic vulnerability whose implications are only now becoming evident.

This article seeks to examine how the level of household debt varies spatially and systematically with a series of social and economic variables, and sheds light on which types of communities might be disproportionately burdened by indebtedness. The analysis is multi-scalar, modeling the socio-demographic and contextual variables associated with household leverage both among metropolitan areas, and among neighborhoods within each metropolitan area. This way, the effects operating at regional scales of analysis can be separated from factors affecting the distribution of debt at local neighborhood scales.

### THE GROWTH OF HOUSEHOLD DEBT AND ITS IMPLICATIONS

A number of socio-spatial implications follow from high levels of household debt. Much of the scholarly literature in this area is derived from the U.S. and UK experiences. In both nations, expanding flows of credit into mortgage and other debt markets has been encouraged through state housing policies, deregulation, and the securitization of mortgages into asset-backed securities (Ford et al., 2001; Ronald, 2008; Immergluck, 2009; Engel and McCoy, 2011). This began earliest in the U.S., where innovations in securitization were first developed and where federal policy reforms first allowed experimentation with new credit products (Immergluck, 2009; Engel and McCoy, 2011). Not far behind, the UK was even more aggressive in encouraging home-ownership through financial deregulation and extensions of credit (including via the HomeBuy and buy-to-let programs and products; Ronald, 2008). State policy in both nations explicitly sought the extension of debt-financed home-ownership as a market-based, individualized alternative to, and a restructuring of, the traditional welfare state (Crouch, 2009; Saegert et al., 2009). In the U.S., the senior Bush administration promoted deregulation and financialization as steps toward a new “ownership society,” while in the UK policy reform was couched in a new discourse of “asset-based welfare” (Ronald, 2008; Finlayson, 2009; Wainwright, 2009). At the same time, banks and other financial institutions innovated with new credit products and credit targeting (Manning, 2000), with much of the debt securitized and risk hedged through various financial derivatives (Montgomerie, 2006; Langley, 2008).

Early on, Ford (1988, 1994; Ford et al., 2001) tied such shifts to a newly “indebted society” and the growth of “problematic” and “unsustainable” forms of home ownership, which has disproportionate impacts on lower-income households. Economically, rising debts and debt service squeeze household finances, limiting the ability to consume. Many households may find themselves trapped in homes that become difficult to sell, especially if they are “underwater” (in negative equity), because they typically have to make up the difference between what is owed and the sale price upon completion of the transaction. Financial arrangements that prioritize debt service and repayment over consumption compound such effects, often pushing households into poverty, arrears, and in the case of repossession and foreclosure, homelessness (Ford, 1997). The debts remaining

after forced sales or foreclosure/repossession typically follow the household long after the house is sold, and are an important factor preventing affected households from escaping poverty (Ford et al., 2001).<sup>3</sup> Those whose credit scores are impacted often find their access to quality housing and employment limited. Increasingly U.S. employers are using credit checks in the determination of who to hire, while landlords use them in assessing rental housing applicants (Bayot, 2004; Martin, 2010).

Predatory and high-risk forms of lending, which augment the problematic effects of debt, have been growing since the onset of deregulation in the 1980s (Manning, 2000; Sullivan et al., 2000; Renuart, 2004; Squires, 2004; Immergluck, 2009; Ross and Squires, 2011). The most salient and publicized aspect of this relates to the growth of “subprime” mortgage lending in the U.S. and its relationship to the GFC (Engel and McCoy, 2011). The various financial innovations involved with such forms of lending, including prepayment penalties, balloon payments, and teaser rates that reset much higher after a short period, increase the rate of foreclosure (Quercia et al., 2007; Immergluck, 2009; Ding et al., 2011). Although not as common elsewhere, subprime/high-risk lending nonetheless also blossomed in other nations, including the UK (Munro et al., 2005; Scanlon and Whitehead, 2011). The practice of securitization encouraged the growth of subprime and other predatory and high-risk forms of lending, principally because the lenders and brokers who originated the loans did not often have to bear the risk, and the securities could be sold on global markets (Aalbers, 2008, 2009; Ashton, 2009; Sassen, 2009). The debt arising from such practices can be said to represent the effective monetization of “home” and of workers’ real wages (Aalbers, 2008; Lapavistas, 2009). High-risk and predatory forms of lending are not confined to mortgage loans: there has been a similar rise in “payday” lenders and check-cashing outlets, most of which are owned by the large banks and charge extremely high rates of interest (Squires, 2009), as well as pawn shops, car-title lenders, and rent-to-own establishments (Caskey, 1994, 2005; Karger, 2005; Marron, 2009).

In the U.S. there is clear evidence that predatory and subprime loans have been targeted at blacks and other members of racial minorities, and the elderly (Conley, 1999; Taylor et al., 2004; Squires, 2009). Predatory and subprime forms of lending are concentrated in neighborhoods with disproportionately more racialized minorities (Wyly and Holloway, 1999; Wyly et al., 2006, 2007, 2009; Darden and Wyly, 2010). Minority neighborhoods often went from being “redlined”—excluded from mortgage finance—to being “greenlined” and targeted for subprime loans (Williams et al., 2005; Hernandez, 2009). Unsurprisingly, foreclosures, and now mortgage “foreclosure rescue” schemes, are also therefore disproportionately concentrated in neighborhoods containing blacks, Latinos, and to a lesser extent Asians, as well as Hispanic-speaking immigrants (Crump et al., 2008; Gerardi and Willen, 2008; Grover et al., 2008; Laderman and Reid, 2008; Wyly et al., 2009; Allen, 2011). This has occurred at the same time that payday lenders have disproportionately replaced many traditional bank branches in poorer neighborhoods, many of which contain racialized minorities (Graves, 2003; Smith et al., 2008; Gallmeyer and Roberts, 2009). Rugh and Massey (2010) show that subprime and high-risk lending was

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<sup>3</sup>Only in the case of non-recourse mortgage loans do such debts not follow households who lose their homes through such means. However, recourse loans are mostly restricted to first-lien mortgages in some (but not all) U.S. states, and are not common outside of the U.S. In Canada, non-recourse loans are rare, and only originated in the provinces of Alberta and, to a lesser extent, Saskatchewan.

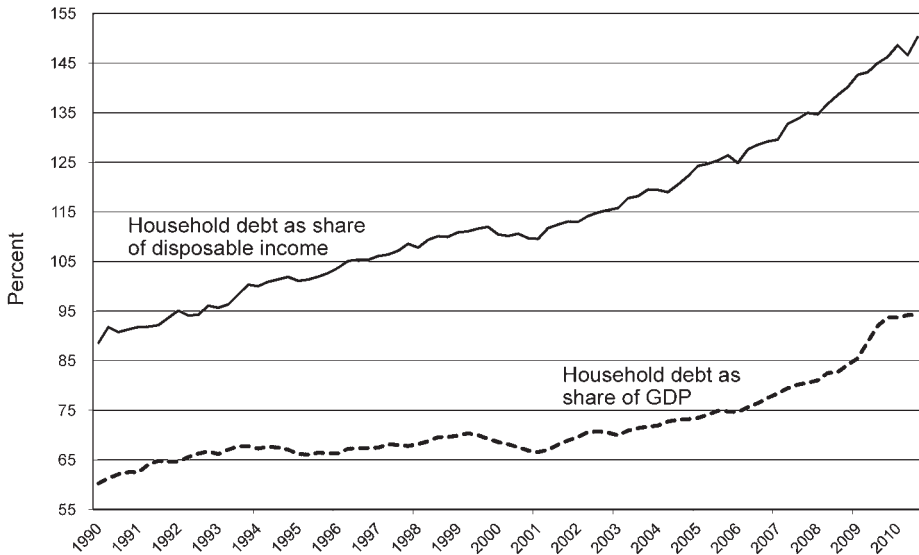
not only concentrated in minority communities, but in more racially segregated metropolitan areas. This bolsters the argument that instances of high-risk, subprime, and predatory lending constitute technologies of racially based “serial displacement” (Sagert et al., 2011).

Rising household debt has implications that extend beyond the affected individuals and families, to local communities and economies. The flood of credit into mortgage markets is linked to the gentrification of a number of poor inner-city neighborhoods and speculative “new-build” housing, reducing the stock of rental housing and pushing up local rents (Wyly et al., 2004; Lees et al., 2007; Davidson and Lees, 2010). If rental properties are purchased speculatively and the property owners (landlords) default, leading to repossession, often the tenants are evicted during the foreclosure process, reducing the effective rental stock (Immergluck, 2009).

High and rising debt-service costs mean there is less money to spend and circulate in the local economy, with resulting impacts on local business, institutions, and tax revenue. At the larger scale, this leads to a drop in demand, producing unemployment and recession (Barba and Pivetti, 2009; Martins, 2011). At the local scale it can lead to an increase in vacant storefronts, under-maintained or abandoned properties, job loss, vagrancy, and a decline in local government services (Immergluck, 2009, 2010, 2011). Many of the different outcomes of the spatial concentration of highly indebted property owners, including arrears, bankruptcy, forced sales, and foreclosures/repossessions, have compounding effects (Schloemer et al., 2006; Kaplan and Sommers, 2009). Empirical studies of U.S. cities, from both before and after the GFC, have demonstrated that vacant properties and foreclosures have direct independent impacts on real estate values and sales for nearby properties (Immergluck and Smith, 2006b; Immergluck, 2009; Leonard and Murdoch, 2009; Daneshvary et al., 2011; Kobic and Lee, 2011; Wassmer, 2011). The presence of foreclosures speeds up the rate of filtering in the local housing stock, and in turn the degree of social change and instability in affected neighborhoods (Li and Morrow-Jones, 2010), including rising violent crime (Immergluck and Smith, 2006a). Children of foreclosed families are often impacted, not least of all because they are often forced to move to new schools, usually of lower quality (Been et al., 2011).

