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RESEARCH REPORT

EFFICACY OF THE FILTERING
PROCESS IN THE SUPPLY OF
HOUSING TO LOWER-INCOME
CANADIAN HOUSEHOLDS



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**THE EFFICACY OF THE FILTERING PROCESS IN THE SUPPLY OF HOUSING TO
LOWER-INCOME CANADIAN HOUSEHOLDS**

**For
Canada Mortgage and Housing Corporation**

**By
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ABSTRACT

There are at least three ways in which transitions and changes in the housing stock can affect the wellbeing of lower income Canadians.

- 1) The aging of the housing stock may reduce the relative rents and prices of the older dwellings as the previous higher income occupants leave for newer buildings and let the older units filter down to lower income groups.
- 2) The reverse may happen as inner-city neighbourhoods attract higher-income households that displace the lower-income people living in the older buildings and “gentrify” the neighbourhood. The older dwellings may be up-graded in the process through rehabilitation and renovation.
- 3) Housing stock improvements may also be made that do not involve filtering or gentrification with the help of government rehabilitation subsidies that are offered on condition that tenants not be displaced. Stock improvements may be made without either the filtering or gentrification process being invoked.

This study focuses on the first two processes to show the extent to which housing markets may or may not meet the needs of the Canadians who can not pay the economic rents or prices that would justify the construction of new dwellings.

This report examines the rent and price profiles of dwellings built during different points in time. Its main focus is on the differences that can be discerned within Canadian metropolitan areas using the Census 1996 Public Use Micro-data Files. Changes in the profiles since 1971 are also described and their implications developed. The report shows that in the 1960s and 1970s the development of new suburban housing did cause older houses to drop in price and be passed down to lower-income households who could, as a result, improve their housing condition. The 1996 differences in rents across buildings of different ages, however, are small too small to provide any evidence of welfare filtering. The current cross-sectional profiles that were estimated show that it would take decades for rents to decrease by ten to twenty percent, a drop too small over a time period too long, to be of interest to policy makers.

The differences in the owners’ assessment of the price of their dwellings show larger differences across the cohorts and the stock aging process does appear to give more lower-income households access to homeownership. The income and expenditure profiles show that the aging process has helped low-income owners reduce their housing expenditure burdens in many

cities. In Toronto, Montreal, Vancouver and Ottawa the rent and price profiles are flat across four age categories.

The analysis of census tract data for 1981 and 2001 confirm the findings developed by the analysis of the 1981 and 1996 micro-data. The statistical analysis of census tract data for 10 CMAs backed by key informant interviews suggests that 5 percent of the 1981 census tracts in the 10 CMAs that were analysed were gentrifying. A much larger proportion of old neighbourhoods had above average rent and income increases but these changes appear to be brought about by re-development and the replacement of the old stock rather than by the gentrification of the old housing. In either case, this study confirms the results obtained in the micro-data analysis presented in the second report of this study: the filtering process can not be counted on to increase the supply of low-priced housing to households who can not afford to pay the economic rents that would stimulate the supply of new housing.

The most important finding of the study shows the reduction over time in the size of the rent and price differences across the age categories and the reversal of the filtering process. The rents and prices of the oldest dwellings have been increasing since the 1970s relative to the changes in the rents and prices of newer housing in all 13 CMAs identified in the 1981 census. The finding of a reversal in welfare filtering is consistent with expectations developed by considering the factors guiding the restructuring of the inner-cities. Filtering has become a source of housing problems; it can no longer offer hope for their resolution.

EXECUTIVE SUMMARY

There are at least three ways in which transitions and changes in the housing stock can affect the wellbeing of lower income Canadians.

- 1) The aging of the housing stock may reduce the relative rents and prices of the older dwellings as the previous higher income occupants leave for newer buildings and let the older units filter down to lower income groups.
- 2) The reverse may happen as inner-city neighbourhoods attract higher-income households that displace the lower-income people living in the older buildings and “gentrify” the neighbourhood. The older dwellings may be up-graded in the process through rehabilitation and renovation.
- 3) Housing stock improvements may also be made that do not involve filtering or gentrification with the help of government rehabilitation subsidies that are offered on condition that tenants not be displaced. Stock improvements may be made without either the filtering or gentrification process being invoked.

This study focuses on the first two processes to show the extent to which housing markets may or may not meet the needs of the Canadians who can not pay the economic rents or prices that would justify the construction of new dwellings.

Scope

This study considers the prospects for increasing the supply of low-priced housing through the market mechanism encouraged, perhaps, by general subsidies that try to stimulate the filtering process. The study examines the filtering process that brings aging dwellings down the quality hierarchy to become available to lower-income households. It also assesses the extent of filtering or gentrification in Canadian metropolitan areas. The main aim is to determine the process by which reductions in the relative price of older housing due to the aging of the housing stock that let lower-income people to improve their housing condition is referred to as “welfare filtering”. The report also examines the gentrification process. The main objective of this part of the work is to examine how gentrification is influencing and reversing the filtering process. To attain this goal a restrictive definition of gentrification is used that focuses attention on the renovation of older inner-city housing by upper-income households

The introduction presents the definitions and briefly reviews the empirical literature on depreciation rates, filtering and gentrification. Descriptive statistics using the Census Public Use Micro-data Files (PUMF) are followed by a discussion of the models used to standardize the dwellings for which price/age profiles are developed. The 1996 profiles are developed for a

standardized dwelling and the price changes since 1981 are described. Occupant incomes and housing expenditures are briefly examined. The finding of gentrification in all CMAs leads the study into an assessment of factors affecting individual neighbourhoods in 10 CMAs. The 1981 and 2001 merged p-Census tract level statistics are used to identify the gentrification tracts. The gentrification trends are assessed and their determinants are examined through key informant interviews. The last section considers the prospects for a policy for stimulating the filtering process.

The Literature

Filtering

The policy relevant definition of filtering considers the changes in the wellbeing of lower-income households as a result of the aging of the housing stock. For welfare filtering to take place, a number of conditions are required. Households must be mobile and the metropolitan housing market should be integrated. New units have to be added at a rate that exceeds household formation and in-migration. The efficacy of the process of improving the housing conditions of the lowest-income households depends on the mobility of households and their sensitivity to small differences in the relative price of housing at different quality levels. It also depends on the rate at which buildings depreciate in response to reduce maintenance expenditures.

The literature also suggests that efficacy of a government policy that would stimulate filtering is dependant on it bringing about neighbourhood deterioration. The policy would cause private sector owners to lose equity in their dwellings. In Canadian inner-cities, the opposite trend is evident as neighbourhoods are being “revitalized” to make way for higher income residents. A reversal of this trend would, in our opinion, be politically impossible and socially undesirable.

The empirical studies presented in the literature provide no basis for the belief that welfare filtering is taking place in most growing cities. Most of this literature is from the United States and it remains up to this study to examine the prospects of filtering in Canadian cities. The literature does suggest that filtering may have taken place in the post-war era as the middle-class gained access to suburban homeownership. The development of the suburbs in response to policy and institutional; economic, demographic and cultural change may have created the excess supply needed to induce welfare filtering.

Gentrification

Overall the literature on gentrification reveals tension between supply-side and demand side explanations (Lees, 200 p. 390). As a “chaotic concept”, gentrification has come to mean many different, yet related, forms of inner-city, or downtown, revitalization. Some authors (Bourne 1993) present a typology of the various forms of downtown revitalization:

- **Upgrading of elite areas:** this refers to inner-city neighbourhoods that have maintained a high socio-economic status and as a result the dwellings have not filtered down to lower income groups. These areas usually have recorded increases in income and economic status. However these increases do not constitute gentrification since the neighbourhood character has not fundamentally changed nor have lower-income households been displaced.
- **Redevelopment:** the new housing constructed in the inner city – typically in the form of condominiums - and the conversion of other land uses – such as warehouses – to residential units is also sometimes referred to as gentrification. Redevelopment will likely lead to the socio-economic upgrading of key inner city areas – yet this does not lead to the direct displacement of lower-income households. However, redevelopment would likely lead to a change in an inner-city neighborhood’s character with the indirect effect of displacing lower-income households.
- **Renovation of Older Inner-City Housing:** The traditional definitional of gentrification focuses on upper-income households acquiring older dwellings in key inner-city neighbourhoods and displacing the lower-income occupants. The renovation and upgrading of older-inner city dwelling units clearly links the process of gentrification with the notion of “reverse” filtering.

In general, the literature uses a broad or inclusive definition of gentrification to include the socio-economic upgrading of elite inner-city neighbourhoods, the redevelopment or new construction dwellings in the inner-city, and the renovation of older inner-city housing stock (Ley 1988, 1993). Since this report’s main objective is to show how gentrification is influencing, and reversing, the filtering process – a restrictive definition of gentrification was used. This restrictive or narrower definition of gentrification focuses attention on the renovation of older inner-city housing as lower-income households are displaced by middle- and upper-income households. Therefore, a methodology was adopted, as discussed below, that attempted to screen census tracts from ten Canadian CMAs for evidence of gentrification as a result of renovation. However, it is likely that all both redevelopment and renovation may be at work within particular census tracts.

The literature on gentrification suggests that the process is complex and varied. One thesis suggests that gentrification is a part of the changing place of cities within an ever globalizing world. Another view ties gentrification to the actions of key groups of individuals. Their combined effect changes the character and social composition of the neighbourhood.. Gentrification is also discussed in a broader literature that examines the various aspects of neighbourhood renewal and downtown revitalization. The literature presents very little empirical evidence of the actual rate or level of gentrification within specific cities. There is some

evidence of the changing demographic trends between suburban and inner-city growth rates as well as growing understanding of the interconnectedness between suburban and inner-city population trends.

The Differences in Rents and Prices

The review of median rents for dwellings build during different periods of time shows only small differences. The price of owner occupied dwellings is more varied across the CMAs with many showing large decreases for the oldest houses. The slope of the price gradients appears to be flatter in the largest CMAs. The lowest quartile rent for each period of construction tends to increase with the age of the cohort showing that there is no dispersion of rents that would benefit the lower-income households. The low end of the rental sector does not appear to be offering substantially lower rental units as one would expect should welfare filtering be taking place. The study of the changes in the mean rents in each quartile will show the overall trend in the price of housing. The price of owner occupied dwellings that defines the lowest quartile tends to decrease offering lower-income households a greater chance of attaining homeownership.

Households renting in buildings that were 50 years old in 1996 had about the same income, on average, as households living in new buildings. In the ownership sector, however, the households in the older buildings did have lower average incomes than the households in the new dwellings. The older ownership dwellings offer lower-income households a greater chance of becoming homeowners. The larger difference in the average income across the fifty year period in the ownership sector is due, in part, to lower income people being able to move to the lower priced older homes but it is also due to ‘filtering in place’. As the literature points out, filtering can take place as a result of households staying longer in their houses while the price of their dwelling and location increases. The ‘tilt’ in mortgage burdens also helps reduce expenditure burdens as households gain equity while their income increases over time.

The building type distributions vary across the periods of construction. The size of houses has continued to increase over the last 50 years but the statistics presented here show that the average room counts have remained constant across the periods of construction. The state of repair of the buildings as reported by the occupants increases considerably with age of building.

The differences in rents and in the price of the ownership units are partly due to the differences in the characteristics of the stock.

After accounting for the differences in stock characteristics by using regression analysis, no statistical difference could be found in the rents across age categories for most major CMAs. From a policy perspective, the remaining rent differences are thought to be too small to matter. The estimates developed with the combined data for all CMAs yield an “average” difference in rents of 7 to 8 percent for 50-year-old buildings. The price difference in the ownership sector is about twice as large with 50-year-old houses having a 16 percent lower price.

The Differences in Household Income and Expenditures

Differences in the income distribution of households were found across periods of construction for most CMAs. The differences tend to be small and they do not support the welfare filtering hypothesis in the case of renters. For homeowners, the question cannot be fully answered with cross-sectional analysis because data on dwelling size and neighbourhood quality are not available. House prices, in current dollars, are lower in the older dwellings as are the income of the owners and the proportion of income they spend on the housing are also lower. In both tenure groups, the older housing has higher concentrations of households in the lower-income quartile or with incomes below LICO. The cross-sectional profiles of the distribution of households yield no evidence of welfare filtering for renters but do not contradict the welfare filtering hypothesis in the ownership sector. Older houses are more affordable. The next chapter examines changes over time in the rent and price profiles as well as in the relative income of the households living in the older buildings.

Changes over Time

In all CMAs, the average rents in the older buildings increased relative to the rent in the 1980-1981 buildings. While the price of ownership units decreased in constant 2003 dollars in many CMAs between 1981 and 1996, the price of the older stock did not decrease as much. It increased relative to that of the newer, if not the newest, housing in all CMAs identified in the 1981 census. These trends were also evident in comparisons using the 1981-1991 and the 1986-1996 census data. The reversal of the gradients is defined here as upward- or negative-filtering. The older stock in Canada is, on average, getting more, rather than less, expensive over time.

The profile changes are accompanied by parallel movements across the periods of construction in the occupants' income, but the match is not perfect. Renter incomes have increased more since 1981 in the older dwellings than in the newer buildings in most cities including Montreal, Vancouver and Toronto. The price difference across building age is greater in the ownership markets but the income profiles of the households that had moved in the five years before the 1996 census show that higher income people are moving into the older stock. The price movements and, for the most part, the household movements have reversed the filtering process.

Gentrification

This component of the filtering study develops profiles of gentrifying neighbourhoods and identifies the main processes that result in the gentrification of particular inner-city neighbourhoods. This study is based on the analysis of the 1981 and 2001 census from ten CMAs, Halifax, Quebec City, Montreal, Ottawa, Kingston, Toronto, Winnipeg, Regina, Edmonton and Vancouver. The study identified which of the 2,182 census tracts from all ten CMAs were likely candidates for the gentrification process. This analysis was accomplished by a threefold screening of all the tracts based on the following criteria: i) results of the principal component analysis; ii) 1981 average personal income; and iii) proportion of dwelling units built before 1946 as reported in 2001.

The findings reveal that the key attributes of gentrifying neighbourhoods include: proximity to the CBD; higher population and dwelling densities; increasing dwelling densities; more diverse housing stock, particularly a large proportion of "other" dwelling units; higher shares of older housing stock and a better ability to retain older units over time; rapid increase in average rents and personal incomes; larger percentage of single-person households; faster decline in persons per households; a more mobile population; higher share of young adults (25-39); and higher and rapidly increasing proportion of population with a university education.

The main processes that trigger gentrification are found to be the centrality of a census tract to the CBD and "big" employment generators. It is also a process that is driven by an area's proximity to well-established affluent areas that result in "spill-over" of affluent households into adjacent poorer neighbourhoods. Furthermore, the type of neighbourhood including strong

identity, character and diversity of housing types is a lure to young/affluent households seeking an inner-city residence. Gentrification may also be triggered by an area's redevelopment.

The analysis backed by key informant interviews suggests that 5 percent of the 1981 census tracts in the 10 CMAs that were analyzed were gentrifying. A much larger proportion of old neighbourhoods had above average rent and income increases but these changes appear to be brought about by new construction and the replacement of the old stock rather than by the renewal of the old housing. In either case, this study confirms the results obtained in the micro-data analysis presented in the second report of this study: the filtering process cannot be counted on to increase the supply of low-priced housing to households who cannot afford to pay the economic rents that would stimulate the supply of new housing.

Conclusions

This study shows clearly that welfare filtering is not taking place in Canadian CMAs. The changes in rent and price profiles in most CMAs oppose welfare filtering hypothesis. The affordable older stock that was available to lower-income households in the past is either disappearing or increasing in price.

There is no reason to believe that welfare filtering can be induced to ease the expenditure borders of low-income households. Current trends that are being driven by change in the economy, demography and policy are likely to continue to inflate the price of older dwellings. These trends are restructuring inner cities and reducing the supply of the lower priced housing. In growing cities, filtering is a contributor to the housing problems of low-income households; it is not a means for their solution.

RÉSUMÉ

L'évolution ou la transformation du parc de logements peut influencer d'au moins trois manières sur le bien-être des Canadiens à revenu peu élevé.

- 1) Le vieillissement du parc de logements peut entraîner une réduction des loyers relatifs et des prix des logements anciens lorsque les occupants à haut revenu quittent ces logements pour emménager dans des logements de construction plus récente. Les logements anciens sont alors donnés en location à des ménages à revenu moins élevé.
- 2) L'inverse peut également se produire. Ainsi, les quartiers du centre-ville peuvent attirer des ménages bien nantis, qui prennent alors la place de ménages à revenu plus faible vivant dans des immeubles anciens; il y a alors embourgeoisement des quartiers. Les logements anciens sont parfois remis en état ou rénovés.
- 3) Le parc résidentiel peut être amélioré sans qu'il y ait embourgeoisement ou désembourgeoisement grâce à des subventions publiques pour la remise en état des logements, qui sont accordées uniquement dans les cas où les locataires peuvent continuer à occuper leur logement.

L'étude est axée sur les deux premiers phénomènes afin d'illustrer dans quelle mesure les marchés de l'habitation peuvent ou non répondre aux besoins des Canadiens qui ne peuvent pas payer le loyer économique ou le coût de loyer justifiant la construction de nouveaux logements.

Portée

L'étude examine les possibilités d'accroître l'offre de logements de faible prix au moyen des mécanismes du marché avec l'aide, éventuellement, de subventions générales qui tentent de stimuler un processus de désembourgeoisement. Elle s'attarde également au désembourgeoisement, phénomène par lequel le vieillissement des habitations entraîne une dégradation de leur qualité, les rendant ainsi à la portée des ménages à revenu peu élevé. Elle évalue en outre l'ampleur des phénomènes d'embourgeoisement et de désembourgeoisement dans les régions métropolitaines de recensement (RMR) du Canada. L'objet principal est de mesurer le « désembourgeoisement social », processus par lequel les réductions du prix relatif des logements anciens en raison du vieillissement du parc de logements permettent aux ménages

à revenu peu élevé d'améliorer leurs conditions de logement. Le rapport traite également du phénomène de l'embourgeoisement. Dans ce cas, l'objet principal est d'examiner comment l'embourgeoisement peut influencer et même renverser le désembourgeoisement. À cette fin, une définition restreinte de l'embourgeoisement a été utilisée, de manière à mettre l'accent sur la rénovation de logements anciens du centre-ville par des ménages à haut revenu.

Dans l'introduction, on retrouve les définitions et une courte analyse documentaire sur les taux d'amortissement, l'embourgeoisement et le désembourgeoisement. Des statistiques descriptives fondées sur les fichiers de microdonnées à grande diffusion (FMGD) sont suivies d'une discussion des modèles ayant servi à fixer des normes pour les logements servant à établir les profils de prix et d'âge. Les profils de 1996 ont été constitués pour un logement de référence, et l'évolution des prix depuis 1981 est décrite. Le revenu et les dépenses de logement des occupants sont brièvement examinés. Vu la présence d'embourgeoisement dans toutes les RMR, les facteurs ayant une incidence sur les différents quartiers des dix RMR étudiées ont été analysés. Les statistiques fusionnées au niveau du secteur du recensement (données de « p-Census ») pour les années 1981 et 2001 ont permis de découvrir les secteurs « embourgeoisés ». Les tendances qui sont ressorties et leurs déterminants ont été examinés dans le cadre d'entrevues avec des personnes clés. La dernière section évalue la possibilité d'avoir une politique pour stimuler le désembourgeoisement.

La littérature

Le désembourgeoisement

Pour présenter un intérêt sur le plan politique, la notion de désembourgeoisement est définie comme étant la façon dont évolue le bien-être des ménages à revenu peu élevé sous l'effet du vieillissement du parc résidentiel. Le désembourgeoisement social requiert certaines conditions : mobilité des ménages, marché de l'habitation intégré à l'échelle métropolitaine, accroissement du parc résidentiel plus rapide que l'augmentation du nombre de ménages suscitée par la formation de ménages et l'immigration. L'efficacité du processus par lequel s'améliorent les conditions de logement des ménages à faible revenu dépend de la mobilité des ménages et de l'importance qu'ils accordent aux petites différences observées quant au prix relatif des habitations en fonction de la qualité. Elle dépend également du rythme auquel les immeubles se déprécient lorsque les dépenses d'entretien vont en diminuant.

Les ouvrages semblent indiquer que l'efficacité d'une politique gouvernementale visant à stimuler le désembourgeoisement passe par son pouvoir de dégradation des quartiers. La politique aurait alors pour effet de réduire l'avoir propre foncier des propriétaires de logements d'initiative privée. Dans les centres-villes du Canada, on constate la tendance inverse : les quartiers sont revitalisés pour accueillir des ménages à revenu élevé. À notre avis, un renversement de cette tendance serait politiquement impossible et socialement indésirable.

Les études empiriques décrites dans la littérature n'aboutissent à aucune conclusion pouvant justifier la croyance selon laquelle il y aurait désembourgeoisement social dans la plupart des villes en expansion. Comme ces ouvrages viennent principalement des États-Unis, la présente étude a pour but d'examiner les possibilités de désembourgeoisement dans les villes canadiennes. Selon la documentation, des cas de désembourgeoisement seraient apparus dans les années d'après-guerre, à l'époque où la classe moyenne a commencé à pouvoir accéder à la propriété en banlieue. Le développement des périphéries engendré par l'évolution politique, institutionnelle, économique, démographique et culturelle est peut-être à l'origine de l'offre excédentaire qu'il fallait pour provoquer le désembourgeoisement social.

L'embourgeoisement

Dans l'ensemble, les ouvrages sur l'embourgeoisement révèlent un antagonisme entre les explications relatives à l'offre et celles se rapportant à la demande (Lees, 200 p. 390). Le concept

« chaotique » d'embourgeoisement a fini par englober plusieurs formes différentes bien qu'interreliées de revitalisation des quartiers centraux. Certains auteurs (Bourne, 1993) en proposent une typologie :

- **Remise en état de quartiers prestigieux** : On fait ici référence aux quartiers centraux où, parce que la situation socioéconomique est restée bonne, les logements ne sont pas passés aux mains de ménages à revenu peu élevé. Il s'agit en général de secteurs où il y a augmentation du revenu et amélioration de la situation économique. Malgré ces facteurs, on ne peut parler d'embourgeoisement, car les particularités du quartier n'ont pas changé de manière fondamentale, et aucun déplacement géographique de ménages à revenu peu élevé n'a été observé.
- **Réaménagement** : La construction de logements (en copropriété, généralement) dans les quartiers centraux et la conversion d'immeubles autres que résidentiels (comme des entrepôts) en habitations sont des phénomènes parfois qualifiés d'« embourgeoisement ». Les efforts de réaménagement entraîneront probablement une bonification de la situation socioéconomique dans les quartiers centraux qui présentent un intérêt, sans toutefois provoquer directement le déplacement de ménages à revenu peu élevé. Cependant, ces efforts transformeraient sans doute le caractère du quartier, ce qui causerait indirectement le déplacement de ces ménages.
- **Rénovation des logements anciens dans les quartiers centraux** : Selon sa définition traditionnelle, l'embourgeoisement est le processus par lequel des ménages à revenu élevé font l'acquisition de vieux logements situés dans des quartiers clés du centre-ville et prennent ainsi la place des occupants à revenu peu élevé. La rénovation et la remise en état de ces habitations permettent d'établir un lien clair entre le processus d'embourgeoisement et la notion de désembourgeoisement « inverse ».

En général, les ouvrages traitent de l'embourgeoisement dans un sens large et inclusif qui comprend l'amélioration socioéconomique de quartiers centraux prestigieux, le réaménagement ou la construction d'immeubles résidentiels au centre-ville et la rénovation de logements anciens dans les quartiers centraux (Ley, 1988, 1993). Étant donné que le présent rapport vise principalement à montrer comment l'embourgeoisement peut influencer et même renverser le processus de désembourgeoisement, une définition plus restrictive est employée. Elle fait porter l'attention sur la rénovation de vieilles habitations situées au centre-ville, rénovation qui se fait à mesure que les ménages à revenu moyen et élevé prennent la place des ménages à revenu peu élevé. On a donc adopté une méthode, décrite ci-après, qui consistait à passer au crible les secteurs de recensement de dix régions métropolitaines de recensement (RMR) canadiennes afin de trouver des signes d'embourgeoisement causé par la rénovation. Il est toutefois probable que des efforts de réaménagement soient également à l'œuvre dans certains secteurs de recensement.

Les écrits portant sur l'embourgeoisement laissent entendre que le processus est complexe et divers. Selon une des hypothèses, l'embourgeoisement ferait partie de l'évolution de la place qu'occupent les villes dans un univers en constante mondialisation. Selon une autre, l'embourgeoisement serait lié à des gestes posés par certains groupes de personnes. Leur effet conjugué modifie les particularités et la composition sociale d'un quartier. Il est également question d'embourgeoisement dans des ouvrages plus généraux s'intéressant à divers aspects de la rénovation des quartiers et de la revitalisation des centres-villes. La littérature fournit très peu d'informations empiriques récentes sur le rythme ou le degré d'embourgeoisement de villes précises. En revanche, certaines indications confirment l'évolution des tendances démographiques dans les banlieues et dans les quartiers centraux et dénotent une compréhension plus profonde de la corrélation entre ces tendances.

Les écarts observés au chapitre des loyers et des prix

L'examen des loyers médians selon l'année de construction ne révèle que de faibles écarts. Les prix des habitations occupées par leurs propriétaires diffèrent davantage d'une RMR à l'autre, où des baisses notables sont souvent observées dans le cas des maisons anciennes. Les variations semblent moins prononcées dans les grandes RMR. Les loyers du quartile inférieur pour chaque période de construction tendent à augmenter avec l'âge du bâtiment, ce qui prouve qu'il n'existe aucune dispersion des loyers qui favoriserait les ménages à revenu peu élevé. Le segment bas de gamme du marché locatif n'offre vraisemblablement pas de logements aussi abordables qu'on pourrait s'y attendre, dans l'éventualité où il y aurait désembourgeoisement social. L'étude des variations que subissent les loyers moyens dans chaque quartile montre la tendance générale des prix des habitations. Le prix qui définit le quartile inférieur dans le cas des logements occupés par le propriétaire suit une pente descendante, ce qui donne aux ménages à revenu peu élevé plus de chances d'accéder à la propriété.

Les ménages locataires vivant dans des immeubles dont la construction remontait à 50 ans en 1996 disposaient d'un revenu à peu près semblable, en moyenne, à celui des ménages habitant des immeubles neufs. Toutefois, les ménages propriétaires de logements anciens avaient un revenu moyen inférieur à celui des propriétaires d'habitations neuves. Les vieux logements pour propriétaire-occupant permettent davantage aux ménages à revenu peu élevé d'accéder à la propriété. L'écart enregistré dans le cas des propriétaires tient en partie au fait que les ménages à

revenu peu élevé peuvent s'offrir un logement ancien de prix inférieur, mais il s'explique aussi par ce qu'on appelle le « désemploieusement sur place ». Comme l'indiquent les ouvrages, il peut y avoir désemploieusement lorsque les ménages qui occupent longtemps leur maison voient la valeur de cette dernière et de son emplacement augmenter. En outre, le basculement du fardeau hypothécaire peut contribuer à réduire le poids des dépenses à mesure que les ménages acquièrent de l'avoir propre et que leur revenu s'accroît.

La répartition des types de bâtiment varie selon la période de construction. La taille des maisons qui se bâtissent a continué d'augmenter au cours des 50 dernières années, mais les statistiques montrent que le nombre moyen de pièces est demeuré constant. La nécessité d'effectuer des travaux de réparation, de l'avis des occupants, s'accroît considérablement avec l'âge de l'immeuble. Les écarts observés quant aux loyers et aux prix des logements pour propriétaire-occupant s'expliquent en partie par la diversité des caractéristiques du parc résidentiel.

Dans la plupart des grandes RMR, aucun écart statistique entre les loyers n'a été relevé selon l'âge de l'immeuble après correction, par analyse de régression, des données en fonction des différences de caractéristiques. Du point de vue politique, les seuls écarts constatés sont jugés trop faibles pour compter. Les estimations produites au moyen des données agrégées de toutes les RMR aboutissent à un écart « moyen » de 7 à 8 % pour les immeubles datant de 50 ans. En ce qui concerne les prix des logements pour propriétaire-occupant, la différence est environ deux fois plus importante dans le cas des maisons âgées de 50 ans (-16 %).

Les différences observées quant au revenu et aux dépenses des ménages

Des différences dans la répartition des revenus selon la période de construction ont été constatées dans la plupart des RMR. Étant généralement minimales, elles ne soutiennent pas l'hypothèse du désemploieusement social dans le cas des locataires. Pour ce qui concerne les propriétaires d'habitation, l'analyse en coupe transversale ne permet pas de tirer de conclusions fermes, parce qu'aucune donnée sur la taille des logements ou la qualité des quartiers n'est disponible. Du côté des habitations anciennes, les prix en dollars courants sont plus bas, tout comme le revenu des propriétaires et le pourcentage du revenu qu'ils consacrent au logement. Quel que soit le mode d'occupation, les ménages dont le revenu se situe dans le premier quartile ou sous le seuil de faible revenu sont proportionnellement plus nombreux à occuper des

habitations anciennes. Les coupes transversales de la répartition des ménages n'offrent aucune preuve de désembourgeoisement social chez les locataires, mais elles ne réfutent pas l'hypothèse d'un tel phénomène parmi les propriétaires. Les maisons anciennes sont plus abordables. Le chapitre suivant examine les variations temporelles enregistrées relativement aux profils de prix et de loyers ainsi qu'au revenu relatif des ménages vivant dans des immeubles âgés.

Les variations dans le temps

Dans toutes les RMR, les loyers moyens demandés dans les immeubles anciens ont augmenté en regard de ceux pratiqués dans les bâtiments résidentiels construits en 1980-1981. Alors qu'en dollars constants de 2003, le prix des habitations pour propriétaire-occupant a diminué dans bon nombre de RMR entre 1981 et 1996, le prix des logements anciens a connu une baisse moins marquée. Il a progressé par rapport à celui des habitations de construction récente dans toutes les RMR identifiées comme telles lors du recensement de 1981. Ces tendances ont également ressorti dans les comparaisons effectuées à l'aide des données des recensements de 1981-1991 et de 1986-1996. Le renversement du gradient se définit ici comme du désembourgeoisement « à la hausse » ou « négatif ». En moyenne, les logements anciens au Canada deviennent plus chers au fil du temps.