Despite significant scholarly attention given to the issue in the U.S. and UK, much remains unknown about the relationships between rising trends of household indebtedness and its social and spatial manifestations. Dodson and Sipe’s (2008, 2009) work suggests that rising debt levels should disproportionately impact suburbia, based on assumptions regarding the additional costs posed by peak oil and automobile dependency. Meanwhile, speculative activity in inner-city new-build housing suggests that the credit boom may create unique vulnerabilities in core city neighborhoods. There is clearly an uneven distribution of arrears, bankruptcies, and repossessions in the UK (Dorling and Thomas, 2011), with a number of large metropolitan regions and central cities revealing notably fewer problems. U.S. foreclosures are disproportionately concentrated, not only in key central city neighborhoods, but also in working-class suburban areas, particularly those housing minorities (Immergluck, 2010; Schafran and Wegmann, 2012). The timing of development would appear to be key here, with households in many of the most recently built neighborhoods more likely to have high loan-to-income ratios and/or higher-risk loans, and thus be more vulnerable to foreclosure. However, many deindustrializing metros in the U.S. and UK with low proportions of subprime loans and little evidence of a housing price bubble





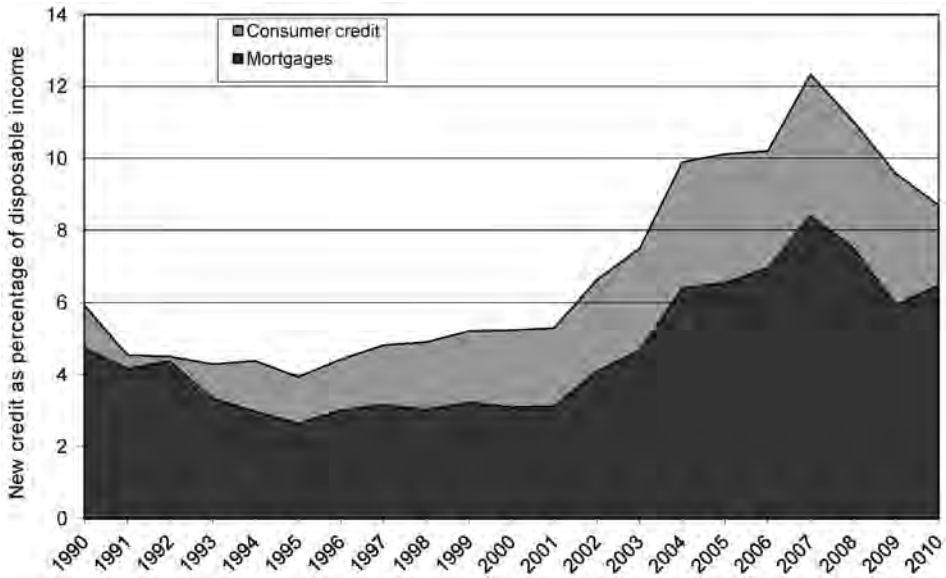
**Fig. 1.** Household debt as a percentage of GDP and of national disposable income, 1990–2010. *Source:* Statistics Canada Cansim II database, Tables 3780012, V52020747, and V52020746. *Notes:* As a proportion of total disposable income, household debt increased by 1.9% annually between 1990 and 2001, 3.73% annually between 2001 and 2008, and by 4.91% between the third quarters of 2008 and 2010.

also witnessed high levels of foreclosure and unemployment with the onset of recession (Immergluck, 2011; Martin, 2011).

### THE CANADIAN CONTEXT

Canada, like its neighbor to the south, is among the wealthiest developed nations, with a high level of urbanization (roughly 81 percent) and a high rate of immigration. Its population of approximately 33.4 million people, as recorded in the 2011 census, is just over one-tenth that of the U.S., and just over half that of the UK. Urban development has been uneven, with widespread deindustrialization in smaller and intermediate-size cities occurring alongside gentrification in its most globally connected metropolitan areas (Walks and Maaranen, 2008a, 2008b; Walks, 2011). Urban forms also reveal considerable diversity, with varying levels of automobile dependence, density, and intensification, although in general Canadian cities are most similar to those in the U.S. (Filion et al., 2010). Like its Anglo-American counterparts, Canada has witnessed rapid growth in its levels of household debt since 1990 (Fig. 1). Furthermore, the *rate* of increase in outstanding household debt has been creeping upward over the period, a trend that has been made worse by the GFC and recession of 2008–2009 (see the notes in the caption of Fig. 1). By the end of 2010, Canadian households were more indebted as a proportion of disposable income (at 148.23%) than their U.S. counterparts (147%).

Schwartz and Scabrooke (2008) place Canada among a series of “liberal market” nations in which consumer credit, and mortgage finance in particular, is easily accessible and widely



**Fig. 2.** Annual balance of new credit as a percentage of national disposable income, 1990–2010. *Source:* Statistics Canada Cansim II database, Table 3800019, V647060, V647058, and V647037.

distributed due to deep financial markets, a consumerist culture, and the prominent use of financial innovations such as securitization. They argue that such nations are most likely to see more rapid growth in both household debt and asset values. While securitization took longer to become established in Canada than its Anglo-American counterparts, it took off in earnest in 2001 after the introduction of the Canada Mortgage Bonds program (Walks, 2012). Figure 2 demonstrates that the issuance of *new* credit rose rapidly after 2001, and that new mortgage issuance and new consumer credit (lines of credit, car loans, credit cards, etc.) have risen at similar rates. Although new issuance peaked in 2007, the level of newly issued credit in 2010 was still more than double the rate (as a share of national disposable income) than the level of the mid-1990s, a comparable time when Canada was previously recovering from recession. While much debt growth over this time is due to the purchase of residential properties, recently a majority (57 percent) of indebted Canadians report that day-to-day expenses were the reason they continued to increase their use of credit, mainly by ramping up consumer (unsecured) debt (CGAAC, 2011, p. 12).

One of the more worrying trends is the uneven and regressive distribution of debt at the national level. Canada's social distribution of private debt is similar to a number of its peers (including the United States, Italy, and New Zealand), where debt service ratios are highest among the poorest quintiles, decreasing virtually monotonically through subsequent income quintiles (see Girouard et al., 2006, Figs. 7 and 8; Hurst, 2011). These inequities in levels of indebtedness are growing. Faruqi (2008) found that in 2007, the lowest-income households were almost twice as likely as middle-income households, and almost four times as likely as high-income households to have very high debt-service



ratios (above 40 percent of total income).<sup>4</sup> These disparities appear to have more than doubled by 2009, as did those related to the debt-to-income ratio (Hurst, 2011).<sup>5</sup> Meh et al. (2009, p. 13) note that low-income households are particularly vulnerable due to a growing negative net equity position, such that “poor debtors who fail to meet their obligations out of income may have trouble making up the difference through asset liquidation.”

The distribution of debt is not only regressive in relation to income and wealth, but also a series of other social variables. Young families, immigrants to Canada, and single parents, for instance, exhibit significantly higher levels of indebtedness on virtually every measure (see Hurst, 2011). While such national statistics are telling, they provide little guidance as to how the rise of household debt may be articulated within the lived spaces of Canadian communities. Such questions take on immediate salience in the dual-personality aftermath of the GFC and recession, with unemployment levels remaining elevated but housing markets recovering, even setting new sales and price records in the largest cities. Since 2008, debt levels have risen among a much larger proportion of low-income households (45–46%) than among middle- or high-income households (30–31%) (CGAAC, 2010, p. 92; CGAAC, 2011, p. 89). Even before the onset of recession, but particularly since it began, those who have lost their jobs are more strongly concentrated in deindustrializing regions and smaller metropolitan areas where housing markets remain softer (Statistics Canada, 2009; Bernard and Galarneau, 2011). Meanwhile, neighborhood inequality and segregation has increased most dramatically in those “global” cities most connected through financial flows, immigration, and headquarters concentration, and where housing markets have recovered the fastest and have experienced the most rapid inner-city gentrification (Walks, 2011). The remainder of this article seeks to empirically model and map out the geography of household debt across urban Canada, and to shed light on the processes fueling uneven distributions of debt.

## DATA AND METHOD

This study examines the level and composition of household debt at two different scales of analysis: the neighborhood (census tract) and the metropolitan region (Census Metropolitan Areas and Census Agglomerations—CMAs and CAs).<sup>6</sup> There are three well-accepted measures of household indebtedness: debt as a percentage of disposable income, debt as a percentage of assets, and debt service payments as a percentage of income (CGAAC, 2010; Hurst, 2011). Of these, it is the first measure that provides the best overall picture of the degree of indebtedness and the ongoing vulnerabilities associated with it, which as discussed above include but are not limited to the related concepts of arrears, delinquency,

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<sup>4</sup>The level of 40 percent of gross income is typically the maximum threshold used by the Canadian banks to determine credit worthiness and vulnerability.

<sup>5</sup>For instance, the survey data analyzed by Hurst (2011) show that in 2009 low-income households (with incomes less than \$50,000/year) were 4.36 times more likely than middle-income households (\$50,000–\$79,000/year) and 10.63 times more likely than the highest income households (>\$120,000) to have debt-service ratios greater than 40 percent of disposable income (Hurst, 2011). These results are even more stark when the effects of other variables are controlled for in a logistic regression model (*ibid.*).

<sup>6</sup>CMAs have populations greater than 100,000, while CAs have populations between 10,000 and 99,999. While technically only CMAs (and not CAs) are considered to be “metropolitan” by Statistics Canada, for the purposes of this study, both CMAs and CAs are referred to as metropolitan areas/urban regions. Only those CAs large enough to be tracted are included in this analysis.

bankruptcy, and foreclosures. The second measure, debt as a proportion of assets, indicates how exposed asset values are to existing leverage, and the capacity to sell those assets to repay debt if needed. But because this measure does not relate to income it is not a good indicator of the ability of households to carry the debt (furthermore, it is highly dependent on prevailing asset value assumptions). Finally, while measures of debt service as a proportion of income are good at determining the current ability of households to carry debt, calculation of this measure requires specialized additional data that are not available in the spatially aggregated dataset examined for this article, and this measure is highly sensitive to fluctuating interest rates. For these reasons, it is the first measure that is analyzed here.

The data on household debt derive from custom data prepared by Environics Analytics, a commercial survey firm operating in Canada (with which the author has no connection). While some national surveys have examined questions related to household indebtedness, and Statistics Canada and the Bank of Canada publish reliable aggregate statistics on household debt, such data are typically aggregated at the national level (or for very limited variables, the provincial level), but not at smaller scales. These include Statistics Canada's telephone-based Survey of Financial Security (SFS) and its one-time successor the Financial Capability Survey (FCS) (see Meh et al., 2009 and Hurst, 2011), as well as the online surveys that are conducted internally by the Certified General Accountants of Canada (for which most of the raw data are not made public) (see CGAAC, 2010, 2011). The two private credit rating agencies operating in Canada, Equifax and Transunion, collect information on certain types of consumer debt (but not mortgages) at spatial scales below the metropolitan level; however, the resulting datasets contain significant limitations making them unworkable and inappropriate sources for academic research.<sup>7</sup> The commercial survey firm Ipsos-Reid conducts an extensive panel survey of roughly 12,000 households across Canada annually and uses this to produce its Canadian Financial Monitor (CFM), in which mortgages, credit card, and other consumer debt is reported. Local postal-code information is collected with each respondent, making this a potentially valuable dataset for spatial analysis. However the survey is not publicly released, is weighted toward high-worth individuals and homeowners, does not cover all neighborhoods in Canada, is derived from a non-random sample, and the levels of reported debt do not correspond to those reported at the national and provincial levels by Statistics Canada and the Bank of Canada.

As a result of the limitations involved in the available data, Environics Analytics assembled a comprehensive spatially aggregated dataset on household debt and assets that includes, among other things, estimates of the number of households with, and aggregated outstanding balances of, mortgage debt, unsecured credit card debt, and other consumer debt. At the local level the data analyzed herein are aggregated at the level of census tracts, using the 2006 census boundaries. Census tracts are spatial units created by Statistics Canada as proxies for neighborhoods and contain between 4,000 and 8,000 people on average. Their boundaries remain relatively stable over time, and follow identifiable features such as rivers, railway lines and main streets. Census tracts are the most common

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<sup>7</sup>While data can be attained from these agencies at local-level spatial scales (namely, forward-sortation area level), they only contain the credit limits for newly issued credit, not outstanding balances, and they do not require each financial institution to follow strict guidelines concerning the data they submit, nor do they conduct sufficient reliability or quality checks.

unit used in Canadian neighborhood research, not only because of their size, but because this is the level at which the largest range of quality census data are made available.<sup>8</sup> The aggregation of the debt-related variables to the 2006 census tract and CMA/CA boundaries allows for their modeling using a number of independent variables derived from the 2001 and 2006 census of Canada.

The Environics dataset was built both from the ground up and from the top down, via an extensive process of “double-level optimization” involving iterative proportional marginal calibration between the debt totals at two different spatial scales. The SFS, FCS, and Statcan’s Survey of Household Spending (SHS) provide the national/provincial-level debt surface and its relationships with social variables. At the neighborhood (census tract) level, five separate types of data factored into the estimation of a first-generation spatially comprehensive local debt surface: (1) data from the 2006 census at the census tract level regarding mortgage and other housing costs as a proportion of income; (2) annual real estate assessments for local properties from the provincial assessment agencies from 2006 onwards; (3) real estate sales and prices from the individual real estate boards in each metropolitan region, at the scale of local real estate zones, annually since 2006; (4) multiple years of the panel survey data, with respondents geocoded within dissemination areas (spatial units smaller than census tracts); and (5) data purchased directly from financial institutions regarding the issuance of new secured and unsecured credit. This first-generation local debt surface then underwent subsequent re-calibration through a series of iterative constrained regression procedures so that the totals across neighborhoods: (1) add up to the provincial and national totals for mortgage, credit card, and consumer debt published by the Bank of Canada and Statistics Canada; and (2) when examined at the national and provincial levels, are fully consistent with the relationships between household debt and other social variables documented in the SFS, SHS, and FCS and published by Statistics Canada (Hurst, 2011). Thus, not only are the local totals consistent with the data available at the local level, but when aggregated they reproduce the national picture reported by Statistics Canada. Reliability statistics, derived from bootstrapping procedures, are provided for the data at the 0.05 significance level ( $p$ ): among metropolitan areas (CMAs and CAs), the estimates of household debt are accurate within  $\pm 0.76\%$ , while at the level of census tracts, the estimates are accurate within  $\pm 5.33\%$ .<sup>9</sup>

The benefit of the Environics data is therefore spatial aggregation at the level of census tracts, full coverage of urban Canada, high levels of reliability at both smaller and larger scales, and comprehensive coverage of all forms of outstanding credit. The drawback is that Environics is a commercial survey firm, and the precise methods they used to produce the data are their proprietary information, limiting the ability of independent researchers to reproduce the data or independently verify its accuracy, and this needs to be acknowledged.

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<sup>8</sup>Census data are also available at the smaller-scale Dissemination Area (DA), but with much more limited coverage. Only a small number of variables are published at this level, and suppression of data due to concerns over privacy means that a large minority of the observations at the DA level are missing, or if random-rounded, unreliable.

<sup>9</sup>Bootstrapping involves the iterative re-sampling of the data and re-calculation of the mean values, during which the values of all other variables are allowed to vary across their ranges. In the case of these Environics data, this iterative process was repeated over 1.3 billion times, producing confidence intervals that bounded the range of possible values for the total household debt variable. The 95% confidence intervals provided by Environics for the data are as follows: (1) at the level of CMAs and CAs: Low 95%: 99.08%, Average: 100.00%, High 95%: 100.59%; (2) at the level of census tracts: Low 95%: 94.74%, Average: 100.00%, High 95%: 105.39%.

However, it is also the only dataset currently available that is structured appropriately for analyzing the geography of debt at sub-provincial spatial scales. These data are used herein to examine levels of total household debt, including both secured and unsecured forms of debt, as a proportion of disposable (after-tax) income,<sup>10</sup> and their relationship with a series of neighborhood-level variables. Analysis of the relationship between local levels of indebtedness and socio-demographic and housing variables from the census facilitates determination of whether the ratio of debt-to-disposable income might systematically vary with concentrations of particular social variables (younger families, racialized minorities, etc). The most important control variable is the proportion of the population that are renters, as renters are more likely to carry unsecured debt, but very few hold the mortgages that make up roughly two-thirds of total outstanding debt in the dataset. Differences in housing tenure (between renters and owners) account for 30.1 percent of the variation in debt-to-disposable income at the census tract level. Controlling for housing tenure thus facilitates comparison of levels of household debt in relation to prevailing patterns in each tenure group simultaneously, while providing reliable and significant estimates of the relationship between debt and other socio-demographic variables. Independent variables include those related to income, occupation, education, marriage and family status, immigration status, visible minority status, and variables related to built form and housing type.

To accurately determine the true relationship between the geography of household debt and spatial distribution of socio-demographic variables, the effects of these independent census variables are modeled at both the metro (CMA/CA) and the neighborhood (census tract) scales simultaneously, using multi-level (hierarchical linear) modeling techniques (HLM). Because the assumption of independence between the variable values at the neighborhood and metropolitan scales is violated in this case (as a result of the nesting of the former within the latter—debt values within neighborhoods are not independent of those at the level of the metropolitan area in which they are located), OLS regression techniques are inappropriate. Hierarchical linear modeling (HLM) relaxes the requirement for independence between the two scales of observation, facilitating the estimation of independent slopes at each scale, and uncovering potential cross-level interactions.<sup>11</sup> In addition, average household debt-to-disposable income is calculated for inner-city and suburban municipalities from the census tract totals, in those metropolitan regions large enough for this purpose. In this case, census tracts were coded based on whether they were located in three simple zones defined by central city municipal political boundaries: (1) the traditional inner city, located within the original pre-war central-city municipal boundary, making up part or all of the current central city municipality; (2) an inner-suburban zone, located within the central city municipality, but outside the boundaries of the original pre-war inner city; and (3) an outer-suburban zone, located outside the current central-city

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<sup>10</sup>Household disposable income is derived from the Census of Canada, and estimated at the census tract level for the beginning of 2010. It contrasts slightly with the measure of national disposable income that is used by the Bank of Canada and Statistics Canada in the determination of national debt-to-disposable income as documented in Figure 1. The main difference is that national disposable income includes national trade accounts and the incomes of non-incorporated business, while household disposable income is derived from the tax files documenting before- and after-tax incomes of Canadian households (only).

<sup>11</sup>The models went through a series of iterations, with variables removed that were both insignificant and whose removal maximized the likelihood and reliability of the model. This allowed for exclusion of variables with multicollinearity problems. Cross-level interactions were tested among a number of variables, with only those that increased the likelihood and reliability of the model selected for testing and inclusion.

municipality.<sup>12</sup> Maps of neighborhood levels of debt as a proportion of income allow for visualization of the resulting geographic patterns.

### THE GEOGRAPHY OF HOUSEHOLD DEBT IN CANADIAN CITIES

To understand the regional context of Canada's urban debtscape, the distribution of forms of household debt is first examined at the metropolitan (macro) scale. This allows for determination around questions related to regional-level differences, including those related to immigration, globalization, deindustrialization, and housing markets. The analysis then moves to examine city-suburban (zonal) differences, and finally the simultaneous modeling of effects at the local/neighborhood and the metropolitan scales.

#### *Metropolitan-Level Patterns*

Debt as a percent of household disposable income varies significantly among tracted metropolitan areas (Table 1). Canada's most-indebted metropolitan area, Vancouver, is more than twice as indebted as the least-indebted metro, Trois-Rivieres. There are some clear regional patterns evident in the spatial distribution of debt at this scale. Urban regions in British Columbia are virtually all highly indebted, occupying the top five positions in the list, with seven of its eight urban areas in the top 10. It is mainly the fastest-growing metropolitan areas that have the most indebted households: Those in Alberta (particularly Calgary) and in southern Ontario (Ottawa-Gatineau and Greater Toronto: Barrie, Hamilton, and Oshawa), are right behind BC in revealing very high debt levels, followed by the fast-growing capital city regions of Newfoundland (St. John's) and Nova Scotia (Halifax). Meanwhile, slower-growing metropolitan areas in non-oil-based resource-producing regions, namely in Manitoba, Saskatchewan, northern Ontario, the rest of the Maritimes, and most of Quebec (with the exception of faster-growing Montreal) generally feature lower relative levels of household indebtedness. Although it is generally larger cities that reveal the highest debt levels, the (bivariate) correlation with metro size ( $r = 0.241$ ) is much lower than that for income ( $r = 0.462$ ), and population growth ( $r = 0.476$ ).

Household debt can be broken down into three components: mortgage debt, credit card debt, and other consumer debt (auto loans, lines of credit, etc.) (Table 2). On average, mortgages make up roughly two-thirds (65.8 percent) of total household debt, with credit card debt making up 6.5 percent and just over a quarter (27.6 percent) pertaining to other forms of consumer debt. Mortgage debt ranges significantly across urban regions, from a low of 65 percent of household disposable income in Sault Ste. Marie, to a high of 202 percent in Vancouver (the coefficient of variation (CV) for mortgage debt = 0.283). Mortgage debt is the main reason that the larger, wealthier, and faster-growing urban regions are among the most indebted, with consistently positive bivariate correlations with metro size ( $r = 0.314$ ), income ( $r = 0.404$ ), and population growth ( $r = 0.468$ ). Consumer debt also varies

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<sup>12</sup>The central cities of many metropolitan regions in Canada, particularly the largest ones, are recent constructs produced by the amalgamation of a series of older municipalities. Thus, in most cases the current central city contains both the original pre-Second World War central city, as well as a number of early post-war suburban municipalities (what are often called the "inner" or "mature" suburbs in Canada, or the "first" suburbs in the U.S.). See the note below Table 5 for more information on how the zones were constructed in each metropolitan area.