Les changements de profils s'accompagnent de mouvements parallèles du revenu des occupants selon la période de construction, mais le parallélisme n'est pas parfait. Depuis 1981, les locataires habitant des immeubles anciens ont vu leur revenu progresser plus fortement que les locataires qui occupent des bâtiments plus récents, un fait observé dans la plupart des villes, y compris Montréal, Vancouver et Toronto. Les écarts de prix selon l'âge de l'immeuble sont plus importants sur le marché des logements pour propriétaire-occupant, mais les données sur le revenu des ménages ayant changé de domicile dans les cinq années précédant le recensement de 1996 montrent que des ménages à revenu élevé emménagent dans des logements anciens. Le processus de désembourgeoisement a été renversé par l'évolution des prix et, surtout, par les déplacements des ménages.

L'embourgeoisement

Ce volet de l'étude sur le désembourgeoisement permet de dresser le portrait des quartiers qui s'embourgeoisent et de définir les principaux processus qui engendrent l'embourgeoisement

dans certains quartiers centraux. L'étude est fondée sur une analyse des résultats des recensements de 1981 et de 2001 pour ce qui concerne dix RMR : Halifax, Québec, Montréal, Ottawa, Kingston, Toronto, Winnipeg, Regina, Edmonton et Vancouver. On a examiné les 2 182 secteurs de recensement de ces RMR pour déterminer lesquels étaient plus susceptibles de s'embourgeoiser. Tous les secteurs ont été passés au crible trois fois, soit à l'aide des critères suivants : i) résultats de l'analyse des composantes principales; ii) revenu moyen des particuliers en 1981; iii) proportion de logements construits avant 1946, d'après les données de 2001.

Les conclusions font ressortir les principaux attributs des quartiers qui s'embourgeoisent : proximité du centre-ville; densité démographique et résidentielle plus forte; densité résidentielle croissante; parc résidentiel plus diversifié, et, en particulier, grande proportion de logements « autres »; pourcentage plus élevé d'habitations anciennes et capacité accrue de conserver les vieux logements au fil du temps; hausse rapide des loyers moyens et du revenu personnel; taux plus élevé de ménages comptant une personne; baisse plus marquée du nombre de personnes par ménage; population plus mobile; proportion plus considérable de jeunes adultes (25-39 ans); pourcentage de diplômés universitaires plus élevé et en forte croissance.

Le principal élément déclencheur de l'embourgeoisement se trouve être la proximité du centre-ville et des gros employeurs. On note aussi la contiguïté de quartiers riches et bien établis ayant connu un débordement de leur population dans les quartiers adjacents plus pauvres. En outre, certaines caractéristiques d'un quartier (forte identité, caractère et diversité des types de logement) exercent un attrait sur les ménages nantis ou jeunes qui souhaitent habiter dans un quartier central. L'embourgeoisement peut également être déclenché par le réaménagement d'un secteur.

L'analyse, étayée par des entretiens réalisés avec des répondants clés, semble indiquer que 5 % des secteurs de recensement (ceux de 1981) dans les dix RMR examinées étaient en train de s'embourgeoiser. Une proportion beaucoup plus importante de vieux quartiers affichaient des hausses de revenu et de loyer qui étaient supérieures à la moyenne, mais cela semble avoir été causé par la construction résidentielle et le remplacement d'habitations anciennes, par opposition à leur remise à neuf. Dans un cas comme dans l'autre, l'étude confirme les résultats de l'analyse des microdonnées figurant dans le deuxième rapport : on ne peut compter sur le processus de désembourgeoisement pour accroître l'offre de logements à prix

modique pour les ménages n'ayant pas les moyens de payer les loyers du marché qui permettraient de stimuler l'offre d'habitations neuves.

Conclusions

Cette étude montre clairement l'absence de désembourgeoisement social dans les RMR du Canada. La façon dont évoluent les profils de loyers et de prix dans la plupart des RMR réfute l'hypothèse du désembourgeoisement social. Les logements anciens de prix abordable qui étaient à la portée des ménages à revenu peu élevé par le passé sont en train de disparaître ou d'augmenter de prix.

Rien ne permet de croire que le désembourgeoisement social peut servir à abaisser le plafond de dépenses des ménages à faible revenu. Les tendances actuelles ayant pour moteur l'évolution économique, démographique et politique continueront probablement de faire monter le prix des logements anciens. En ce moment, elles restructurent les quartiers centraux et réduisent l'offre d'habitations bon marché. Dans les villes en expansion, le désembourgeoisement ne permet pas de régler les problèmes de logement des ménages à faible revenu; au contraire, il y contribue.



FILTERING IN HOUSING

INTRODUCTION

There are at least three ways changes in housing stock can affect the well-being of lower-income households. First, aging of housing stock may reduce relative rents and prices of older dwellings as previous higher-income occupants leave for newer buildings and pass the older dwellings to lower-income households. Second is the reverse: inner-city neighbourhoods attract higher-income households that gentrify neighbourhoods and displace lower-income occupants. Third, government financial assistance to lower-income households for repairs needed for continued safe occupancy of their houses can improve housing stock.

This study focuses on the first two processes. It examines the extent to which aging of housing stock has occurred to improve the well-being of lower-income households in Canadian census metropolitan areas (CMAs). It also examines gentrification in neighbourhoods in selected CMAs.

LITERATURE REVIEW

Filtering is the movement of housing stock from higher-income to lower-income households as it deteriorates and becomes less expensive. The reduction in relative prices of older housing due to aging can improve housing conditions of lower-income households. The literature often refers to this as “welfare filtering.”

There are several conditions required for welfare filtering to occur: The metropolitan area has to function as an integrated market. Households must be mobile, and be able to change neighbourhoods and make substitutions between housing and neighbourhood attributes. New units have to be added at a rate that exceeds household formation and in-migration; disequilibrium has to be created as a result of an oversupply. It also depends on the rate at which buildings depreciate in response to reduced maintenance expenditures.

The literature suggests that a government policy to stimulate filtering would cause neighbourhoods to deteriorate and would also cause private-sector owners to lose equity in their dwellings. However, the observed trend in Canadian inner cities is that neighbourhoods are being “revitalized” to make way for higher-income residents.

Empirical studies provide little evidence that welfare filtering is taking place in most growing cities in the U.S. It does, however, suggest that there may have been filtering in the immediate postwar era as the middle-class gained access to suburban homeownership. The development of suburbs in response to policy, institutional, economic, demographic and cultural changes may have created the excess supply needed to induce welfare filtering of inner-city housing. The literature review does not find empirical evidence of filtering in Canadian cities and this study is intended to address this gap.

The literature suggests that the process of gentrification is complex and varied. One thesis suggests that gentrification is the result of globalization. Another view ties gentrification to actions of key groups of individuals. Their combined effect changes the character and social composition of neighbourhoods. Gentrification is also discussed in broader literature that examines various aspects of neighbourhood renewal and downtown revitalization. The literature presents very little empirical evidence of the actual rate or level of gentrification within specific cities. There is some evidence of changing demographic trends as well as growing understanding of the interconnectedness between suburban and inner-city population growth rates.

FILTERING—CANADIAN EMPIRICAL EVIDENCE

This section presents empirical evidence of filtering in rental and owner-occupied housing in Canadian CMAs. It uses the Census *Public-Use Microdata File* (PUMF) to examine changes in rent, house price, income and housing expenditures of households in dwellings built during five different construction periods: before 1945; 1946 to 1960; 1961 to 1970; 1971 to 1985 and 1986 to 1996, with 1996 as the baseline year. The objective is to assess the extent to which aging induces filtering of dwellings to lower-income households to ease their housing expenditure burdens. The main indicator is the change in price and rent for dwellings with the same number of rooms. Another indication of filtering is changes in the distribution of household income by age of buildings. Welfare filtering occurs when prices of dwellings decrease the most in the oldest stock and when lower-income households move into older dwellings and reduce the percentage of their incomes spent on housing.

Summary statistics:

Dwelling and household characteristics

Statistical analysis of median rents shows only small declines for dwellings built during progressively older periods. In Toronto, Montréal, Vancouver, Ottawa-Hull, Hamilton and Oshawa, for example, median rents drop by only 7 to 9 per cent for dwellings that were 10 to 25 years old in 1996. In dwellings 50 years old or older, median rents decrease 12 per cent in Montréal and Ottawa-Hull and as much as 25 per cent in Calgary, Winnipeg, London, Trois-Rivières and Sherbrooke.

The median prices of owner-occupied dwellings vary more, with many showing decreases of 30 to 50 per cent in the oldest houses (for example, Winnipeg, Regina, Saskatoon, Windsor, St. Catharines and Kitchener). However, house prices do not drop as fast in larger cities such as Montréal, Toronto, Ottawa-Hull and Vancouver.

The analysis finds that rents for dwellings at the lowest end of the housing stock tend to increase with the age of the building. This suggests that lower-income households do not benefit from low-priced rental units. As for the ownership sector, it offers lower-income households a greater chance of becoming homeowners, because prices tend to decrease for houses in the bottom end of the stock.

Households renting in buildings that were 50 years old in 1996, on average, have about the same incomes as those living in newer buildings. In the ownership sector, however, households in older buildings have average incomes 21 per cent lower than households in newer dwellings. Again, older-ownership dwellings offer lower-income households a greater chance of becoming homeowners. The larger difference in average income across the 50-year period in the ownership sector is due, in part, to lower-income people being able to move to lower-priced older houses. It is also due to “filtering in place”; that is, filtering that can take place as a result of households staying longer in their houses while prices of their dwellings and locations increase. The “mortgage tilt” or decline in nominal payments-to-income ratios associated with

the equal-payment mortgage also helps to reduce expenditure burdens as households gain equity while their incomes increase over time.

Building-type distributions vary with periods of construction. While the size of houses has increased, average room counts have remained constant over the last 50 years. The need for repair is substantially higher in older buildings. Differences in rents and prices of ownership dwellings are partly due to differences in stock characteristics.

Regression results

The “Ordinary Least Squares” (OLS) regression analysis controls for dwelling and household characteristic differences. The analysis finds no significant differences in rents across construction periods in Ottawa-Hull, Toronto, Hamilton, St. Catharines and Niagara, London and Victoria. Rents increase slightly for older buildings in Oshawa, Windsor and Vancouver. As for Winnipeg, Calgary, Sudbury and Trois-Rivières, rents drop by more than 15 per cent in buildings that are more than 50 years old. For all CMAs, rents decrease by only 7 per cent in 50-year-old buildings.

Consistent with the summary statistics, the regression analysis also shows great variability in house prices across CMAs. The price for the oldest houses in Regina and Saskatoon is 50 per cent lower than the price of the newest houses. For houses over 50 years old, St. Catharines, Kitchener and Edmonton show a 30 per cent decline in prices, followed by 11.3 per cent in Toronto and 10.1 per cent in Ottawa. As for Montréal, Vancouver and Halifax, new and old house prices show no difference. Across all CMAs, the average price for 50-year-old houses is 16 per cent lower.

The analysis finds that there are more households below the low-income cut-off (LICO) living in older dwellings. However, in the rental sector, households tend to spend a larger percentage of their incomes on rent by living in older buildings. This suggests that there is no welfare filtering, because older dwellings do not ease the housing-expenditure burden for lower-income households. For homeowners, the opposite is true. Households in older dwellings spend a smaller percentage of income on housing, which means that the aging process is making more ownership options available to lower-income households.

The analysis also examines changes over time in rents and prices as well as the relative incomes of households living in older dwellings. It considers only buildings built before 1981 and uses rents and prices for buildings built in 1980–81 as the standard. In all CMAs, average rents in dwellings built before 1980 increase relative to rents for 1980–1981 buildings. The price of ownership housing decreases in many CMAs between 1981 and 1996, but the price of older stock does not decrease as much. In fact, it increases relative to that of newer, if not the newest housing, in all CMAs identified in the 1981 census. Comparisons using 1981–1991 and 1986–1996 census data also show these trends. This reversal of rent and price changes is “upward-filtering” or “negative-filtering.” In other words, older stock in Canada is, on average, getting more, rather than less, expensive over time.

Since 1981, in cities including Montréal, Vancouver and Toronto, average renter-households income in older dwellings has increased at a faster rate than changes in the average income of households in newer buildings. Higher-income households have also been moving into older ownership stock since 1991 in these cities. Increases in rents, prices and household incomes in older stock suggest a reversed filtering process is occurring in Canadian CMAs.

GENTRIFICATION

This section develops profiles of gentrified neighbourhoods and identifies the main factors that contribute to gentrification in specific neighbourhoods. The profiles are based on an analysis of 1981 and 2001 census data and examine variables such as rent, income and age of dwellings to determine census tracts that are gentrifying in Halifax, Québec City, Montréal, Ottawa, Kingston, Toronto, Winnipeg, Regina, Edmonton and Vancouver.

The key attributes of gentrifying neighbourhoods are:

- Proximity to the central business district (CBD);
- Higher population and dwelling densities;
- Increasing dwelling densities;
- More diverse housing stock, particularly a large proportion of “other” dwelling units;
- Higher shares of older housing stock and a better ability to retain older units over time;
- Rapid increase in average rents and personal incomes;
- Larger percentage of single-person households;
- Faster decline in persons per households;
- More mobile population;
- Higher share of young adults (25-39 years); and,
- Higher and rapidly increasing proportion of population with a university education.

Factors that contribute to gentrification include, first and foremost, centrality. In all CMAs studied, gentrifying tracts are, on average, closer to the CBD than any other tracts. This trend indicates preferences by gentrifying households for amenities such as employment, shopping and entertainment. Another key factor is proximity to big employment generators; Edmonton’s Royal Alex Hospital and Vancouver General Hospital, for example, have stimulated gentrification in their surrounding neighbourhoods. Gentrification may also be the result of spillover of upper-income households from adjacent, more affluent neighbourhoods (for example, Ottawa’s Rockcliffe Park; Montréal’s Mont Royal and Kingston’s Sydenham Ward); redevelopment of inner-city neighbourhoods

(such as Ottawa’s Le Breton Flats and Vancouver’s False Creek); and/or, strong identity, character and diverse housing types (as is the case in Edmonton’s Strathcona, Ottawa’s Preston Street, and Winnipeg’s Wolseley).

Interviews with local housing experts suggest that about 5 per cent of 2,182 census tracts in the 10 CMAs studied have been gentrified since 1981. Their increases in rents and incomes are mainly due to redevelopment and replacement, rather than renewal of old neighbourhoods. The fact that there is gentrification in Canadian cities suggests that filtering cannot be relied upon as the only mechanism to increase housing supply for lower-income households.

CONCLUSIONS

This study indicates no welfare filtering in Canadian rental markets. While some CMAs have rents lowered by 10 to 15 per cent in their 50-year-old buildings, the difference is too small over a too long a period to be of interest to policy makers. The fact that households spend a larger percentage of their incomes on rents in older buildings is another indication that the aging process is not making rental stock more affordable to lower-income households.

As for the homeownership sector, the study shows steeper price differences across buildings of different ages: 50-year-old houses may be 30 per cent lower in price than new houses in some CMAs, but differences are much smaller in large cities with high housing prices. Nevertheless, welfare filtering is evident as households in older houses spend a smaller percentage of their incomes on housing. Aging makes more ownership options available to lower-income households in small CMAs but would take much more time to occur in large cities.