**TABLE 1. TOTAL HOUSEHOLD DEBT AS A PERCENT OF ANNUAL INCOME,  
BY URBAN REGION, DECEMBER 2009**

Urban region (CMA/CA)	Household debt as a percent of disposable income	Household debt as a percent of before-tax income	Average total debt balance per household (\$)	Average household disposable income (\$)	Average before-tax household income (\$)	Total number of house-holds (#)
Vancouver	266.2	190.5	158,372	59,495	83,128	895,510
Kelowna	260.8	191.1	142,008	54,456	74,325	76,206
Abbotsford	258.6	190.4	143,223	55,376	75,227	61,759
Victoria	248.4	178.8	137,068	55,171	76,650	156,154
Nanaimo	236.4	179.2	117,415	49,673	65,540	42,041
Calgary	233.8	154.5	184,850	79,050	119,681	469,284
Barrie	225.6	162.9	134,536	59,635	82,608	69,928
Kamloops	225.1	164.7	119,229	52,960	72,393	41,403
Chilliwack	222.6	169.1	115,503	51,880	68,308	34,959
Toronto	208.8	146.1	140,326	67,221	96,042	1,986,965
Oshawa	206.7	148.1	132,765	64,233	89,650	131,595
Hamilton	203.1	146.0	120,520	59,339	82,540	282,461
Lethbridge	196.7	139.9	109,089	55,472	77,986	41,340
St. John's	193.4	135.7	99,414	51,409	73,271	74,656
Halifax	192.9	138.1	102,926	53,347	74,549	167,461
Edmonton	192.8	133.1	127,932	66,371	96,133	451,898
Ottawa-Gatineau	191.3	134.4	118,378	61,878	88,092	486,942
Guelph	188.4	134.9	113,678	60,342	84,275	54,916
Kitchener	188.0	134.5	114,504	60,895	85,104	186,502
Montréal	183.9	127.2	88,204	47,974	69,333	1,602,278
Medicine Hat	183.0	133.7	112,101	61,246	83,858	30,800
Red Deer	180.5	129.8	123,377	68,358	95,046	37,568
Brantford	177.2	129.4	94,420	53,294	72,981	51,049
Peterborough	175.5	128.4	90,612	51,631	70,566	49,549
North Bay	172.4	128.9	84,579	49,051	65,612	27,665
London	172.3	124.0	94,385	54,772	76,140	200,127
Kingston	171.3	123.9	92,366	53,928	74,544	66,009
Prince George	170.5	126.8	99,209	58,175	78,259	34,415
Fredericton	165.9	115.4	83,043	50,049	71,966	37,748
Saint-Jean-sur-Richelieu	164.6	118.0	75,384	45,795	63,865	39,097
St. Catharines	156.7	114.7	80,204	51,175	69,924	164,626
Saint John	152.8	109.5	75,002	49,092	68,507	51,091
Greater Sudbury	152.3	110.4	80,932	53,125	73,293	69,064
Sherbrooke	151.4	107.1	62,661	41,395	58,501	86,819
Windsor	151.1	108.7	84,997	56,256	78,174	132,586
Saskatoon	150.9	104.7	88,068	58,372	84,118	104,492
Belleville	150.2	112.7	72,748	48,441	64,555	36,637
Moncton	150.0	107.7	72,800	48,529	67,566	55,628
Québec	149.0	103.8	69,469	46,615	66,924	333,123
Granby	144.4	104.0	63,690	44,111	61,216	31,307
Saguenay	143.8	102.0	61,795	42,969	60,582	65,752
Winnipeg	143.7	98.9	74,158	51,613	74,975	300,904
Thunder Bay	138.6	101.0	69,447	50,105	68,788	52,952
Sault Ste. Marie	136.6	101.9	68,307	50,015	67,037	35,234
Drummondville	135.9	98.7	55,586	40,906	56,323	35,617
Regina	132.8	92.3	79,871	60,122	86,554	86,402
Sarnia	132.5	97.4	75,841	57,238	77,899	38,551
Trois-Rivières	130.8	93.0	52,641	40,251	56,620	66,314

Source: Calculated by the author from custom data ordered from Environics Analytics. Data are for the end of 2009/ beginning of 2010.



**TABLE 2. COMPOSITION OF HOUSEHOLD DEBT, BY URBAN REGION, DECEMBER 2009**

Urban region (CMA/CA)	Total household debt as percent of disposable income	Mortgage debt as a percent of disposable income	Credit card debt as a percent of disposable income	Other consumer debt as a percent of disposable income	Mortgage debt as a percent of total debt
Vancouver	266.1	202.0	12.1	52.0	75.9
Kelowna	260.8	189.9	12.1	58.8	72.8
Abbotsford	258.7	195.0	11.9	51.8	75.4
Victoria	248.5	183.2	11.6	53.7	73.7
Nanaimo	236.3	162.5	11.9	61.9	68.8
Calgary	233.9	173.6	10.2	50.1	74.2
Barrie	225.6	145.6	12.8	67.2	64.5
Kamloops	225.1	149.9	12.4	62.8	66.6
Chilliwack	222.6	158.6	12.3	51.7	71.2
Toronto	208.8	150.5	11.5	46.8	72.1
Oshawa	206.7	137.2	11.9	57.6	66.4
Hamilton	203.1	141.0	11.8	50.3	69.4
Lethbridge	196.6	122.4	12.2	62.0	62.3
St. John's	193.4	142.4	14.0	37.0	73.6
Halifax	193.0	128.3	13.6	51.1	66.5
Edmonton	192.7	130.5	11.2	51.0	67.7
Ottawa-Gatineau	191.3	133.1	10.8	47.4	69.6
Guelph	188.4	119.4	12.7	56.3	63.4
Kitchener	188.0	120.5	12.7	54.8	64.1
Montréal	183.9	132.0	10.9	41.0	71.8
Medicine Hat	183.0	116.0	11.2	55.8	63.4
Red Deer	180.5	116.9	11.5	52.1	64.8
Brantford	177.2	106.5	12.5	58.2	60.1
Peterborough	175.5	102.1	12.8	60.6	58.2
North Bay	172.5	94.2	12.2	66.1	54.6
London	172.3	102.9	13.0	56.4	59.7
Kingston	171.3	109.9	11.8	49.6	64.2
Prince George	170.6	100.5	12.9	57.2	58.9
Fredericton	166.0	106.7	14.7	44.6	64.3
Saint-Jean-sur-Richelieu	164.6	118.4	10.5	35.7	71.9
St. Catharines	156.7	94.1	11.8	50.8	60.1
Saint John	152.8	92.4	14.6	45.8	60.5
Greater Sudbury	152.4	78.6	12.8	61.0	51.6
Sherbrooke	151.4	103.5	9.6	38.3	68.4
Windsor	151.0	83.8	11.4	55.8	55.5
Saskatoon	150.9	107.5	10.1	33.3	71.2
Belleville	150.2	80.7	12.9	56.6	53.7
Moncton	150.0	93.2	14.0	42.8	62.1
Québec	149.1	104.6	9.2	35.3	70.2
Granby	144.4	100.9	9.4	34.1	69.9
Saguenay	143.8	94.2	9.2	40.4	65.5
Winnipeg	143.6	100.2	11.1	32.3	69.8
Thunder Bay	138.6	73.1	11.9	53.6	52.7
Sault Ste. Marie	136.6	64.7	12.6	59.3	47.4
Drummondville	135.9	92.7	9.2	34.0	68.2
Regina	132.8	89.9	9.5	33.4	67.7
Sarnia	132.5	68.4	10.6	53.5	51.6
Trois-Rivières	130.7	88.7	9.6	32.4	67.9

Source: Calculated by the author from custom data ordered from Environics Analytics.

significantly, albeit to a smaller degree than for mortgages ( $CV = 0.197$ ). In contrast with the results for mortgage debt, there is a negative, albeit very weak, correlation between consumer debt and metro size ( $r = -0.149$ ) and weak but positive correlations with income ( $r = 0.193$ ) and growth ( $r = 0.191$ ). Credit card debt shows the least variability ( $CV = 0.119$ ), with a weak negative correlation with metro size ( $-0.129$ ), but little relationship with either growth ( $r = -0.021$ ) or income ( $r = 0.035$ ). Variation in mortgage debt accounts for 81.2% of the variation in overall levels of household indebtedness across metropolitan regions, and is responsible for both the high levels of household debt in British Columbia and the low levels of debt in the province of Quebec outside Montreal (that latter having a level of household debt close to the Canadian average). While smaller and slower-growing urban regions have lower levels of debt, their debt profiles are far more weighted toward unsecured forms of consumer debt.

A series of important variables are related to high levels of indebtedness at the metropolitan scale (partial correlations are in Table 3, while Table 4 presents OLS regression models). These tables demonstrate that household indebtedness at this scale is most strongly correlated with average dwelling values, confirming the important role that real estate asset appreciation has played in enticing Canadians into debt. High debt loads, unsurprisingly, are also associated with a higher proportion of homeowners spending more than 30 percent of their income on housing (as well as growth in this variable over the 2000s). The metropolitan-level results strongly suggest that debt has been driven by costs associated more with urban growth than stagnation. Metropolitan areas that grew faster between 2001 and 2006, and those with more of their housing built since 1981, and particularly since 2001, reveal fairly strong correlations with higher levels of total household debt. Related to this are family status effects linked to urban growth, and an association with condominium tenure (discussed below). However, the negative coefficients for average household income, and the positive coefficients for proportion low-income (poverty), demonstrate that levels of indebtedness are spatially distributed in a regressive manner across metropolitan areas. Meanwhile, there are also strong dynamics relating indebtedness to occupation (managerial occupations in particular) and immigration. However, the multi-level analysis discussed below demonstrates that these latter effects mainly occur at the smaller-scale neighborhood level.

### *Zonal Patterns*

There is a consistent pattern with respect to the zonal distribution of total household debt, reflecting on the questions related to suburbanization and gentrification. In every metropolitan area of appropriate size, aggregate levels of indebtedness are lowest in the old pre-war inner cores, and in all but four metro areas<sup>13</sup> they are highest in the (outer)

<sup>13</sup>The four metros that deviate from this general trend all have distinctive features. The “outer” suburban municipalities in the Ottawa region, for instance, as defined using the criteria adopted here, are all found in the province of Quebec where debt levels are lower, due to the amalgamation of Ontario-side municipalities into one single City of Ottawa in 2001. Calgary is characterized by a very large central city that contains virtually all lands for new suburban development, such that the outer-suburban municipalities make up only 3% of the metro population and are virtually all exurban and rural. In Trois Rivières, similarly, the outer suburbs are mostly exurban and rural. Moncton, meanwhile, is dominated by three main urban municipalities. Many French speakers, who are less prone to hold high debts than English speakers, are more likely to live in Dieppe.