There is no reason to believe that welfare filtering can be relied on to ease the expenditure burdens of lower-income households, even with policies to encourage an oversupply of housing that can charge economic rents and prices. Current trends, driven by changes in the economy, demographics and policy are likely to continue to inflate the prices of older dwellings. These trends are restructuring inner cities and reducing the supply of lower-priced housing. Especially in growing cities, filtering is likely not a solution to the affordability problems of low-income households.

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Research Report: *The Efficacy of the Filtering Process in the Supply of Housing to Lower-Income Canadian Households*

Research Consultants: Professors Andrejs Skaburskis and John Meligrana, School of Urban and Regional Planning, Queen's University, Kingston, Ont.

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DÉSEMBOURGEOISEMENT DU SECTEUR DU LOGEMENT

INTRODUCTION

L'évolution du parc de logements peut agir sur le bien-être des ménages à faible revenu de trois façons. D'abord, le vieillissement du parc résidentiel peut entraîner une diminution des loyers relatifs et de la valeur des anciens bâtiments, lorsque les résidents à revenu élevé quittent progressivement le secteur pour emménager dans des habitations de construction plus récente, laissant les vieux logis aux familles à revenu modeste. Deuxièmement, il se peut que la situation inverse se produise, c'est-à-dire que les ménages nantis, attirés vers le centre-ville, embourgeoisent les noyaux centraux des villes, déplaçant ainsi les occupants à faible revenu. Troisièmement, l'aide publique accordée aux familles moins fortunées afin de rendre leurs logements salubres peut améliorer le parc résidentiel.

La présente étude porte essentiellement sur les deux premiers processus. Elle examine, d'une part, la mesure dans laquelle le vieillissement du parc de logements a permis d'améliorer le bien-être des ménages à faible revenu dans les régions métropolitaines de recensement (RMR) canadiennes. D'autre part, elle analyse l'embourgeoisement des quartiers dans certaines RMR.

ANALYSE DOCUMENTAIRE

Le *désempourgeoisement* représente le processus par lequel un parc de logement est délaissé par ses résidents bien nantis, puis occupé par des ménages à faible revenu, à mesure qu'il se dégrade et se déprécie. La diminution des prix relatifs des anciennes habitations par suite du vieillissement peut améliorer les conditions de logement des ménages à faible revenu. Dans les documents sur le sujet, on emploie souvent le terme « *désempourgeoisement social* » pour désigner ce processus.

Plusieurs conditions doivent être réunies pour le *désempourgeoisement social*. D'abord, la région métropolitaine doit fonctionner en tant que marché intégré. Par ailleurs, les ménages doivent être mobiles et avoir la capacité de changer de secteurs et de substituer diverses caractéristiques à d'autres sur le plan du logement et du quartier.

De plus, des logements neufs doivent être ajoutés au parc résidentiel à un rythme supérieur à ceux de la création de ménages et de l'immigration; un déséquilibre doit aussi exister en conséquence de l'offre excédentaire. Le rythme de dépréciation des bâtiments en raison de la diminution des dépenses d'entretien y joue également un rôle déterminant.

La documentation permet de croire qu'une politique gouvernementale visant à favoriser le *désempourgeoisement* entraînerait une dégradation des quartiers et, par conséquent, une diminution de l'avoir propre foncier des propriétaires du secteur privé. Toutefois, selon la tendance constatée dans les noyaux centraux des villes canadiennes, les quartiers sont en voie d'être « *revitalisés* » pour faire place aux résidents à revenu plus élevé.

Les études empiriques fournissent peu de preuves que le *désempourgeoisement social* existe dans la plupart des villes en expansion aux États-Unis. Toutefois, elles sous-entendent que ce phénomène pourrait s'être produit dans l'immédiat après-guerre, époque où la classe moyenne a accédé à la propriété dans les secteurs périphériques. L'expansion des banlieues par suite des changements apportés dans les domaines politique, institutionnel, économique, démographique et culturel pourraient avoir créé l'offre excédentaire nécessaire pour provoquer le *désempourgeoisement social* dans les noyaux centraux urbains. Lors de l'analyse documentaire, on n'a trouvé aucune preuve empirique de *désempourgeoisement* dans les villes canadiennes. La présente étude vise à combler cet écart.

La documentation semble indiquer que l'embourgeoisement constitue un processus complexe et varié. Selon l'une des thèses avancées, ce processus résulterait de la mondialisation. D'après un autre point de vue, l'embourgeoisement serait lié aux interventions de groupes influents. Leurs effets combinés modifient le caractère et la composition sociale des quartiers. La documentation de portée plus générale aborde aussi le concept de l'embourgeoisement en examinant divers aspects de

la revitalisation des quartiers et des noyaux urbains. Peu de preuves empiriques y sont toutefois fournies quant au taux réel et au niveau d'embourgeoisement dans des villes précises. Certains chiffres attestent d'une évolution des tendances démographiques, ainsi que d'une compréhension grandissante de l'interdépendance entre le taux de croissance démographique en banlieue et le rythme d'augmentation de la population dans un noyau urbain.

DÉSEMBOURGEOISEMENT — DONNÉES EMPIRIQUES SUR LA SITUATION CANADIENNE

Cette section présente des données empiriques sur le désembourgeoisement du parc locatif et du secteur des habitations pour propriétaires-occupants dans les RMR canadiennes. À cette fin, on utilise le fichier de microdonnées à grande diffusion (FMGD) du Recensement afin d'examiner l'évolution des loyers, des prix de l'immobilier, des revenus et des dépenses des ménages en matière de logement, dans les parcs résidentiels construits au cours de cinq périodes : avant 1945; de 1946 à 1960; de 1961 à 1970; de 1971 à 1985 et de 1986 à 1996. L'année 1996 sert de point de référence. L'objet est d'évaluer la mesure dans laquelle le vieillissement du parc favorise le transfert des habitations aux ménages à faible revenu et allège ainsi leur fardeau de dépenses en matière de logement. Le principal indicateur : l'évolution des prix et des loyers des logements possédant le même nombre de pièces. Un autre indicateur de désembourgeoisement est l'évolution de la répartition des revenus de ménages selon l'âge des bâtiments. Le désembourgeoisement social survient lorsque le parc résidentiel le plus ancien subi la baisse maximale des prix et les ménages moins fortunés emménagent dans les vieilles habitations de sorte à réduire la proportion de leur revenu consacrée au logement.

Résumé des statistiques :

Caractéristiques des habitations et des ménages

D'après l'analyse statistique, les loyers médians ne reculent que de très peu à mesure que progresse l'âge du bâtiment. À Toronto, Montréal, Vancouver, Ottawa-Hull, Hamilton et Oshawa, à titre d'exemple, les loyers médians n'ont régressé que de 7 à 9 % dans les ensembles âgés entre 10 et 25 ans, en 1996. Dans les immeubles de 50 ans et plus, ils ont baissé de 12 % à Montréal et à Ottawa-Gatineau, et jusqu'à 25 % à Calgary, Winnipeg, London, Trois-Rivières et Sherbrooke.

Les prix médians des habitations de type propriétaire-occupant variaient davantage. Dans nombre de cas, les baisses atteignaient de 30 à 50 % dans le parc le plus ancien, notamment à Winnipeg, Regina, Saskatoon, Windsor, St. Catharines et Kitchener. Toutefois, le rythme de dépréciation des habitations est moindre dans les grandes villes, comme Montréal, Toronto, Ottawa-Gatineau et Vancouver.

Selon les résultats de l'analyse, les loyers dans le segment le plus bas de gamme augmentent généralement avec l'âge de l'ensemble, ce qui donne à penser que les ménages à faible revenu ne bénéficient pas des logements locatifs à prix modeste. Dans le secteur des habitations

pour propriétaires-occupants, les ménages à faible revenu ont davantage d'occasions d'accéder à la propriété, puisque les prix diminuent habituellement dans le segment bas de gamme.

Les ménages locataires habitant dans des immeubles âgés de 50 ans en 1996 disposaient, en moyenne, de revenus comparables à ceux qui vivaient dans des ensembles de construction plus récente. Dans le secteur des habitations de type propriétaire-occupant, les ménages résidant dans des logements anciens gagnaient toutefois, en moyenne, 21 % de moins que les familles vivant dans des maisons bâties plus récemment. Une fois de plus, les habitations plus anciennes dans ce secteur offrent davantage de possibilités aux familles à faible revenu de devenir propriétaire. L'écart plus grand entre les revenus moyens, sur la période de 50 ans, dans le secteur des habitations pour propriétaires-occupants s'explique, en partie, par le fait que les personnes moins fortunées peuvent emménager dans des maisons anciennes, plus économiques. Le facteur de « désembourgeoisement sur place » y joue aussi un rôle – il s'agit d'un phénomène pouvant résulter du fait que les ménages occupent leurs résidences plus longtemps, alors que la valeur de leur propriété s'accroît. L'« effet de déséquilibre hypothécaire », ou la régression du rapport paiement hypothécaire nominal-revenu, associé aux prêts hypothécaires à paiements égaux, contribue aussi à alléger le fardeau des dépenses attribuables au logement, à mesure que l'avoir propre et le revenu des ménages augmentent avec le temps.

La répartition des catégories d'immeubles varie selon la période de construction. Si les habitations ont gagné en taille au cours des cinquante dernières années, le nombre moyen de pièces, lui, est resté stable. Les besoins d'entretien sont considérablement plus importants dans les anciens bâtiments. Les écarts observés dans les loyers et les prix des habitations pour propriétaire-occupant s'expliquent en partie par les différentes caractéristiques qui se trouvent dans le parc.

Résultats de la régression

L'analyse de régression par la « méthode des moindres carrés ordinaires » neutralise les effets des différences qui existent dans les caractéristiques des habitations et des ménages. L'analyse révèle qu'il n'y a pas de différences notables dans les loyers en fonction de la période de construction à Ottawa-Gatineau, Toronto, Hamilton, St. Catharines et Niagara, London et Victoria. Les loyers augmentent légèrement dans le parc ancien à Oshawa, Windsor et Vancouver. En revanche, ils reculent de plus de 15 % dans les ensembles âgés de plus de 50 ans, dans les agglomérations de Winnipeg, Calgary, Sudbury et Trois-Rivières. Toutes RMR confondues, les loyers n'ont fléchi que de 7 % dans les ensembles âgés de 50 ans.

Comme dans le cas des statistiques sommaires, il en ressort de l'analyse de régression que le prix des habitations varie considérablement dans les RMR. À Regina et à Saskatoon, le prix des habitations les plus anciennes est de 50 % inférieur à celui des logements neufs. À St. Catharines, Kitchener et Edmonton, les habitations de plus de 50 ans affichent des prix de 30 % inférieurs, tandis que ce chiffre est de 11,3 % à Toronto et de 10,1 % à Ottawa. À Montréal, Vancouver et Halifax, on n'a constaté aucun écart entre les prix des logements

anciens et les neufs. Toutes RMR confondues, le prix moyen des logements, construits il y a 50 ans, est de 16 % moins élevé que celui des neufs.

En outre, les résultats de l'analyse indiquent que la proportion relative de ménages vivant sous le seuil de faible revenu est plus élevée dans le parc ancien. Toutefois, dans le secteur locatif, les ménages consacrent généralement une proportion plus élevée de leur revenu au loyer en vivant dans de vieux ensembles. Cela porte à croire que le désembourgeoisement social n'est pas un facteur, puisque les vieilles habitations n'allègent pas le fardeau des dépenses en matière de logement des ménages à revenu modeste. Pour les propriétaires-occupants, c'est l'inverse. Les ménages vivant dans des anciennes habitations consacrent une plus faible proportion de leur revenu au logement, ce qui signifie que le vieillissement du parc ouvre davantage de possibilités aux ménages à revenu modeste désireux d'accéder à la propriété.

L'analyse se penche aussi sur l'évolution, au fil du temps, des loyers et des prix, ainsi que des revenus relatifs des ménages vivant dans le parc ancien. Aux fins de l'analyse, on n'examine que les bâtiments construits avant 1981; les loyers et les prix des logements dont la construction date de 1980 à 1981 servent de référence. Sur l'ensemble des RMR, les loyers moyens des ensembles construits avant 1980 augmentent en comparaison de ceux pratiqués dans les immeubles bâtis de 1980 à 1981. Dans bon nombre de RMR, la valeur des habitations pour propriétaires-occupants diminue entre 1981 et 1996, mais le rythme de dépréciation dans le parc ancien est moindre. En fait, les prix dans le parc ancien augmentent comparativement à ceux des habitations de construction plus récente, ou même neuves, dans toutes les RMR comprises dans le Recensement de 1981. Une comparaison des données de recensement pour les périodes de 1981 à 1991 et de 1986 à 1996 confirme également ces tendances. On désigne « désembourgeoisement ascendant » ou « désembourgeoisement négatif » l'inversement de l'évolution des loyers et des prix. Autrement dit, la valeur du parc ancien au Canada s'accroît plutôt que de diminuer au fil des ans.

Depuis 1981, le taux de croissance du revenu moyen des ménages locataires vivant dans des immeubles anciens, notamment à Montréal, Vancouver et Toronto, a été supérieur à celui des familles habitant dans des logements de construction plus récente. Dans ces villes, les ménages fortunés déménagent aussi dans des habitations anciennes de type propriétaire-occupant, depuis 1991. L'accroissement des loyers, des prix et des revenus des ménages dans le parc ancien porte à croire qu'un processus de désembourgeoisement inverse est engagé dans les RMR canadiennes.

EMBOURGEOISEMENT

Cette section établit des profils des quartiers embourgeoisés. Elle définit aussi les principaux facteurs qui contribuent à l'embourgeoisement dans des secteurs précis. Les profils se fondent sur l'analyse des données des recensements de 1981 et de 2001 et portent sur des variables, tels les loyers, les revenus et l'âge des bâtiments, en vue d'identifier les secteurs de recensement en voie d'embourgeoisement dans les agglomérations de Halifax, de Québec, de Montréal, d'Ottawa,

de Kingston, de Toronto, de Winnipeg, de Regina, d'Edmonton et de Vancouver.

Voici les principales caractéristiques des quartiers en cours d'embourgeoisement.

- Situés à proximité des centres d'affaires centraux;
- Plus forte densité de la population et de l'habitat, comparativement aux autres secteurs;
- Densité de l'habitat croissante;
- Parc de logements relativement plus diversifié, assorti d'une forte proportion d'« autres » catégories d'habitations;
- Importante proportion de logements anciens et capacité de conserver les vieilles habitations au fil du temps;
- Progression vertigineuse des loyers moyens et des revenus personnels;
- Pourcentage relativement plus élevé de ménages d'une personne;
- Baisse accélérée de la taille des ménages;
- Population plus mobile;
- Proportion plus forte d'adultes âgés de 25 à 39 ans; et
- Proportion plus élevée et rapidement croissante de résidents ayant poursuivi des études universitaires.

Plusieurs facteurs contribuent à l'embourgeoisement, mais la centralité figure au tout premier rang. Dans toutes les RMR visées par l'étude, les secteurs en voie d'embourgeoisement sont en effet généralement situés plus près des centres d'affaires centraux que les autres. Cette tendance témoigne des préférences des familles qui emménagent dans ces quartiers pour certaines commodités, sur le plan de l'emploi, du magasinage et des loisirs. Autre facteur important : la proximité des grands employeurs, tels que le Royal Alex Hospital d'Edmonton et le Vancouver General Hospital, qui ont favorisé l'embourgeoisement des quartiers environnants. L'embourgeoisement peut aussi résulter du débordement des ménages fortunés des quartiers cossus avoisinants (par exemple, le parc Rockcliffe à Ottawa, le secteur de Mont Royal à Montréal et le quartier Sydenham à Kingston); du réaménagement des quartiers dans les noyaux centraux (comme les secteurs de Le Breton Flats d'Ottawa et de False Creek de Vancouver); et / ou d'un sens d'identité et de force de caractère bien définis, ainsi que de la diversité des logements (comme c'est le cas dans le secteur de Strathcona à Edmonton, de la rue Preston à Ottawa et du quartier Wolsely à Winnipeg).

Des entrevues menées auprès des experts dans le domaine du logement à l'échelle locale donnent à penser qu'environ 5 % des 2 182 secteurs de recensement situés dans les dix RMR visées par l'étude se sont embourgeoisés depuis 1981. La croissance des loyers et des revenus dans ces secteurs tient principalement au réaménagement des quartiers et au remplacement des habitations, plutôt qu'à la

revitalisation des vieux quartiers. Le fait que l'embourgeoisement des quartiers existe dans les villes canadiennes permet de penser qu'on ne peut compter uniquement sur le désembourgeoisement pour accroître l'offre de logements pour les ménages à revenu modeste.

CONCLUSIONS

Les résultats de l'étude indiquent que le désembourgeoisement social n'existe pas dans les marchés locatifs canadiens. Si certaines RMR affichent des loyers de 10 à 15 % inférieurs dans leur parc vieux de 50 ans, la différence est trop faible et s'échelonne sur une trop longue période pour susciter l'intérêt des décideurs. Le fait que les ménages consacrent une plus forte proportion de leur revenu au loyer dans les ensembles anciens est une autre indication que le vieillissement du parc n'améliore pas l'abordabilité des logements locatifs pour les ménages à faible revenu.

Pour ce qui concerne le secteur des logements pour propriétaires-occupants, les résultats de l'étude font état d'un plus grand écart entre le prix des habitations selon l'âge. En effet, le prix des logements bâtis, il y a 50 ans, peut être jusqu'à 30 % inférieur à celui des habitations neuves dans certaines RMR; les écarts sont toutefois beaucoup plus minces dans les grandes agglomérations affichant des prix élevés. Néanmoins, le désembourgeoisement social s'observe puisque les ménages dans les habitations anciennes consacrent une plus faible proportion de leur revenu au logement. Le vieillissement du parc ouvre davantage de possibilités aux ménages à faible revenu désireux d'accéder à la propriété dans les petites RMR. Ce phénomène mettrait toutefois plus de temps à se produire dans les grandes villes.

Rien ne laisse croire que le désembourgeoisement social peut servir à alléger le fardeau des dépenses des ménages à faible revenu en matière de logement, et ce, même si l'on applique des politiques pour créer une offre excédentaire dans le secteur de l'habitation, de sorte à appliquer des loyers et des prix économiques. Les tendances actuelles, axées sur l'évolution de l'économie, de la situation démographique et des politiques, continueront vraisemblablement à gonfler les prix des habitations anciennes. Ces tendances donnent une nouvelle structure aux noyaux centraux des villes et pèsent sur l'offre de logements à prix modiques. Le désembourgeoisement, particulièrement dans les villes en expansion, ne peut donc résoudre les problèmes d'abordabilité des ménages à revenu modeste.

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The Efficacy of the Filtering Process in the Supply of Housing to Lower-Income Canadian Households

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INTRODUCTION

Filtering, in its broadest sense, is the process by which higher-income households move to newer dwellings resulting in rent and price reductions in the dwellings that are left behind to be occupied by lower-income households. Should the filtering process lower the price of housing services to the extent that lets lower-income households improve their housing conditions and overall wellbeing, then the process is referred to as “welfare filtering”. There are at least three ways in which household moves and changes in the housing stock can affect the wellbeing of Canadians.

- 1) Filtering may reduce the relative rents and prices of the existing stock when the previous higher income occupants leave for newer buildings and pass their older housing for lower income groups.
- 2) The reverse happens when inner-city neighbourhoods attract higher-income households that displace the lower-income households and “gentrify”. The older dwellings may be up-graded in the process through rehabilitation and renovation.
- 3) Housing stock improvements may also be made with the help of government subsidies that are offered on condition that tenants not be displaced. Stock improvements may be made without either the filtering or gentrification process being invoked.

This report focuses on the first two processes to show the extent to which markets may or may not meet the needs of the Canadians who can not pay the economic rents or prices that would justify the construction of new dwellings.

This report describes the results of a four-part study dealing with filtering and gentrification in Canadian metropolitan areas. The first part presents an overview of the filtering literature and focuses on the definitions, theories and the policy implications that have been developed by other analysts who have studied the process by which the housing stock changes its quality and price as it ages. The second part reviews the gentrification literature. The third

examines census micro data from 1971 to 1996 to determine the extent to which the aging of the housing stock helps meet the needs of low-income Canadians. The fourth part uses the P-Census data to examine spatial changes in the average price of housing and other variables over a twenty-year period, 1981 to 2001. It focuses on the inner-cities and identifies the extent of gentrification in Canada's older neighbourhoods. The last chapter looks at policy implications and presents the conclusions.

Typically the aging of a building reduces its price relative to what it was when it was new. The extent of the reduction is determined by its maintenance as well as by its initial quality and location. For filtering to improve the wellbeing of lower-income households, the buildings must not only decrease in their relative position on the housing quality ladder but their rents and prices have to drop even more. The process by which this occurs is complicated by the introduction of locational considerations and by the prospects of stock changes through conversion, renovation and replacement construction. Changes in demography, economy and the characteristics of the labour force change the relative demand for dwellings in different parts of the city and the price of the land to which the older dwellings are attached. Some of these demographic and economic trends can have predictable effects on housing stock transitions and on the price of inner-city locations. Some of the changes affect the housing prospects and welfare of lower-income households as they change the demand for inner-city locations and bring about gentrification.

The second part of this report examines the gentrification literature and the likelihood of gentrification by considering the factors that affect the processes. It also discusses the qualifications and the reasons we should not be surprised to not find much evidence of welfare filtering.

The third part estimates housing price and rent profiles across dwellings built in different periods of time by using the census Public Use Micro-data Files (PUMF). The focus is on Canadian census metropolitan areas and the changes in price and rent gradients between the census years 1981 and 1996. The report assesses the extent to which the aging process induces the filtering of dwellings to lower-income households to ease their access to more affordable housing. This chapter starts by presenting descriptive statistics and shows how average and median rents and the owners' assessed prices of their dwellings differ across buildings built during different periods of time. The descriptive statistics will support the conclusions developed with more sophisticated analytical methods.

The regression analysis presented in this chapter shows the differences in the 1996 rents and prices of a 'standardized' dwelling built at different points in time. The differences in the income and expenditures of the households living in dwellings built at different points in time are also examined. The next section looks at the changes between 1981 and 1996 in the rent, price and income distributions across the periods of construction. The last part of this chapter examines the factors and conditions that may be correlated with the slope of the price gradients and with changes in their slope.

The fourth chapter develops the evidence and explanations of gentrification in Canadian metropolitan areas. It develops profiles of gentrifying neighbourhoods using a three step statistical method augmented by key informant interviews. It shows that economic and demographic changes have increased the demand for inner-city locations in many cities in North America, Europe and Australia to increase the price of the land on which the older buildings sit. Young professionals with dual incomes and no children have been moving back to the inner city and gentrifying neighbourhoods.

The fifth and last chapter discusses the policy implications and raises questions that can be addressed by future studies. It summarizes the key findings regarding the efficacy of the filtering process. It illustrates the changes in Montreal and Toronto since 1971 to form a context for the discussion on the efficacy of a filtering based housing policy to expand the housing supply for lower-income households. The conclusions show that there is no reason to believe that welfare filtering can be induced in Canada to help house low-income households. Current trends that are being driven by change in the economy, demography and policy are likely to continue to inflate the price of older dwellings, restructure inner cities and reduce the supply of the lower priced inner-city housing in most Canadian CMAs. Filtering is a contributor to the housing problems of low income households in growing cities.

THE FILTERING LITERATURE

Definitions

Ratcliff (1949) defined filtering as the process by which the nominal rent or price of a dwelling changed over time. In the early studies, the changes in price and rents due to the aging of the stock were not distinguished from changes due to macro factors affecting the overall economy of the city. Grebler et al. (1956) define filtering as “a change in a unit’s place in the quality distribution”. According to this definition, filtering is the process by which a dwelling moves down the “escalator” of a hierarchically arranged quality strata. Conclusions regarding the distributional effects of the stock changes would rest on the tacit assumption that the lower quality and lower priced stock produced by filtering is available to lower-income households. If quality deteriorates at a faster rate than the decline in prices or rents, then the filtering process is decreasing the amount of housing services that lower-income households can buy. If low-income households do not have access to this stock, then benefits are not accruing to lower-income households as a result of the filtering process..

Ira Lowry (1960) defined filtering as “a differential change in real rent or relative price, of units at various quality levels.” Filtering is defined in terms of the changes occurring to all units of a given quality relative to the changes in the real price of units at other quality levels and this is the operational definition that will be used in the empirical work presented in Chapter 4. This definition implies that the efficacy of the filtering process is measured by the extent to which the aging of the housing stock changes the relative price of the housing services that

lower-income households can buy while holding the other conditions constant. Filtering could occur even if the price of the aging stock increased in real terms but increased less than the price of the higher quality housing. Another attractive aspect of this definition was pointed out by Wallace Smith (1964) who wanted to distinguish the effects of filtering from the effects of overall economic development. An improvement in the city's economy can increase the incomes of the poor that, in turn, bring about an improvement in their housing condition. Kristoff (1972) and Berry (1979) also stress the need for the housing improvements attributed to filtering to be due to the aging of the stock and not be the result of rising incomes or declining rent to income ratios.

A completely different approach to filtering was proposed by Dowell Myers (1975, 1981 and 1983) when he defined filtering with respect to households: "by means of their residential mobility, households filter *through* the housing stock rather than vice versa" [emphasis his] (Myers (1983, p. 101). A policy relevant study would examine the extent to which the aging process results in occupancy changes that benefit lower-income households. While downward price movements may improve the welfare of the occupants, the impact of filtering is regressive when higher income people remain in these units or move to them as part of the gentrification process. The empirical study presented in Chapter 4 will examine the differences in the incomes and housing expenditure burdens of households living in buildings built during different periods of time and Chapter 5 will consider the household changes in the neighbourhoods experiencing the gentrification of older units.

Another important distinction within the filtering definitions is due to their emphasis on either the process or the outcome of the process. Baer and Williamson (1988) review the distinctions made by Fisher and Winnick (1951), Smith (1964) and Sands and Bower (1976) who

see filtering as the “allocation process whereby households adjust their housing to changing income and preference” (p. 129). The most common use of the term “filtering” by people interested in housing policy implies a change in the well-being of the households who cannot afford the rents or prices that have to be charged for new dwellings. Baer and Williamson (1988) coin the term “welfare filtering”: “If poor households move up faster than the housing hierarchy moves down, welfare filtering is achieved” (Baer and Williamson, 1988, p. 135).

Welfare filtering is the relevant definition for policy purposes but it is also the most difficult to apply due to data limitations. The empirical work in Chapter 4 will assess the extent of welfare filtering within the Canadian stock indirectly by looking for indicators that confirm the presence of welfare filtering, or, show that the aging of the stock is not reducing the affordability problems low-income households. To gain an understanding of the indicators of welfare filtering, we examine the literature describing the filtering process and the conditions needed for welfare filtering to take place.

Conditions for Welfare Filtering

Baer and Williamson (1988, p. 130-131) summarize the conditions required for welfare filtering. The metropolitan area has to function as an integrated market (Salins, 1980).

Households should be mobile and be able to change neighbourhoods and make substitutions between housing and neighbourhood attributes. Demand changes in one area should affect prices in another part of the city. Dwellings should be distinguishable according to their size, quality, location and neighbourhood. Their quality and price should be linked. The housing stock should be classifiable in the hierarchical order of desirability. With time, the older stock descends the quality hierarchy “like an escalator” and eventually all dwelling units move to the bottom of the

market and are removed. Households are stratified by their income and wealth and all households within a given class have equal access to housing. All households try to get the best housing they can afford with the most affluent getting the best and so on down the household and housing hierarchies. Affluent households do not stay in low-priced, poor-quality dwellings.

Welfare filtering takes place when new construction exceeds the rate at which the number of households is growing and when the imbalance is maintained over an extended period of time. According to Kristoff (1972) it is the “excess supply” that generates the welfare filtering process. It is the magnitude of the excess supply that determines the rate at which the older units move down to lower-income households and improve the quality of the housing they can afford. At the bottom of the quality hierarchy, the worst dwellings have to be removed in a way that leaves the rent and price of low-quality housing unaffected. The excess supply at the upper end may be brought about by population decline, by shifts in tastes, or by government policy.

Welfare filtering requires a degree of homogeneity in the metropolitan housing market as it is the nature of the interrelationships among sub-markets that determines its efficacy. Rothenberg *et al.* (1991) developed the concepts that Galster (1996) applies to filtering. The existence of sub-markets creates the potential for rents and prices to deviate from the long-run equilibrium prices that would be generated by perfect markets in which transactions were costless, information was perfect and externalities absent. The extent and fluidity of the interrelationships among sub-markets is described by the cross-price elasticity of demand, by the relative change in the quantity of housing bought in one quality category as a result of a price change in another category. The efficacy of the filtering process, Galster points out, is a function of the magnitude of the cross-price elasticity of demand.

If, for example, cross-price elasticities were low for all types of tenants and downward conversion cost functions from each origin sub-market

were such that minimal cost savings accrued by downgrading, a large amount of construction in the higher quality sub-markets will cause a minimal supply response in the lowest-quality sub-markets. Thus, tenants in the lowest-quality sub-markets will hardly benefit at all from filtering, even in the short run.” (Galster 1996, p. 1803)

Empirical Studies

Given the conditions required for welfare filtering, it is not surprising that the published empirical studies of the filtering process are pessimistic with regard to the benefit it brings to low-income households. Rents and prices do not always decrease with the age of buildings (Nutt et al. 1976; Henderson 1985). The price decline due to depreciating structures can be more than offset by increases in land price and Figure 1 demonstrates the effect of a hypothetical 1.5 percent increase in land price while the building depreciates at the same compounding rate. The Figure shows a reversal on the price profile after about 50 years.

The literature on depreciation rates that was summarized by Malpezzi, Ozanne and Thibodaux (1987) showed rates between 0.5 and 2.0 percent per year. Hoad (1942) estimates net depreciation rates between 0.5 and 0.7 percent. The estimates closer to 1 percent were obtained with the straight line depreciation schedules while the declining balance depreciation set rates close to 2 percent. Chinloy (1979) found Canadian depreciation rates between 0.7 and 1.2 percent. Cannaday and Sunderman cited in Malpezzi *et al.* (1986) estimated the rate to be 0.38 percent for new dwellings and 0.75 percent for 44 year old buildings. Other models recognize that depreciation varies over time but find a faster rate for new buildings. Jones, Ferri and McGee (1980) use a cubic formation with two inflection points, one near 10 to 14 years and the other at 25 to 30 years. The inflections reflect the time that major appliances and components need replacing and this study shows that depreciation rates are not constant over time. Fortier (1996) using data on Canadian military housing also finds inflections when major items need

repair. Myers (1984, p.358) found that pre-1940 units were more likely to gentrify than post-war units. The filtering process is not continuous with age of building.