**TABLE 3. PARTIAL CORRELATIONS, METRO-LEVEL VARIABLES AND HOUSEHOLD INDEBTEDNESS<sup>a</sup>**

2006 census variables (CMA/CA)	<i>r</i>	Change between 2001–2006 censuses	<i>r</i>
Log population	0.392	Population change 2001–2006	0.422
Dwelling value (\$)	<b>0.895</b>	Change in dwelling value	<b>0.783</b>
Average household income (\$)	0.332	Change in average household income	0.118
% population with low income	0.263	Change in rate of low income	0.295
% with education = high school or less	-0.209	Change in % education high school or less	0.151
% with education = university degree	0.333	Change in % with university degree	0.366
% managerial workers	<b>0.693</b>	Change in % managers	0.122
% manufacturing workers	-0.186	Change in % manufacturing occupations	0.243
% artistic, literary, and recreational workers	<b>0.530</b>	Change in % artistic, literary, and recreational	-0.046
% law, teaching, social science workers	-0.124	Change in % law, teaching, social science	-0.328
% finance, insurance, real estate (FIRE) workers	-0.054	Change in % finance, insurance and real estate workers	-0.168
% sales and service workers (other than FIRE)	0.388	Change in % sales and service workers	-0.166
% health workers	0.389	Change in % health workers	-0.296
% agricultural/primary sector workers	0.429	Change in % agricultural/primary sector workers	-0.175
Unemployment rate (%)	-0.328	Change in unemployment rate	-0.223
% multi-family households	<b>0.596</b>	Change in % multi-family households	0.367
% households with children under age 6	0.202	Change in % households with children under 6	-0.118
% seniors (age 65 or more)	-0.063	Change in % seniors	-0.161
% married	0.264	Change in % married	0.397
% who commute who drive to work	-0.406	Change in % who drive to work	-0.422
% foreign-born	<b>0.547</b>	Change in % foreign-born	0.427
% visible minorities (all)	<b>0.562</b>	Change in % all visible minorities	<b>0.500</b>
% Chinese	<b>0.541</b>	Change in % Chinese	0.185
% South Asian	<b>0.567</b>	Change in % South Asian	0.497
% Black	0.185	Change in % Black	0.076
% other visible minority group	-0.182	Change in % other visible minority group	0.091
% aboriginal	-0.270	Change in % Aboriginal	-0.273
% dwellings in row, semi-detached units	0.321	Change in % dwellings rented	-0.386
% dwellings in apartment buildings w/5+ stories	0.131		
% dwellings built before 1946	<b>-0.504</b>	% Homeowners spending 30–99% of income on housing	<b>0.799</b>
% dwellings built 1946 to 1980	<b>-0.549</b>		
% dwellings built 1981 to 2000	<b>0.524</b>	Change in % homeowners spending 30–99% of income on housing	0.478
% dwellings built 2001 to 2006	0.380		
% dwellings in condominium tenure	<b>0.817</b>		

<sup>a</sup>Canada's tracted 48 urban regions (CMAs and CAs) are the units of analysis. Dependent variable = total household debt as a percent of household disposable income at the end of 2009/beginning of 2010, by CMA/CA. Independent variables are either taken from the 2006 census of Canada (left column) or are calculated from the 2001 and 2006 censuses (right column). Partial correlations control for the percent of dwellings in each CMA that are *rented*. Coefficients larger than 0.5 (or less than -0.5) are bolded, indicating strong correlations. *Source*: Calculated by the author from custom data ordered from Environics Analytics, and from the Census of Canada, 2001, 2006.

**TABLE 4. FACTORS RELATED TO HOUSEHOLD DEBT LEVELS AT THE METROPOLITAN LEVEL (OLS REGRESSIONS)<sup>a</sup>**

Census variables	Total household debt	Mortgage debt (only)	All consumer debt (only)
% dwellings rented	-2.305***	-1.864***	-1.321***
Dwelling value (\$) (by \$10k)	4.828***	3.915***	0.513***
Average household income (\$) (by \$10k)	-12.014***	-19.037***	-4.202***
Change in average household income (% 2001–2006)		0.996***	
% low-income	2.927**		
Change in % low-income (% 2001–2006)		-4.662*	
% managers		6.141***	
Change in managers (% 2001–2006)			-8.945***
% manufacturing workers	-1.440**		
% with education less than high school		-1.217	
% with university degree			
% kids under 6 years old	13.075*	12.380*	
Change in kids under 6 years old (% 2001–2006)		3.213*	-2.059*
% seniors (aged 65+ years old)	-2.898*	-4.692**	
Change in seniors (% 2001–2006)	6.940*	5.195*	
% foreign born			
Change in foreign born (% 2001–2006)		5.218	
% Chinese	-3.783***	-3.794***	
% South Asian		1.176	
% dwellings built in 2001 or later	1.135*		
Constant	154.13**	168.97*	81.48***
R <sup>2</sup>	0.948	0.950	0.700

<sup>a</sup>Units of analysis are tracted metropolitan areas (CMAs and CAs). Coefficients are for those variables remaining in the models after backwards OLS regression (to eliminate the effects of multicollinearity, and to maximize fit). Dependent variables, listed on the column headers, are calculated as a percent of disposable income. Sig. \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ .

Source: Calculated by the author from custom data ordered from Environics Analytics, and from the Census of Canada, 2001, 2006.

suburban municipalities (Table 5). Yet the old inner cities are also far more likely to house renters, who rarely ever hold mortgages, so these aggregate distributions of total debt do not tell the whole story. When it is only mortgage debt among mortgaged households that is examined, virtually the opposite zonal pattern is evident. In all but four metros, households with mortgages in the inner cities are far more leveraged than are mortgaged suburbanites. These results suggest a direct link with gentrification, in part because they imply that financial institutions are willing to lend more (in relation to income) to home-buyers in the inner cities. The four metropolitan areas that do not follow this trend (Winnipeg, Oshawa, Windsor, and Thunder Bay) are all examples of slow-growing, smaller cities exhibiting very little gentrification and stigmatized inner-city neighborhoods. When the zonal distribution of non-mortgage consumer debt is analyzed independently, meanwhile,

TABLE 5. CITY AND SUBURBAN AVERAGE TOTAL, MORTGAGE, AND CONSUMER DEBT AS PERCENT OF DISPOSABLE INCOME<sup>a</sup>

Urban region (CMA/CA)	Total household debt, all households						Mortgage debt of mortgaged households						All consumer debt, all households					
	Central city			Outer			Central city			Outer			Central city			Outer		
	Old pre-war inner city	Post-war suburbs	Suburban municipalities	Old pre-war inner city	Post-war suburbs	Suburban municipalities	Old pre-war inner city	Post-war suburbs	Suburban municipalities	Old pre-war inner city	Post-war suburbs	Suburban municipalities	Old pre-war inner city	Post-war suburbs	Suburban municipalities	Old pre-war inner city	Post-war suburbs	Suburban municipalities
Toronto	177.55 (186.7 <sup>b</sup> )	177.64	236.33	293.36 (307.4 <sup>b</sup> )	281.93	270.67	59.44/ (59.9 <sup>b</sup> )	56.82	62.00	56.82	62.00	59.44/ (59.9 <sup>b</sup> )	56.82	62.00	56.82	62.00	56.82	62.00
Montreal	160.27	178.68	196.04	334.26	287.80	245.54	53.96	48.92	54.17	48.92	54.17	53.96	48.92	54.17	48.92	48.92	54.17	54.17
Vancouver	167.75	202.04	198.87	268.73	199.45	207.74	65.74	48.92	58.91	48.92	58.91	65.74	48.92	58.91	48.92	48.92	58.91	58.91
Ottawa-Gatineau	195.93	241.61	227.72	318.59	239.79	185.92	45.55	63.82	68.81	63.82	68.81	45.55	63.82	68.81	63.82	63.82	68.81	68.81
Calgary	153.79	187.25	170.71	255.22	205.36	185.92	55.45	61.25	68.00	61.25	68.00	55.45	61.25	68.00	61.25	61.25	68.00	68.00
Edmonton	126.13	145.77	180.99	179.47	169.63	188.44	47.69	43.71	48.00	43.71	48.00	47.69	43.71	48.00	43.71	43.71	48.00	48.00
Winnipeg	116.13	148.49	164.65	270.69	182.19	177.65	52.27	44.57	43.86	44.57	43.86	52.27	44.57	43.86	44.57	44.57	43.86	43.86
Quebec	174.13	199.83	213.15	262.55	250.73	234.65	68.43	62.29	61.95	62.29	61.95	68.43	62.29	61.95	62.29	62.29	61.95	61.95
Hamilton	155.29	167.69	190.83	206.82	176.56	179.31	73.44	70.81	71.90	70.81	71.90	73.44	70.81	71.90	70.81	70.81	71.90	71.90
London	150.27	191.78	211.08	220.01	191.26	193.84	62.59	69.12	71.29	69.12	71.29	62.59	69.12	71.29	69.12	69.12	71.29	71.29
Kitchener-Waterloo	168.96	199.07	na	316.66	194.64	na	58.36	67.67	na	67.67	na	58.36	67.67	na	67.67	67.67	na	na
Halifax	200.66	200.66	268.59	400.80	188.74	352.48	56.28	71.69	70.81	71.69	70.81	56.28	71.69	70.81	71.69	71.69	70.81	70.81
Victoria	163.15	194.14	221.60	193.85	188.74	204.34	69.08	43.95	69.67	43.95	69.67	69.08	43.95	69.67	43.95	43.95	69.67	69.67
Oshawa	127.12	154.67	na	229.67	191.85	na	46.42	74.03	na	74.03	na	46.42	74.03	na	74.03	74.03	74.03	74.03
Saskatoon	195.06	266.52	275.43	398.96	350.26	365.18	60.07	68.93	72.24	68.93	72.24	60.07	68.93	72.24	68.93	68.93	72.24	72.24
Kelowna	136.20	151.99	163.76	142.67	132.49	144.84	69.60	68.93	66.51	68.93	66.51	69.60	68.93	66.51	68.93	68.93	66.51	66.51
Windsor	124.87	151.46	162.78	197.31	165.67	134.76	66.03	74.10	78.67	74.10	78.67	66.03	74.10	78.67	74.10	74.10	78.67	78.67
St. Johns	158.27	183.40	211.42	282.81	247.42	229.73	52.12	50.60	53.82	50.60	53.82	52.12	50.60	53.82	50.60	50.60	53.82	53.82
Regina	103.66	135.99	na	178.76	165.36	na	44.70	44.31	na	44.31	na	44.70	44.31	na	44.31	44.31	na	na
Sherbrooke	125.36	149.10	172.57	246.70	185.50	198.08	56.72	48.72	45.33	48.72	45.33	56.72	48.72	45.33	48.72	48.72	45.33	45.33
Trois Rivières	108.88	135.95	132.24	265.71	165.95	165.36	49.70	41.54	43.94	41.54	43.94	49.70	41.54	43.94	41.54	41.54	43.94	43.94
Thunder Bay	134.44	136.80	158.46	143.08	149.74	154.15	68.68	63.04	77.40	63.04	77.40	68.68	63.04	77.40	63.04	63.04	77.40	77.40
Saint John	107.30	150.00	168.97	211.23	162.40	159.95	51.66	64.69	62.41	64.69	62.41	51.66	64.69	62.41	64.69	64.69	62.41	62.41
Moncton	113.80	163.25	152.15	185.81	165.80	142.66	51.58	63.48	56.05	63.48	56.05	51.58	63.48	56.05	63.48	63.48	56.05	56.05

<sup>a</sup>Disposable income refers to after-tax income. City and suburban zones are strictly based on current and prior central-city municipal boundaries. Note that Vancouver and Victoria have not experienced any amalgamations, so their central city boundaries remain unchanged over time, and that the central cities of Saskatoon, Regina, and (after amalgamation) Halifax currently encompass their entire metropolitan region—thus, there are no outer-suburban municipalities. Also, the entire Ottawa region on the Ontario side of the Ottawa river was amalgamated into one single municipality in 2001. The “outer suburban municipalities” for the Ottawa region therefore refer to those located on the Quebec (French-speaking) side of the Ottawa River. The following exceptions to the zonal method also apply: (1) in Montreal, the Island of Montreal is used to represent the central city municipality, with the old City of Montreal as the original central city municipality (i.e., “de-mergers” were ignored); (2) in the Kitchener-Waterloo region, a single contiguous pre-war inner city core is identified running between the original downtowns of two municipalities: Kitchener and Waterloo, with residents of Cambridge included among outer-suburban municipalities.

<sup>b</sup>Results when Canada's two wealthiest neighborhoods – Rosedale/Moore Park, and Forest Hills, which have very high incomes and very little debt - are removed from the Toronto inner-city category (11 tracts).  
Source: Calculated by the author from the census tract totals.

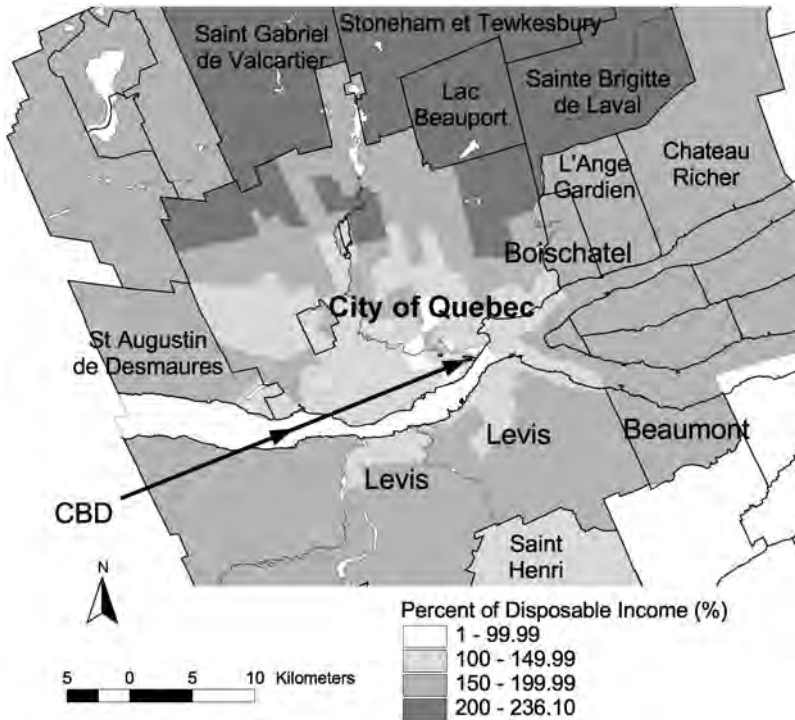
trends are mixed but generally depend on population size, economic function, and the level of gentrification. Most large cities witnessing gentrification show higher relative levels of consumer debt in their suburbs, as demonstrated in the regions of Toronto, Montreal, Calgary, Edmonton, Halifax, Victoria, Moncton, and to a lesser extent St. John's (the main exception is Vancouver). On the other hand, smaller cities with weaker inner cores and lower levels of gentrification, often suffering from deindustrialization, reveal generally higher levels of consumer debt in their inner cities, including Hamilton, London, Saskatoon, Windsor, Sherbrooke, Trois Rivieres, and Thunder Bay (Oshawa, Sudbury, and Saint John are the exceptions to this pattern).

Of course, there is much variation in levels of total household debt within both inner cities and suburban areas, and the local geographies of household indebtedness are complex and distinct. Notwithstanding this complexity, when debt is visualized at the neighborhood (census tract) scale, two broad ideal-type patterns become evident. First of all are smaller metropolitan areas with generally lower levels of leverage, all of which are traditionally slower-growing urban regions exhibiting more limited gentrification and hence greater concentration of renters in their inner cores. In these areas the patterning of household debt is predominantly suburban, with levels of household debt as a percent of disposable income generally rising with distance from the Central Business District (CBD). This pattern is exemplified by the Quebec City region (Fig. 3). In Quebec, it is the distant northern suburbs in particular that show higher levels of household indebtedness, with much lower levels of household debt evident in older neighborhoods located close to the CBD, Vanier, and the older parts of Levis. Other metros that fit this pattern include Winnipeg, Regina, Saskatoon, Moncton, St. John's, Sudbury, Thunder Bay, Windsor, many smaller urban regions in British Columbia, and all urban regions in the province of Quebec except for Montreal.

A second broad pattern mainly pertains to those urban areas with high levels of household debt, virtually all of which are large and fast-growing metropolitan regions. In these metros there is a double pattern: in addition to higher levels of household debt at the fringes of the built-up area, this second group also reveals high levels in gentrifying neighborhoods located close to the CBD. Furthermore, suburban neighborhoods revealing higher levels of indebtedness in this second group tend to be areas concentrating new immigrants and visible minorities. The Toronto region best exemplifies this double pattern (Fig. 4). Here, the highest levels of debt as a percent of household disposable income are found in the newer (post-1980) subdivisions circling the edges of the suburban municipalities of Markham, Richmond Hill, Milton, and Brampton, followed by other newer suburban areas. Meanwhile, a second set of highly indebted neighborhoods are found in the more recently gentrifying neighborhoods directly to the east and west of the CBD, particularly along the waterfront where many condominium towers have been built over the last 20 years. The lowest levels of household debt in these regions, meanwhile, tends to be evident in the wealthiest neighborhoods, either those located in older established areas closer to the core (directly north of the CBD in Toronto), or in wealthy older suburban municipalities (such as Oakville).

Montreal also falls into this second ideal-type double-zonal pattern, although with significant localized variation derived from its peculiar historic settlement patterns (Fig. 5). This includes the spatial distinction between areas of traditional French settlement (East island, revealing lower levels of debt) and English (West island, with relatively higher



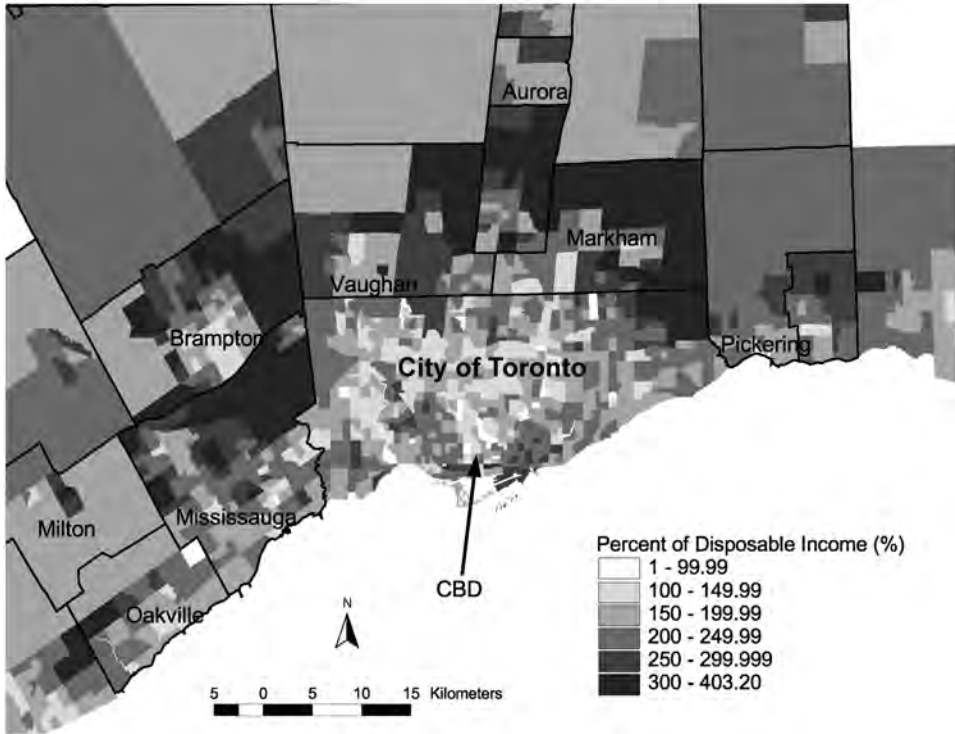


**Fig. 3.** Level of household indebtedness by neighborhood, Quebec City CMA, end of 2009. *Source:* Calculated from custom data ordered from Environics Analytics. *Notes:* Shown is aggregate household debt per census tract as a proportion of aggregate household disposable income by census tract. Key municipalities are shown.

levels). Also, the differences between newer condominium and older areas of the inner city are highly distinct, with condo areas near the CBD showing some of the highest levels of debt, while areas revealing traditional forms of gentrification (such as the Plateau, see Walks and Maaranen, 2008b) reveal relatively lower levels. Vancouver also resembles this general pattern (Fig. 6), although in this case debt levels are elevated virtually everywhere. The CMAs of Ottawa, Victoria, Halifax, and Calgary also largely fit this second double-zonal pattern.

### *Neighborhood-Level Patterns*

It is at the level of the neighborhood that questions pertaining to social equity, automobility, and city building are most salient. A number of patterns stand out (Table 6). At the upper/metropolitan level, high dwelling values once again reveal significant and strong predictive effects, confirming that high metropolitan-wide housing costs have stimulated rising indebtedness. The proportion of the population with low income (poverty), as well as the proportion that are married, also have positive predictive effects. Meanwhile, as in the upper-level models (Table 4), metropolitan areas whose total rate of poverty declined, which would normally suggest employment growth or improved income redistribution,

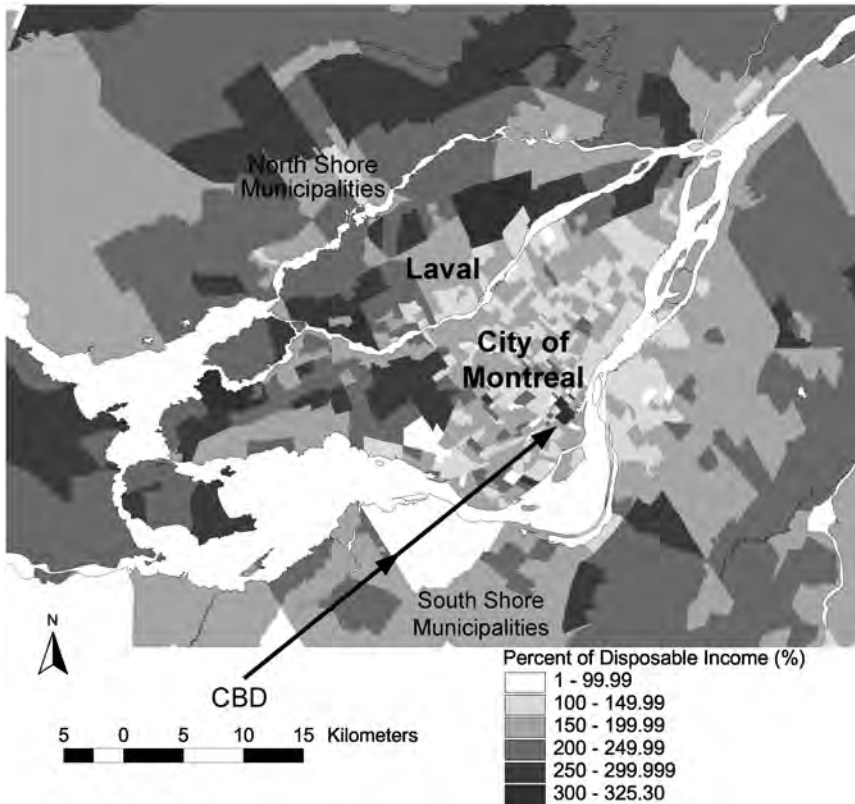


**Fig. 4.** Level of household indebtedness by neighborhood, Toronto CMA, end of 2009. *Source and notes:* As per Figure 3.

also reveal higher average debt levels at the neighborhood level. This is despite the fact that neither income growth of the average household nor the unemployment rate had any effect at the metropolitan level.<sup>14</sup> These results support the hypothesis that the ramping up of debt has become a mechanism used to escape poverty (what Crouch, 2009, terms a regime of “privatized Keynesianism”), as well as the suggestion that reduced poverty has provided greater access to credit among lower-income households. A direct link between this and deindustrialization is not established here, however, as none of the variables related to manufacturing or occupational change at the upper level are significant, or remained in the model.