Margolis' (1982) study estimates *net* depreciation, the changes in the price of buildings after accounting for the effects of maintenance and reinvestment and finds a net rate of 0.39 percent. He points out that this rate would reduce the price of a structure to half its original price in 175 years! However, when using a 95 percent confidence interval, his estimate includes prices that are both "consistent with filtering and which contradicts filtering" (p. 95). Margolis concludes:

Thus the only statement that can be made applying the usual standards of statistical significance is the following: No support is found in the data used here for the hypothesis that dwellings deliver diminished qualities of housing services with the passage of time. . . The results call into question the assumptions which give rise to the filtering model. Age, by itself, would not appear to be significant in explaining the presence of low-quality housing. (p. 95).

Another approach for measuring filtering counts the number of moves that are induced by new dwellings and traces the chain of movers backward to record their characteristics as well as those of the dwelling units that they left behind. When a vacated is converted to another use or occupied by a newly formed household or occupied by an in-migrant to the city, the chain is closed. Larry Bourne's (1981) summary found that the chains were shorter than expected, between 1.5 and 4 moves. Using Markov chains and focusing on the vacancies left behind by successive moves, White (1971) could not develop evidence of welfare filtering as the vacancies left behind and the households that move in to them tend to be in the same social and economic strata. The results point to the complexity of housing markets and suggest that "submarkets may be only loosely coupled – unlike the tightly integrated, well-oiled, and smoothly functioning market posed in filtering theory" (Baer and Williamson 1988, p. 138).

Williamson (1986), using the American Housing Survey (AHS) data for the 1974 to 1984 period, found that low-income people were worse off and concluded that welfare filtering is largely dependent on rising national prosperity (Baer and Williamson 1988, p. 139). Dahmann (1983) had similar conclusions.¹ Somerville and Holmes (2001) assess filtering by using the American Housing Survey panel data for 1984 to 1994 to trace the dwellings' moves in or out of the "affordable" stock. Their finding suggests that the direction of filtering depends on neighbourhood characteristics such as "the share of rental units in the neighbourhood, affordable share of the total rental stock, and neighbourhood incomes" (p. 135). Affordable dwellings in heterogeneous neighbourhoods have the greatest potential to filter upward, i.e. to increase in rent. They conclude:

....that policies designed to preserve the affordable stock and those that encourage neighbourhood diversity may work at cross-purposes. It is the affordable units in better neighbourhoods that are most at risk of filtering up" (p. 135).

Filtering and Policy

The role filtering in government policy was recognized in 19th century Great Britain when Waterlow (1863) and Alden and Hayward (1907) referred to the filtering process and Hole (1886) argued that all lower classes benefited by increases in the number of first class homes (referred to in Baer and Williamson 1988, p. 132). In the United States, the introduction of minimum construction standards in the early 20th century precluded the building of tenement (Friedman 1968, pp. 78-80) and the supply of "used" housing became a "possible solution for low-income housing supply problems" (Baer and Williamson 1988, p. 133). By fixing minimum quality standards, low income households were left with no alternative but to look for dilapidated older dwellings that had been built earlier for a more affluent class.

When attempts were made to improve the housing condition of the poor in the US before WWII, policy makers did not rely on filtering but sought direct solutions to low-income housing problems by building public housing. The existence of slums, the result of filtering, remained as a public concern while the real estate lobby claimed that filtering would help solve the housing problems of the poor. Counter arguments by Bauer (1937) pointed out that the slums were the result of filtering. The connection between deteriorated neighbourhoods and the efficacy of the filtering process was not stressed again in the literature until recently.

The filtering process that passed better quality dwellings down to lower-income households, however, was stimulated by government programs enacted since the 1930s. Mortgage insurance and lower mortgage rates made homeownership possible for middle-income households who would find their new houses out in the suburbs. Changes in mortgage availability coupled with intra-urban highways construction stimulated suburban development. While the highways cut through some of the old slums and reduced the stock of dilapidated old housing, the movement to the suburbs left many more vacant units behind for lower-income households to occupy. Veterans' housing programs also drew households into new housing. The post-war housing policies created the "excess supply" that induced the filtering of the older inner-city homes and provided the basis for the belief that filtering was a viable means for supplying housing to lower-income households. Baer and Williamson summarize the role of U.S. Federal housing policy:

Federal community development loan and grant programs further assisted the filtering effect of suburban development. By subsidizing the costs of infrastructure in the suburbs (e.g., sewage and water lines, parks and open space), they further encouraged consumption of new suburban housing. Thus, each of these federal programs reinforced effects of the others, giving even more emphasis to an implicit, filtering-based housing policy. (Baer and Williamson 1988, p. 134)

These events are important in assessing Canadian filtering rates. The same factors combined in Canada to push out the suburbs and the post-war baby boom was more pronounced in Canada than in the United States. We can, therefore, expect to observe traces of welfare filtering in the 1971 and 1981 profiles. However, the market for new suburban homes eventually came into equilibrium as new construction kept pace with the growth in demand. By the mid-1970s, most of the established households who wanted to move to the suburbs had done so. Most of the empirical research on filtering is more recent and uses data from the 1970s to 1990s after the era in which welfare filtering played an important role in supplying low-priced housing to low-income households. The filtering studies also discuss the period during which the baby boomers increased aggregate demand at a rate that allowed developers and builders to expand cities without fear of creating excess supply. The filtering rates that prevailed during the 1950s and 60s will not have prevailed in the 198s and 1990s and the empirical work presented later will confirm this deduction. Indeed, the results will show that the direction of filtering reversed since the 1970s and that gentrification, rather than welfare filtering, is the main process that is transforming the older housing stock.

GENTRIFICATION LITERATURE

“Gentrification” was defined by sociologist Ruth Glass as the process by which upper-middle class households moved into and upgraded working class neighbourhoods in London, England during the 1960s. For over fifty years, the term gentrification has been used to describe the changes that take place in a neighborhood when it is upgraded. Gentrification refers to “the rehabilitation of working-class housing and its consequent transformation into middle-class neighborhoods (N. Smith 1986, 1). Warde (1991) provides a comprehensive definition of gentrification:

It is a process of resettlement and social concentration, a process of displacement of one group of residents with another of higher status, entailing new patterns of social segregation. It is a transformation in the built environment, via building work that exhibits some common distinctive, aesthetic features and the emergence of certain types of local service provision. It is a gathering together of persons with a putatively shared culture and lifestyle, or at least shared, class-related, consumer preference. It is an economic reordering of property prices, a commercial opportunity for the construction industry, and generally, an extension of the system of private ownership of domestic property. (Warde, 1991, p. 227)

Gentrification has a physical as well as socioeconomic component that results in the upgrading of housing stock in the neighborhood. In this respect, the models of filtering, discussed in the last chapter, define the possible locations where gentrification may take place. For example, areas within or adjacent to zones of transition contain attributes that may attract gentrifiers. Gentrification is mainly the involuntary displacement of lower income residents. Gentrification has both a spatial and temporal dimension as it may occur unevenly and occasionally across the urban spatial structure.

Van Criekingen and Decroly (2003, p. 2453) conclude that “...there is still no unanimously approved empirical delimitation of the concept of gentrification”. It has been

defined as a 'chaotic concept' (Beauregard, 1986, p. 40 & 1990) in reference to the diversity of factors and processes that the term covers. Bourne (1993a, p. 97) divides the definition of gentrification into two principle definitions, one restrictive and the other inclusive. He questioned the significance of gentrification by arguing that "the extent and impacts of gentrification have been exaggerated in the urban literature of the 1970s and 1980s and that the process itself will be of decreasing importance as we move beyond the recession of the early 1990s" (Bourne 1993b, p. 183). Other authors point to a new era of gentrification or what Lees refers to as "post-recession gentrification" (Lees, 2000, p. 390). Some reports suggest that gentrification occurs in periodic waves (Hackworth and Smith 2001). In the US context, at least three waves of gentrification have been identified: i) federally sponsored urban renewal efforts in the '50s and '60s; ii) the "back-to-the-city" movement of the late '70s and early 1980s, and iii) post-recession gentrification or third wave of gentrification. This third wave of gentrification is driven by the forces of globalization which has seen larger developers and greater state support for gentrification as well as a decline in community opposition (Lees 2000).

Ley (1996, p. 3) explains gentrification as the inversion of welfare filtering, while Millard-Ball 2000, p. 836) call it "backward filtering". Early discussions tended to dismiss the filtering process as a means for increasing the supply of lower-income household's housing because of its inability to predict or account for the process of gentrification. However, the literature suggests that the theory behind filtering and the gentrification process may be compatible even though they emerge from almost different disciplines and have very different impacts on low income households.

The consequences of gentrification may include the involuntary or voluntary displacement of renters, homeowners and local businesses; the increased housing and

neighborhood prices which leads to greater equity for owners and increasing rents for renters and business owners; the increasing local and state tax revenue; the greater income mix and deconcentration of poverty; the changing street flavor and new commercial activity; changing community leadership, power structure and institutions; and, increasing conflicts between old and new residents. The Brookings Institution report (2001) contended that the following three specific conditions must be present in a neighborhood before it could be said to be undergoing gentrification:

- the displacement of original residents;
- the physical upgrading of the neighborhood, particularly of housing stock;
- a change in neighborhood character.

Overall the literature on gentrification reveals tension between supply-side and demand side explanations (Lees, 200 p. 390). As a “chaotic concept”, gentrification has come to mean many different, yet related, forms of inner-city, or downtown, revitalization. Some authors (Bourne 1993) have sought to present a typology of the various forms of downtown revitalization:

- **Upgrading of elite areas:** this refers to inner-city neighbourhoods that have maintained a high socio-economic status and as a result the dwellings have not filtered down to lower income groups. These areas usually have recorded increases in income and economic status. However these increases do not constitute gentrification since the neighbourhood character has not fundamentally changed nor have lower-income households been displaced.
- **Redevelopment:** the new housing constructed in the inner city – typically in the form of condominiums - and the conversion of other land uses – such as warehouses – to residential units is also sometimes referred to as gentrification. Redevelopment will likely lead to the socio-economic upgrading of key inner city areas – yet this does not lead to the direct displacement of lower-income households. However, redevelopment would likely lead to a change in an inner-city neighborhood’s character with the indirect effect of displacing lower-income households.
- **Renovation of Older Inner-City Housing:** The traditional definition of gentrification focuses on upper-income households acquiring older dwellings in key inner-city neighbourhoods and displacing the lower-income occupants. The renovation and upgrading of older-inner city dwelling units clearly links the process of gentrification with the notion of “reverse” filtering.

In general, the literature sometimes uses a broad or inclusive definition of gentrification to include the socio-economic upgrading of elite inner-city neighbourhoods, the redevelopment or

new construction dwellings in the inner-city, and the renovation of older inner-city housing stock (Ley 1988, 1993). Since this report's main objective is to examine how gentrification is influencing, and reversing, the filtering process – a restrictive definition of gentrification was used. This restrictive or narrower definition of gentrification focuses attention on the renovation of older inner-city housing by upper-income households. Therefore, a methodology was adopted, as discussed below, that attempted to screen census tracts from ten Canadian CMAs for evidence of gentrification as a result of renovation. However, it is likely that all both redevelopment and renovation may be at work within particular census tracts.

The Gentrification Process

The determinants of gentrification are diverse as are the theoretical approaches to gentrification. It is seen as a process through which lower-income, often minority, residents in a neighborhood are displaced by higher income ones at a scale sufficient to change the overall character of the neighborhood. In essence, lower-income residents are priced out of their neighborhood by rising rents, home prices and property taxes. Gentrification is brought about by changes in the regional labor and land markets that change the relative price of particular neighborhoods. Places that were once considered as being undesirable places to live by middle-income households may become more appealing as economic growth outstrips housing production making the housing market tight for middle-income residents; and the number of jobs for professionals in the central city rises; and as the amenities and services in centrally located neighborhoods are improved.

Although the gentrification of neighbourhoods in the United States has received the most attention, low-income urban communities are also displaced in Australia, Germany, England, Spain, and Canada and in other developed nations. The international scope of gentrification has suggested that the origins of the process that reverse welfare-filtering lie in the economic, spatial,

and social restructuring of global capital and the emergence of the new economy. Neil Smith (2002) discusses the relationship between gentrification and economic globalization: “...globalization of productive capital embraces gentrification”.(p. 446). Globalization brings fierce competition for capital investment making gentrification a key competitive strategy of cities in a new urban and global economy. Smith’s thesis suggests that gentrification is required if a city is to compete within the new global economy. Similarly, Manuel Castells (1985) argues that the “Information Technology Revolution” is organized around financial and information capitals of Hong Kong, Tokyo, New York, and London. These nodes coordinate and manage the intertwined activities of firms and are the control centers of the “Network Society.” But it goes further down the hierarchy of the system of cities to influence the planning policies of medium-order cities that want a slice of the global economic pie. Bailey and Robertson note that:

..gentrification links changes in inner urban housing markets to wider processes of economic restructuring, notably the deindustrialization of developed industrialized countries and the simultaneous increase in white-collar employment, particularly the growth of a new ‘professional/managerial class’ (Bailey and Robertson 1997, p. 562).

Research and development is clustered near the control nodes, often in high amenity areas to attract the best and brightest employees. Skilled fabrication and back-office functions occur in newly industrializing areas and in “edge cities” within the home country. Semi-skilled and low-skilled production is located off-shore in developing nations to capitalize on lower labor costs. Castells notes that while the Information Technology Revolution is a global phenomenon, “black holes” exist where the Network Society has little direct influence. In the United States, for example, the Technology Revolution has passed over poor inner-city neighborhoods. Low-income residents play a subordinate role in the new economy, despite their adjacency to the central business district (CBD). Neil Smith (2002) ties this analysis directly to the gentrification

of inner-city neighbourhoods.

The agglomeration of capital and executive functions in metropolitan downtowns draws young professionals and the upwardly-mobile to the inner-city. Hotels, entertainment, and cultural facilities emerge to serve the young urban professionals transforming downtown into a “bourgeois playground.” Downtowns have proven to be great environments for entertainment and tourist facilities. Kasarda et al. (1997) notes that the “...central cities offer many amenities that large numbers of people find appealing. These amenities include a rich diversity of population groups and lifestyles, historically significant residential architecture, extensive night time entertainment options, ethnic restaurants, offbeat shops and services...” (p. 307). The combination of historic streetscapes, waterfronts, theatres, sporting and other entertainment complexes have enable the central city to play a leading role in the provision of cultural amenities.

A body of literature has explored and examined the actors and institutions involved in the gentrification process (Bridge 2001 & 2003, Van Crieking and Decroly 2003, Ley 1991 & 2003, Redfern 2003, Smith 2002). The process is often presented as a stage model whereby different actors contribute to the gentrification of inner city neighbourhoods. The initial stage is set by economically marginal professionals such as artists and teachers who price the inner-city locations and contribute, mainly through their sweat equity, to the upgrading of buildings. The actions of these pioneer gentrifiers is to create a new and a “hip” environment that attracts the attention of doctors, lawyers, engineers and the upper-level of professionals who contribute substantial amount of financial capital to the upgrade of their neighbourhood. This level of upgrade is more visible and obvious and attracts the attention of real estate agents and developers who want to speculate on the renovation and marketing of inner city dwellings to other young

urban professionals. This stage-model can be likened to the invasion and succession process that occurs within the filtering process at the suburban edge of the urban spatial structure.

Overall, gentrifiers can take advantage of the “rent gap” and Neil Smith (2002, see also Kary, 1988) describes the rent gap as the difference between the actual ground rent capitalized from the present (depressed) land use and the potential rent that could be capitalized from the land’s “highest and best use.” In the U.S., the rent gap emerged when middle-class households moved out of central city neighborhoods in the post-war years. Aging infrastructure, abandonment, disinvestment, and social ills combined to depress the property prices in these neighborhoods despite their adjacency to the CBD. Smith argues that the new urban professionals are closing this rent gap and inflating property prices. Lower-income households still have a place in the city while the professional-class requires a working-class support system. However, many low- and moderate-income families are find themselves forced to move to the older suburbs in the outskirts of the inner-city to find affordable housing.

Empirical Studies

Evidence of gentrification can be found at a number of different levels. In one aspect, gentrification is revealed in empirical studies tracking and comparing population and density changes between the central city and suburban areas. Clearly the trend over the post-WWII decades has witnessed a rapid decline in central city population growth and a corresponding boom in suburb residential growth. (Indeed, some cities have experienced absolute declines in inner city populations). In 1950 more than half of Americans that lived in metropolitan areas were central city residents, but by 1990 this proportion declined to less than a third. However, research is beginning to document a reversal of past trends of suburban gain and inner city

decline. Researchers are now finding that recent trends and future population projections reveal the downtown to be a growing destination for an increasing number of residents. In general, the research, discussed below, suggests that suburbs are not autonomous economic and demographic entities, but continue to have important relations with the central city.

A survey of twenty-four US downtown areas undertaken by the Brookings Institution (1998) of selected downtowns found that there was a population boom projected for many US downtowns. A conservative definition of downtown was used that included the traditional financial district (CBD) and excluded the surrounding residential neighbourhoods. Based on this definition, the survey discovered that all of the sampled cities were projecting increases to their downtown residential populations and showed that:

- the downtown gains are being made for older industrial cities (e.g., Philadelphia, Chicago, Detroit) that have traditionally seen dramatic inner city population declines since WWII
- the trend in projected downtown population gains include cities from all regions of the US including the northeast, Midwest, and sunbelt cities
- some cities are expected to make dramatic gains in downtown populations. For example, the city of Houston's downtown population is expected to quadruple, while Memphis and Seattle project a doubling of downtown residents in the next ten years.

Research published by Adams et al. (1996) reveals the inter-relationships between city and suburb population growth and migration trends (see also Blair et al. 1996, Brennan and Hill 1999). Twenty-nine north-eastern SMAs and twenty-two south-western SMAs were examined with respect to migration rates (city-to-suburb, suburb-to-city, outside-to-city, and outside-to-suburb) as compared to urban hardship conditions for two periods, 1975-80 and 1985-90. Urban hardship conditions measured the strength or weakness of central cities, e.g., agglomeration economies, waterfront parks, cultural districts and pedestrian malls etc. Thus, the research

reveals the relationship between migration patterns and the strength and weakness of the central city (Black et al 1983). Their key findings are summarized as follows:

- ...evidence of a strong complementary relation between central city and the growth and vitality of its suburbs...
-city-to-suburb migration in the Northeast and North Central regions and outside-to-suburb migration in the South and West continue to be positively reinforced by the relative strength of the central city
- ...metropolitan suburbs benefit from associating with strong, not weak, central cities...strong central cities appear to positively reinforce naturally evolving patterns of suburbanization...
- ...weaker central cities appear to exert a negative influence on metropolitan suburbanization, with a higher proportion of those migrating out of the central city moving to locations outside the SMSA.

These findings have important implication for the interpretation of city-suburb demographic and economic inter-relationships. The upshot of their research is that a strong and healthy central city will attract people to its surrounding suburbs both from its own downtown core as well as other metropolitan areas. Thus, investments and strategic planning efforts at revitalizing and improving central cities will also help stimulate growth in adjacent suburbs. Central city population reductions will not lead to the growth of the adjacent suburbs but are more likely to increase the populations of other metropolitan areas. This research, therefore, raises important questions regarding the nature of city-suburban economic links and inter-relationships (Blair and Zhang 1994, Bogart 1998).

Empirical studies have tried to provide predictive measures of gentrification. The indicators include the following conditions that may increase the likelihood of gentrification:

- High rate of renters
- Ease of access to job centers (freeways, public transit, reverse commutes, new subway stations or ferry routes)
- High and increasing levels of metropolitan congestion

- High architectural price
- Comparatively low housing prices

Trends indicating that gentrification is in progress:

- Shift from rental tenure to homeownership
- Increase in down payment ratios, decline in FHA-financing
- Influx of households and individuals interested in specifically urban amenities and cultural niches (e.g., artists, young professionals, gay/lesbian households)
- Influx of amenities that serve higher income levels, for instance music clubs and galleries, valet parking, new Starbucks locations, etc.
- Source: Kennedy and Leonard (2001)

Since gentrification has received a lot of attention in the media and by academics, there is an assumption that it is a ubiquitous problem. However, this is not supported by a large body of empirical research on the gentrification processes or its outcomes. For example, a study in the mid-1970s found that renovation affected only 0.5 percent of the central city housing stock and that only one hundred neighborhoods in the top thirty largest cities in the U.S. experienced any revitalization (Berry 1985 p. 73). A 1990s study found that only 1.6 percent of conventional home loans were made to high-income households in lower income urban neighborhoods between 1992 and 1997 (Wyly and Hammel 1998). Furthermore, a report by the US Department of Housing and Urban Development estimated that between 1.7 and 2.4 million people were displaced by private redevelopment in 1979, consisting primarily of tenants, the poor, and female-headed families (cited in Ley 1981, p.65-66).

The Prospects for Gentrification in The Future

The return to the inner-city has been heralded as the ‘return of the café society’ in North America and Australia. A number of empirical studies have been documenting the trends and the general conclusion by analysts suggests that the trend is formed by a niche market that may

eventually bring back 3 to 5 percent of the urban region's households. Studies in Melbourne show that the returning population tends to be young, mobile and prefers to rent their dwelling. The trends are also evident in the US despite the presence of ethnic tension in some of the neighbourhoods in major inner-cities. Much of the accommodation is in renovated buildings. Canada with healthy inner-cities has experienced this trend for a longer period of time and the empirical work in the third working paper will document the changes since 1981. Canada's major cities have gentrified neighbourhoods and the prospects for further change depend on the continuation of the trend to smaller households and their increasing affluence. Smart growth policies will also encourage the gentrification of neighbourhoods. The shifting nature of the inner-city that emphasizes its cultural and entertainment opportunities will further reduce the prospects for welfare filtering.

The Brookings Institution (2001) report *Dealing With Neighborhood Change: A Primer on Gentrification and Policy Choices* establishes "equitable development" as the goal of neighborhood revitalization, "equitable development" being defined as "the creation and maintenance of economically and socially diverse communities that are stable over the long term, through means that generate a minimum of transition costs that fall unfairly on lower income residents". In a number of US cities have adopted "equitable development" as the goal of their neighborhood revitalization efforts. Therefore, policy considerations deal with addressing the negative consequences of gentrification. These could include displacement of residents, conflicts between old and new residents, shifts in property taxes or rents, and changes in the local public services. On this last point, gentrifiers may demand a different mix of social/public services from the local government that are not needed or preferred by existing residents (usually poorer and have less resources than gentrifiers) (Atkinson 2000, Bailey and

Robertson 1997, Flores 2002, Legates and Chester 1986, Vigor 2002). In a case study of displacement in three central London areas, Atkinson found that gentrification “...threatens the sustainability of community networks and of those services which excluded groups rely on” (2000, p. 307). Vigor (2002), however, argues that just because a household has been forced out of a neighbourhood as a result of gentrification does not necessarily mean that the household was harmed by the move. He also suggests that the widening gap between rich and poor, which gentrification is a by-product, should be addressed through income redistribution policies rather than through the housing market (see Vigor 2002).

FILTERING

This chapter examines price and rent differences across dwellings built at different points in time. Its focus is on the census metropolitan areas (CMAs) and on the changes in price gradients between 1981 and 1996. In the case of Toronto and Montreal the time span includes 1971. The Public Use Micro Data Files (PUMF) on households is used in the analysis. The aim is to assess the extent to which the aging process induces the filtering of dwellings to lower-income households and in so doing eases their housing expenditure burdens. The PUMF data does not allow a direct assessment of the welfare implications of the filtering process but it can be used to develop indicators that can yield inferences about the filtering process. If, for example, the study finds no rent or price changes across dwellings built at different points in time, then we can infer that there was no welfare filtering process at work. If household characteristics were undifferentiated across periods of construction, then there would be no evidence of household having moved in response to the improving housing conditions at the lower-price levels.

The “change in relative price” definition will be used in the analysis of PUMF data. Filtering will also be defined, as some authors have suggested, from the point of view of the households. An indication of filtering would be the changes in the distribution of household with different income levels across the housing produced at different points in time. Welfare filtering could be said to occur if the price of dwellings decreased the most in the oldest stock. Filtering may occur if lower-income households could move into the older dwellings and reduce the portion of their income that they have to spend on housing.

The finding of a declining rent or price profile would tend to support the welfare filtering hypothesis. However, rents and prices may decrease with age of building without welfare filtering taking place. As pointed out in the literature, the older buildings may have declined in quality by an even greater amount. Nevertheless, some policy conclusions may be drawn from the finding of a decrease in prices with age of structure. The aging process may be reducing prices below the costs of new housing and give lower-income households access to homeownership.

The approach used to explore the efficacy of the filtering process is discussed in the next section of this chapter. Descriptive statistics are presented to show how median rents and prices differ across cohorts. The regression analysis estimates the differences in the rents and prices of ‘standardized’ dwellings built at different points in time. The analysis then examines the differences in the characteristics of the households living in dwellings built at different points in time. The next to last section looks at the changes over time in the direction of filtering. The possible explanations for differences in profiles and changes in profiles are examined before drawing conclusions.

Differences in Median Rents and Prices

The first column in Table 1 lists the median rent and the median price of dwellings that were built between 1986 and 1996. All prices in this report have been converted to 2003 dollars by using the Canadian Consumer Price Index for all goods and services: current prices are never used. The range in rents across the CMAs identified in the 1996 census is large with Regina and Saskatoon having the lowest median rent (\$544) followed by Trois-Rivieres and Sherbrooke (\$571), Quebec City (\$651) and Montreal (\$656). The highest rents were in Toronto (\$960),

Vancouver (\$896) and Calgary (\$841). The columns on the right side of Table 1 describe the median rents and prices of dwellings built in each of the earlier periods of construction as a proportion of the 1986-1996 median. The numbers in the first row show that the median rent in units built between 1971 and 1985 was 88 percent the median rent (\$779) in the dwellings built between 1986 and 1996. The median rent of dwellings built more than 50 years before the 1996 census was 17 percent lower than the median rent in the youngest cohort. The ratios presented in Tables 1 and 2 illustrate the price differences due to differences in the price of the dwellings brought about by depreciation, changes in their relative location as well as due to differences in the mix of building types and sizes in each of the cohorts.

The first row shows that there is some variation in the differences between the rents in new dwellings and those in buildings that were 10 to 25 years old and that the differences, for the most part, were not large. In at least three small CMAs there is no difference at all. In Toronto, Montreal, Vancouver, Ottawa, Hamilton and Oshawa, the differences in rents is in the 7 to 9 percent range. In the homeownership sector, the differences are larger with the largest cities, Montreal, Toronto, Vancouver, and Ottawa showing median prices to be 9 to 13 percent lower for dwellings that were 10 to 25 years old in 1996. The last column on the right side shows the rents and prices for dwellings that were over 50 years old in 1996. The median rents for this stock are lower than the rents for the 10-25 year old stock but not by an amount that would interest housing advocates. Median rents in Montreal and Ottawa for buildings more than 50 years old are only 12 percent lower than rents in new buildings! Calgary, Winnipeg, London, Trois-Rivieres and Sherbrooke show a difference of about 25 percent but these cities do not have a significant “housing affordability” problem..

The variation in the ownership stock is greater. In Montreal and Ottawa there are no differences in the median house prices that are correlated with age. The median price gradient is flat over the first 50 years but in Toronto the dwellings over 50 years of age have a higher median price than dwellings 10 to 25 years of age due to gentrification. In Vancouver, the 50 year old houses have a median price 71 percent higher than that for the new houses but this profile is greatly influenced by the truncation of the prices for the expensive houses. Some of the cities have large differences in the median price of dwellings built in earlier periods; Winnipeg, Regina and Saskatoon's old houses are less than half the price of new houses. A number of smaller CMA's show differences in the 40 percent range.

Differences in the Spread of Rents and Prices

It is possible for the average or median rents and prices to be the same across periods of construction but increase in their spread. A part of the stock may filter down to lower income groups and a part may be improved or, at least, stay the same and remain occupied by higher income people. Neighbourhood conditions may create the externalities that encourage abandonment or re-investment in the older buildings. A review of the coefficients of variation that correspond to the rows and columns of Tables 1 and 2 did not show a systematic increase in the dispersion of rents and prices with the age of the stock. In fact, the range of rents tends to decrease slightly for all age groups until the fifty year old cohort and then increases slightly in many CMAs. The range of prices for the oldest stock is greater than that in the newer dwellings by about 30 percent in Quebec City, Hamilton, Regina - Saskatoon, Sudbury - Thunder Bay and Calgary. Tables 3 and 4 list the 1996 rents and prices defining the bottom quartiles. In about half of the CMAs, the quartile rents increase rather than decrease suggesting that the lowest priced

stock is getting relatively more expensive. In the Toronto region, for example, the bottom-end of the rental market is concentrated in the most recently built stock. Overall, the housing stock in the CMAs does not develop a bimodal distribution with age. These results suggest that the examination of the trends in average and median prices accurately reflect trends in the overall housing stock as it ages.

Differences in Income and in Expenditure Ratios

Filtering may take place as lower-income households move into older dwellings and gain more affordable apartments, houses or condominiums. Several profiles are presented in Tables 5 and 6. The tables present statistics on the combined CMAs to develop an overview. The median rents and prices are presented along with median incomes. The median housing expenditure to household income ratios is also listed. To gain a sense of the distribution of these variables, the lower and upper quartiles are given by period of construction. The medians and quartiles were calculated separately for each CMA and the statistics in the tables are the weighted averages of the medians. The number of households in each CMA in 1996 was used as the weight. The proportion of households below the low income cut-off (LICO) is listed for both tenure groups.

The first row of Table 5 lists the median rent in all of Canada's 19 CMAs. The ratios show the difference in the median across periods of construction, for example, the median rent for the buildings over 50 years of age is 15 percent lower than that for new buildings.¹ The second row shows the lower quartile rent within each period of construction. The lowest quartile

¹ The profile for Canada as a whole does not reflect the average profile for all Canadian CMAs. The bias is due to more new buildings being built in the cities with the greatest growth in demand. These cities will also have the highest prices. The profiles developed by pooling the data will exaggerate the prices decreases with age. They can be used to present an outer limit to a reasonable assessment of the extent to which prices and rents may change over time. The bias in these profiles favors the view that filtering improves the wellbeing of lower-income households.

rent for dwellings built in Canada's CMAs between 1986 and 1996 was \$535 in 1996. The quartile for older rental buildings rent is about 19 percent higher. In the homeownership market, the price gradient for the lowest quartile is steeper than that for the median: the lowest quartile price being 12 percent lower than the price of new housing within the same quartile.