Metropolitan population growth overall, as well as the growth of seniors (aged 65+), both strongly predict high rates of indebtedness, even though the presence of seniors at the *neighborhood* level is associated with disproportionately lower levels of household debt. These findings, as in the metropolitan-only results (Table 4), suggest that demand for space on behalf wealthy retirees in traditionally desirable retirement climates compels working-age households located there to get deeper into debt in order to be able to compete for housing. This would help explain both the higher housing costs and higher debt

<sup>14</sup>Income change was kept in the model for control purposes, but proved to have weak and insignificant effects.

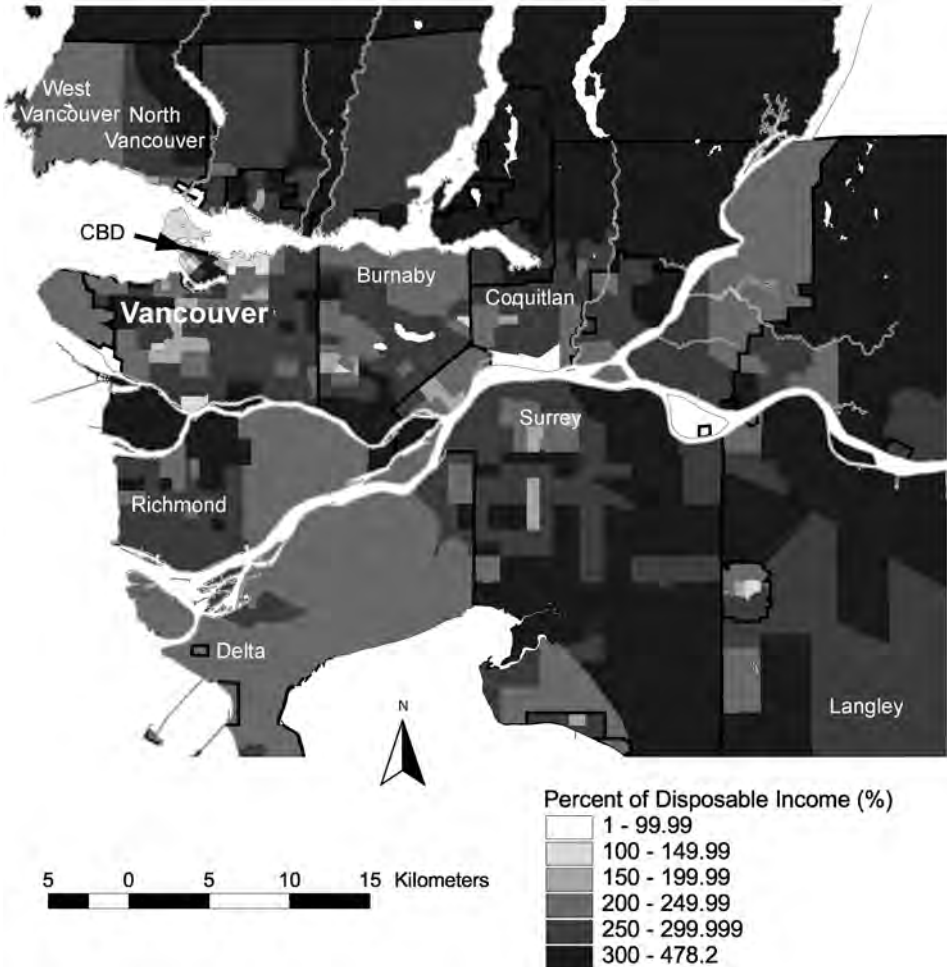


**Fig. 5.** Level of household indebtedness by neighborhood, Montreal CMA, end of 2009. *Source and notes:* As per Figure 3.

loads in the cities of British Columbia. These findings suggest that wealthy seniors have been able to externalize much of the costs related to their stimulation of local housing demand onto the entire metro housing market, and thus are a factor driving generational differences in real housing affordability.

On the other hand, at the metropolitan level the coefficients for immigrants (and those with Chinese ethnicity), reveal negative independent effects on household debt. This suggests that additional demand from immigrants in Canada's immigrant gateway cities is not on the whole associated with driving up demand for credit, unlike the trends for seniors. Such results are compatible with the suggestion that immigrants are drawn to metropolitan areas in response to higher demand for labour and higher incomes. Thus, at the metropolitan-wide level, demand from wealthy seniors rather than immigrants would appear associated with market distortions.

At the lower level (neighborhood) a number of significant effects are also evident, some of which operate counter to metropolitan-level effects. First of all, areas that are growing due to demand from new families, as indicated by the presence of married couples, children under 6, growth in married households, and high concentrations of new housing built



**Fig. 6.** Level of household indebtedness by neighborhood, Vancouver CMA, end of 2009. *Source and notes:* As per Figure 3.

since 2001, reveal higher relative levels of indebtedness. At the same time there is a very strong negative relationship with the local concentration of seniors, and with change in the proportion of seniors at the neighborhood level. These results conform to a mainstream explanation of household debt as a result of life-cycle factors, peaking during early child-bearing and house-buying years and declining in time for retirement. However, the very high average levels of household debt in many newer suburban areas, often far in excess of 300 percent of disposable income in the largest cities, suggests a new dynamic of generational inequality. Efforts on behalf of policy makers to maintain high real estate values in this context thus work to enlarge generational disparities, as seniors are then able to cash out at elevated values while new families have to take on unsustainable debts to become homeowners (see Walks, 2012).

**TABLE 6. MULTI-LEVEL MODEL OF FACTORS INFLUENCING NEIGHBORHOOD-LEVEL HOUSEHOLD INDEBTEDNESS<sup>a</sup>**

	<i>B</i>	Error	<i>t</i> -ratio	<i>p</i> -value
Intercept	62.351	24.107	2.594	0.015
<b>Upper-Level (Metropolitan Area) Variables (A)</b>				
Metro—dwellings rented (%) (control)	0.213	0.468	0.456	0.625
Metro—average dwelling value in 2006 (in \$10k increments)	2.940	0.260	11.360	0.000
Metro—married (% of population 15+) 2006	1.525	0.373	4.088	0.000
Metro—population with low income (%) 2006	2.783	0.764	3.642	0.001
Metro—foreign born (%) 2006	-0.885	0.323	-2.737	0.010
Metro—Chinese (%) 2006	-2.348	0.780	-3.011	0.005
Metro—population growth 2001–2006 (%) (control)	0.750	0.425	1.767	0.086
Metro—change in average household income, 2001–2006 (%) (control)	0.097	0.170	0.571	0.571
Metro—change in seniors as % of the population, 2001–2006 (%)	10.947	2.716	4.030	0.000
Metro—change in the rate of low income (poverty), 2001–2006 (%)	-3.532	1.645	-2.147	0.039
<b>Lower-Level (Neighborhood-Level) Variables (B)</b>				
Dwellings rented (%) 2006	-1.542	0.094	-16.429	0.000
Average dwelling value in 2006 (in \$10k increments)	1.136	0.054	20.893	0.000
Average household income in 2006 (in \$10k increments)	-5.680	0.190	-30.150	0.000
Dwellings in condominium tenure (%) 2006	0.233	0.088	2.644	0.009
Dwellings built before 1946 (%)	0.323	0.027	11.889	0.000
Dwellings built between 2001 and 2006 (%)	1.078	0.032	33.499	0.000
Row- and semi-detached dwellings (%) 2006	0.179	0.030	5.994	0.000
Dwellings in apartment buildings with more than 5 stories (%) 2006	-0.063	0.028	3.363	0.001
Proportion of commuters who drive to work (%) 2006	0.180	0.051	3.566	0.001
University degree (% of population aged 20 or higher) 2006	-0.230	0.047	-4.903	0.000
Employed in managerial occupations (% of labor force) 2006	0.585	0.150	3.900	0.000
Employed in manufacturing occupations (% of labour force) 2006	-0.599	0.137	-4.385	0.000
Employed in artistic, literary, and recreational occupations (%) 2006	0.642	0.191	3.363	0.001
Married (% of population 15 years old and over) 2006	0.477	0.197	2.242	0.016
Seniors (aged 65 or higher, as % of total population), 2006	-2.537	0.162	-15.655	0.000
Households with children under age 6 (%) 2006	0.878	0.217	4.044	0.000
Multi-family households (%), 2006	1.540	0.246	6.267	0.000
Foreign born (%) 2006	0.178	0.068	2.614	0.009
Chinese (%) 2006	-0.323	0.080	-4.029	0.000
Blacks (%) 2006	-0.329	0.121	-2.729	0.007
Aboriginals (%) 2006	-0.742	0.124	-5.960	0.000
Change in average household income, 2001–2006 (%)	-0.221	0.027	-8.123	0.000
Change in average dwelling value, 2001–2006 (%)	0.177	0.019	9.499	0.000
Change in the rate of low income, 2001–2006 (%)	0.182	0.083	2.202	0.028
Change in managerial occupations, 2001–2006 (%)	-0.261	0.131	-1.988	0.045
Change in manufacturing occupations, 2001–2006 (%)	0.441	0.144	3.052	0.003
Change in proportion married, 2001–2006 (%)	0.299	0.081	3.680	0.000
Change in proportion seniors, 2001–2006 (%)	-0.697	0.154	-4.519	0.000
Change in foreign-born, 2001–2006 (%)	-0.321	0.120	-2.685	0.008
Change in visible minorities, 2001–2006 (%)	0.292	0.090	3.251	0.001
<b>Cross-level (effect of A on slope of B)</b>				
CMA—dwellings in condominium tenure (%)	-0.015	0.006	-2.302	0.021
<b>Model parameters</b>				
Reliability coefficient (higher = more reliable)	0.842			
Log likelihood	-0.000217			
Chi-square	547.28			0.000

<sup>a</sup>Dependent variable = household debt as a percent of household disposable income as at the end of 2009. Lower level units of analysis are census tracts (statistically-defined neighborhoods). Upper-level units are the 49 tracted CMAs and CAs. Model represents best fit among a series of alternatives, determined after iterative calibration (with the exception of the inclusion of the three insignificant upper-level control variables).

Source: Calculated by the author from custom data ordered from Environics Analytics and from the Census of Canada, 2001, 2006.

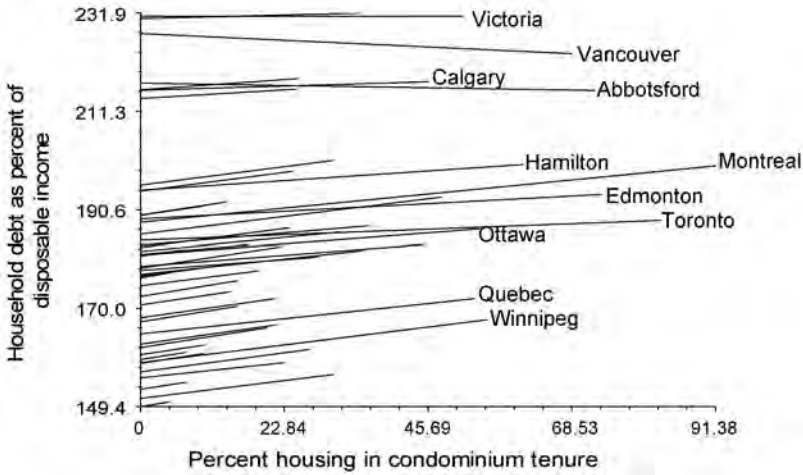
While automobile commuting is not associated with higher debt at the metropolitan scale, there is a clear pattern at the neighborhood scale in the direction of expectations (Dodson and Sipe, 2007, 2008). All else remaining equal, for every 10 percent increase in the proportion who drive to work, there is a rise in the neighborhood average household debt of 1.8 percent (as a proportion of disposable income). This effect is in addition to those pertaining to new families living in the new suburbs. The costs of automobile ownership are thus shown to exacerbate the financial vulnerability of suburban communities, particularly those at the urban fringe where public transit use is minimal.

In addition to those operating at the metro level, there are independent housing market effects evident at the neighborhood scale. Primary among these is the effect of high and rising real estate values. Even after controlling for the large array of socio-demographic variables (and metropolitan-level effects) in the model, every \$10,000 in average local house value leads to a 1.136 percent rise in the neighborhood average household debt-income level. This effect alone increases Vancouver's average neighborhood household debt load by approximately 30 percentage points (of disposable income) over the Canadian average. Similarly, every 10% increase in (real) house prices in the 2001–2006 period is associated with an additional 1.77 percentage points in household debt.

Another trend that emerges from the data involves an association between higher levels of indebtedness and a number of variables associated with gentrification. This includes housing built before 1946 and row/semi-detached houses (both of which are concentrated in the inner cities), and areas with more workers in managerial and artistic occupations, as well as neighborhoods containing condominium units. The effects of the first four of these variables add on average 26 percentage points to the level of household indebtedness in the average gentrified neighborhood (of Canada's three largest cities). Meanwhile, for every 10% increase in condominiums as a proportion of residential units, the level of household debt increases by another 2.3 percentage points (of disposable income). A countervailing effect is that pertaining to those with a university-level education, which has a dampening effect on household indebtedness (-2.3% for every 10% increase in the percent with a university degree), and who are more concentrated in gentrified neighborhoods (particularly those containing older single and semi-detached housing; see Ley, 1996; Meligrana and Skaburskis, 2005; Walks and Maaranen, 2008b). There is little evidence that de-industrialization of the labor force, on its own, has been responsible for rising debt levels at the neighborhood level—areas disproportionately housing industrial workers had lower levels of debt overall, as did areas where manufacturing employment declined. However, the positive coefficient related to change in manufacturing workers potentially points to the growing vulnerability of industrial working-class neighborhoods.

Only one cross-level interaction effect was found to be significant in the HLM model, that related to the presence of condominium units. While the lower-level coefficient shows that debt increases with the neighborhood proportion of housing in condominium tenure, the cross-level effect of condo concentration at the upper level on the lower level is negative, demonstrating that in regions with more condos (which have tighter housing markets), the effects of condominium tenure dissipate. This becomes clearer when the slopes for the condominium variable are graphed separately for each CMA (Fig. 7). The relationship between condominium tenure and high levels of indebtedness is strongest in Montreal and a number of medium-sized metropolitan areas with generally fewer condominiums and less expensive housing markets. Meanwhile, the relationship is positive but weak in





**Fig. 7.** Relationship between the neighborhood concentration of condominium dwellings and household debt. *Source:* Calculated by the author, using data from the Census of Canada, 2001, 2006, and custom data ordered from Environics Analytics. *Notes:* Graphed are the randomized slopes resulting from cross-level interaction effects (controlling for all other independent variables) that are modeled in Table 4.

Toronto, flat in Calgary and Victoria, and negative in Vancouver and Abbotsford—all metropolitan areas with tighter housing markets. These findings suggest a dynamic linked to local housing market conditions, with condos representing relatively more affordable accommodation in regions with tighter housing and job markets, but fulfilling more boutique and speculative functions in other regions. Additional research is required to answer such questions.

The HLM results suggest a complex association between both immigrant and visible minority status and household debt at the neighborhood level. There is a strong effect of multi-family households, largely associated with recent immigrant families, and a weaker but positive effect of immigrant location. For every 10% increase in foreign born across neighborhoods, there is a 1.78% increase in average household debt. Significant effects regarding change in immigrants (–) and visible minorities (+) suggest an important contrast, and point to polarization among immigrants to Canada, and potentially racialized differences in access to, and/or use of, credit within globalizing Canadian cities. Yet, the coefficients for variables pertaining to the two of the largest minority groups (Chinese, blacks), and First Nations, are negative. Urban neighborhoods concentrating these groups, but not other minorities, had significantly lower levels of household debt on average, suggesting a complex interplay of immigration status, race, and debt among Canada’s cities that deserves more detailed future study.

Finally, there is the question of whether the distribution of household debt is spatially regressive or progressive (whether richer or poorer neighborhoods are more affected by high levels of household indebtedness). On this question, the results demonstrate that within and across Canada’s cities the distribution of household debt is on average regressive: even after controlling for other socio-demographic and housing variables, the coefficient relating average household income and household debt is strong and negative.

For every drop in a neighborhood's average household income of \$10,000, total household debt as a share of disposable income rises by 5.68 percent. Neighborhoods whose household income is half the average (and who thus would be considered relatively poor) have debt-to-disposable-income ratios roughly 15–20 percentage points higher than the metropolitan average neighborhood, after controlling for other variables. Meanwhile, neighborhoods with household incomes double their metropolitan averages have levels of household indebtedness that are roughly 30–40 percentage points lower than the average neighborhood in that metropolitan area. Although mortgages are the main drivers of growing household debt in Canada, this research demonstrates that it is poorer neighborhoods that have been the most negatively impacted by unsustainable debt levels, and which remain the most vulnerable to employment, interest-rate, or income changes. Coupled with the metro-level results (Table 4), these findings reveal that household debt is regressively distributed at each scale of analysis.

### CONCLUSION

This article provides a cross-sectional mapping of the geography of household debt in Canada's cities. In doing so, it provides an initial picture of the emerging urban debtscape, reflecting an essential element of the geography of risk and financialization within the neoliberal city. While the geographies of household indebtedness are complex and multifaceted, the empirical research demonstrates that debt-related risk is associated with high and rising real estate values at each scale. Urban growth has thus brought with it significant new vulnerabilities, mainly related to housing costs and large mortgages, and this is particularly evident within Canada's global cities. At the same time, the debt portfolios in smaller and slower-growing cities are generally lower yet more dominated by unsecured forms of consumer debt, which makes households in these places potentially more vulnerable to job loss and/or higher interest rates, and the predatory elements typically associated with such forms of debt.

This multi-scalar analysis provides a window on the structure and forms of the contemporary urban debtscape. There is evidence of traditional life-cycle effects at the lower level, with neighborhoods housing younger families revealing higher debt loads, and areas disproportionately housing seniors showing low debts, as might be expected. However, the generational discrepancies are particularly stark, while the presence of seniors is shown to drive up household debt at the metropolitan scale, highlighting their influence on demand in key housing markets and the higher mortgages that are then required by non-seniors to afford homeownership in such places. This supports the view that the contemporary mortgage finance system works to regressively redistribute both value and risk across generations. A different story is uncovered in relation to immigration and visible minority status, which are associated with lower overall debt levels at the metropolitan scale, and there is no evidence that the concentration of immigrants in the global cities is a factor pushing up debt levels. However, within these cities, it is those immigrant-reception neighborhoods concentrating multi-family households and visible minorities that have higher levels of indebtedness, suggesting that racialized immigrants are disproportionately bearing the risks of global city evolution under financialization. But even here, the story is complex, as neighborhood concentrations of Chinese and blacks are associated with lower levels of household debt. This research suggests relationships between immigration, race, and debt

that vary dramatically among places and racialized groups, and points to a need for more in-depth disaggregated research on this issue.

The urban debtscape is an important feature of the ongoing restructuring of the city, with implications related to automobility, suburbanization, and gentrification. New communities at the urban fringe generally reveal the highest levels of household debt, and the need to commute via automobile is found to exacerbate indebtedness at the local scale. However, recently gentrifying neighborhoods close to the CBDs of many growing cities also reveal very high debt levels, and mortgaged homeowners residing in the inner cities are shown to be the most leveraged. In all but the tightest housing markets, the presence of condominiums is additionally associated with higher debt loads, and this is particularly evident in trendy gentrifying areas. A dual spatial articulation of vulnerability and risk has thus developed in many places, and it is not yet clear if either continued suburbanization or recent intensification might be considered more financially sustainable. Such a scenario sets up the metropolis for new waves of restructuring that could dramatically upset established social geographies. High levels of debt exacerbate neighborhood vulnerabilities to downward filtering and raise the stakes related to the protection and enclosure of property. Of particular concern is the strong regressive spatial distribution of debt in relation to both household income and the concentration of poverty, at each scale. Coupled with the regressive generational effects, the geography of debt as unearthed herein portends a future city begat by deepening socio-spatial polarization, fragmentation, securitization of space, leveraged gentrification, and in many places, suburban decline. Government policies that maintain dominant financial practices are thus socially and spatially regressive, working to shift the burden of risk onto younger and poorer places, and facilitating a regressive restructuring of urban space. The emerging urban debtscape is an important facet of contemporary neoliberal urban processes with important implications for both critical theory and urban policy.

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