Tables 5 and 6 list the median income of renters and owners, the income defining the lowest quartile in each tenure and period of construction category, the proportion of households below the low income cutoff (LICO) and the distribution of the housing expenditures-to-income ratios across households living in buildings built at different periods of time. The median income of renters closely tracks the median profiles but the quartiles diverge. The median rent in the stock built more than 50 years ago was about 15 percent lower than in new buildings and the difference in the median incomes is similar. The rent and income profiles for the lowest quartile move in the opposite direction from what one would expect if the welfare filtering was taking place. The lowest quartile rents are almost 20 percent higher than those in the new buildings while the median income is 10 percent lower. The median rent/income ratios are the same across periods of construction, the lowest quartile drops to show that the higher-income households in the older stock spend a smaller proportion of their income on housing. The upper quartile, however, increases with age of building by 17 percent. One quarter of the renters in the CMAs spend over 35.3 percent of their income on housing should they be living in new dwellings while the one quarter of the households in buildings that were more than 50 years old in 1996 spend over 41.3 percent of their income on housing. The aging of the rental stock does not appear to help lower-income households reduce their expenditure burdens.

Within the homeownership sector, prices and income profiles diverge in the oldest dwellings. Median income in the oldest buildings is 21 percent lower than in new buildings while

the difference in their median prices is only 5 percent. The lowest quartile of income for the owners of the oldest stock is 35 percent lower than the median income of households in the new dwellings while the price of the lowest quartile old stock is only 12 percent lower. The difference is even larger for buildings that were 35 and 50 years old in 1996. These results may show that households stay in the older dwellings as their price increases. With time, the household maintainers may retire causing their income to decrease relative to the price of their houses. Their expenditure/income ratios also drop with age of building.

The distribution of households with incomes below LICO is the about the same across rental dwellings built in all the periods before 1985 but is lower than in the newer rental units.² The proportion of households below LICO is much smaller in the homeownership sector than it is in rental housing; 8.7 percent compared to 39.7 percent in rental. However, the proportion increases steadily with the age of the stock due, most likely, to the decrease in the price of the older units, and due to the owners' accrual of equity over time. These results are consistent with the welfare filtering hypothesis but no conclusions can be drawn without accounting for differences in the stock characteristics. The results can also be attributed to the 'tilt' in mortgage burdens and with the forced savings component in mortgage repayment schedules.

Differences in Housing Characteristics

The rent, price and income profiles presented earlier in this chapter do not account for differences in dwelling characteristics. Tables 7 and 8 show the differences in building type and the average number of rooms in the dwellings by period of construction. Statistics on dwelling floor area are not available and room sizes in the homeowner housing are expected to understate

² The census identifies family households whose income is below LICO. To include non-family households in these tables, the criteria for determining the LICO for families were applied to non-family households.

the increases in dwelling size over the years. The tables also show the proportion of units in need of repairs. The building type distributions differ across the periods of construction as expected. The proportion of detached houses is small in the rental sector but it more than doubles within the oldest stock. The high-rise stock is all much younger than the low-rise stock. Average room counts within the rental stock do not differ noticeably with age in the rental stock but decrease slightly in the ownership sector. The proportion of dwellings in need of major repair is higher in the oldest dwellings by a factor of 7 in both tenures

The Age Distribution of the Stock

Tables 9 and 10 show the distribution of 1996 PUMF observations across the five periods of construction. The second column shows the percent of all dwellings in the CMA's sample that were built, in the opinion of the people responding to the census questionnaire, between 1986 and 1996. The last column on the right shows the proportion built before 1945. The age distribution of the housing stock varies across the CMAs with the oldest rental stock being in St. Catherines-Niagara (21.9 percent) Windsor (20.5 percent) and Hamilton (17.6 percent). Windsor has the largest proportion of pre-1945 ownership stock (25.8 percent) followed by St. Catherines and Niagara (22.2 percent) and Winnipeg (22.0 percent). The greatest recent growth in the rental stock was in Oshawa (20.6 percent), Trois Rivières and Sherbrooke (19.9 percent), Quebec City (18.4 percent) and London (18.1 percent). Halifax and Vancouver follow with 17.7 and 17.0 percent of their stock built between 1986 and 1996. In the ownership sector, Vancouver was the youngest stock (33.6 percent) followed by Oshawa (31.4 percent), Ottawa (28.5 percent) and Quebec City (27.0 percent).

The age distributions highlight the recent growth of the ownership stock in Vancouver, Oshawa, Ottawa, Quebec City, and Kitchener and Halifax. More than a quarter of the ownership units in these cities were reported in the census as having been built in the last 10 years. The Table 8 statistics also show that the main difference in the age distribution of the rental and ownership stock is due to the much smaller proportion (13.0 compared to 23.5 percent) of the rental stock being built between 1986 and 1996 and a much larger proportion (24.5 compared to 14.6) built between 1961 and 1970. The statistics show that the two tenure sectors differ in a number of cities; Vancouver, Quebec, Montreal and Ottawa tend to have older rental and newer ownership stock while the four small Ontario CMAs have a younger rental stock relative to their ownership housing. The filtering rates in the two tenure groups are expected to differ both across and within CMAs. The number of observations for many of the CMAs is small, particularly in the rental sector. We can, therefore, expect difficulty in finding rent gradients that are different from zero unless the rents are substantially different across periods of construction.

The Regression Models for Standardizing Dwellings and Households

Table 11 lists the means for the variables that are used in the analysis. The regression models place rent and then price against a set of categorical variables describing the number of rooms in the dwelling, the building type, the repair status and the households' recent move. As illustrated in the regression results obtained by using the combined CMA data in Table 12, the rooms variable is broken down into a set of dummy (0, 1) variables. The two variables describing the occupants' assessments of their building's need for major or minor repair provide only a crude indication of the quality of the dwelling. The variables identifying households that had moved in the previous year or previous five years can help account for the presence of tenure

discounts for renters. In the homeowners' cases, these variables may also reflect the accuracy of the owners' assessment of the price of their home.

The main omitted variable in both regressions is the quality of the dwellings in terms of their location, finishes and room size. The consequences of these omissions may not be severe in the rental sector as older houses have been converted to smaller units and the new rental units are not excessively large. Within the homeownership sector, dwelling size has been increasing and rooms, hallways and entries have been getting more spacious. The lack of data on the floor space within a dwelling and on the quality of the finishes and appliances will make the results estimated profiles show a steeper price decline with age of building than can be attributed to the aging process itself.

Attempts were made to reduce the effect of the omitted quality variable by including household income as a proxy for quality. Higher-income households could be assured to live in the higher quality dwellings. Another attempt to deal with the quality issue specified a model with two simultaneous equations to represent supply-side and demand-side equations. The household's income and number of people along with the building's age variables were included in one equation while the age and the building variables were in the other. The rent and price variables were treated as endogenous variables in the simultaneous estimation of the coefficients. Surprisingly, the inclusion of the income variable in the OLS equations tended to reduce the estimated slope of the gradient in many cases. The simultaneous-equation method improved the estimates for the price and rent gradients slightly but added enough complexity to the interpretation of the coefficients to be set aside in this report. Since the inclusion of household income in either model made very little difference to the estimates and absolutely no difference to the conclusions, the simpler and more parsimonious model was used.

The Combined-CMA Rent and Price Profiles

Table 12 presents the regression results showing the estimated coefficients for the period of construction, dwelling size and type variables. It uses the combined data for all the CMAs. All variables on the right-hand side are categorical (0, 1) variables. All dollars in this report have been converted to their 2003 prices. Toronto is set as the “base” against which the other city comparisons are made. Since the factors described by the variables are expected to have a proportional effect on rents and prices, a multiplicative specification is used and the rent and price variables are entered in logarithm form. The estimated coefficients show the proportional differences in rents and prices from the base case as a result of the dwelling having the attribute identified by the dummy variable. The base is formed by the latest period of construction (1986-1996), Toronto, low-rise apartment in the case of rental and single-family detached in the case of owners, non-condominium, not needing minor or major repair, not having moved in the last one or last five years. In the case of renters, the base household has a primary source of income other than government transfers.

The period of construction variables are entered in the model using the combined CMA data as a set of dummy variables with the most recent period 1986-1996 forming the base for comparison. Since this can be too demanding a specification for the individual CMA regressions, an age variable is constructed using the middle year of the period. An age squared variable is also entered to depict curve similar to the one illustrated in Figure 1. Since the natural log of rent and price are used, the coefficients for the continuous age variable reflect the compounding rate of change in rents and prices. When the estimated coefficient could not be distinguished from

zero at the 0.05 probability level, the predicted prices for the gradients are identified in the tables with an asterisk (*).

The estimated coefficients show that the standardized rental units built before 1920 have, on average, 10 percent lower rents than similar dwellings in new buildings. In the homeownership sector, the difference is 32 percent. Since the number of cases is large, just about all of the estimated coefficients are different from zero at probability levels below 0.000. The important exception is for the categorical variable identifying the rental stock built between 1981 and 1986 showing that rents do not differ across the first 15 years of a buildings life. Rental units between 16 and 25 years of age may rent for 3.5 percent less than buildings that are up to ten years old.

The regressions show that rents and prices decline with age of building when the effect of the characteristics described by the other variables is controlled for but the decline after 15 years is small. The difference is 6.3 percent for the 1921-1945 rental stock and 11.1 percent for buildings built before 1920. The homeowner sector has a steeper price gradient and an uneven one. After 50 years, the price of a owner occupied dwelling may be 16.6 percent lower than the price of a similar new house. The effect may be due to depreciation but it is also attributable to the omitted variables describing the floor area of the building and quality of finishes and neighborhood.

Table 13 shows the rent by period of construction for a dwelling with 4 rooms, in a low-rise (under four floors) apartment, in good repair, for a household who has not moved in five years and has its main income from sources other than the government. The proportional decline in rents is shown in the second row. The next two show the changes in the price of the “standardized” house with the only difference from the “standardized” rental unit being in the

number of rooms and building type. The standardized homeowner dwelling was 7 rooms and is in single-family detached house. The estimates in Table 13 can only serve as the outer boundary for the average rent and price declines across all the CMAs. Table 13 also lists the average rents and prices for each of the periods that correspond to the median rent and price statistics presented in the last section. Half of the difference in average rents over a 50 year period (14.7 compared to 7.2) is due to the differences in the characteristics of the housing stock. The remaining older dwellings are smaller and are in a worse state of repair. In the homeownership sector, the ratios are comparable with the exception of the buildings that were more than 50 years old.³ The standardized dwelling showed a larger difference than the average dwelling or the median one reported in Table 6.

The CMA Rent and Price Profiles

Estimates of the rent and price profiles for each CMA reflect the effect of aging within an integrated housing market and are not affected by the correlations between price increases, city growth rates and the age of the stock.⁴ The estimates using the period of construction categorical variables are illustrated in Figures 2 and 3 and the rents and prices are compared in Tables 14 and 15. Figures 3 and 5 standardize the rents and prices of the 1986 to 1996 period to compare the slopes of the gradients across the periods of construction. The variation across the CMAs is

³ The standardized rent and price will be smaller than the average price due to the model predicting the logarithm and rents and prices before converting back to natural numbers. By taking the logarithm, the highest rents and prices are compressed more than the lower prices. The averaging of the logarithms reduces the effect of the highest rents and prices.

⁴ The coefficients used to develop the predictions were estimated using the model presented in Table 12 with two exceptions. The CMA variables were excluded but the dummy variables identifying the central cities in Montreal, Toronto, Hamilton, Edmonton and Vancouver were included in their respective CMA regressions. The categorical variables identifying each period of construction often did not yield statistically significant coefficients except for the larger cities. As a result, the building age and age squared of variables were used. When these could not yield a coefficient that was different from zero, the age squared variable was dropped. When no differences at all could be discerned, asterisks were placed in Tables 14 and 15 to identify the CMAs for which no differences could be found.

much larger than the differences across periods of construction. The figures also show inversions in some of the price gradients. Figures 3 and 5 help compare the slopes of the gradients by setting the 1986-1996 rents to one (1) and illustrating the proportional change across the other periods of construction. Winnipeg and Calgary rents drop of more than 20 percent. Edmonton, Sudbury, Trois Rivieres, Sherbrooke, and Quebec City show a 15 percent difference between the rent in a new dwelling and the rent in a somewhat comparable unit that is more than 50 years old.

The rent gradients are for the most part flat. The Montreal rents profile is almost flat with only a 5 percent decrease for the older buildings. No statistically significant relationship would be found at the 0.05 probability level for Ottawa-Hull, Toronto, Hamilton, St. Catherines and Niagara, London and Victoria. The size of the Ottawa, Toronto and Victoria samples are large enough to have yielded a statistically significant coefficient had, in fact, there have been a difference. Moreover, the rent gradients increase slightly for older building in Oshawa, Windsor and Vancouver. We find no evidence in 1996 of welfare filtering in the tightest rental markets.

The homeownership sector shows larger differences across age of buildings and good low variance estimates were obtained for almost all CMAs. The U-shaped profiles appear in Figure 4 as most of the coefficients for the age square variable are negative. The greatest price differences are between new buildings and those built between 1946 and 1960, the era of rapid suburban expansion. The price of the dwellings built more than 50 years ago are higher, most likely, as a result of their inner-city locations. The magnitude of the price difference varies considerably as illustrated in Figures 2 and 4. The profiles are the steepest in Regina and Saskatoon where house built in the 1946 to 1960 period are about a half of the price of houses with the same number of rooms but built in the last 10 years. St. Catherines, Kitchener and Edmonton have differences in

the 30 percent range. Toronto has an 11.3 percent difference. Ottawa has a 10.1 percent drop. Montreal, Vancouver and Halifax have flat profiles in 1996.

The Household Income Profiles

The average incomes, unadjusted for household or housing characteristics, are presented for renters and homeowners in Tables 16 and 17. The first column lists the average income of the households living in buildings less than 10 years old in 1996 and, as before, the other columns show the respective averages as ratios of the first column. In almost all CMAs, the average income declines with the age of the cohort. The average income of renters in buildings over 50 years of age is 10 to 20 percent lower than the income of households living in new rental buildings and the differences are larger for homeowners. In cities with high demand pressures, the income profiles are flat or inverted: Vancouver's older houses tend to be occupied by people with higher incomes. The Toronto profile shows a decline of about 5 percent for buildings more than 50 years old. Differences in the 30 to 35 percent range are found in Regina, Saskatoon, Winnipeg, Sudbury and Thunder Bay.

The standardized income profiles are developed with regressions that control for housing and household characteristics: unit size (number of rooms), building type, household size and a history of having moved in the last one or five years.⁵ Table 18 shows the regression coefficients estimated with the pooled 1996 data for all Canadian CMAs. Larger households and households in larger dwellings have higher incomes. Occupants of detached houses have higher incomes

⁵For rental dwellings the predictions presented in Table 19 are made for a two-person household in a three room low-rise (under-5 floor) apartment building. Homeowner income is projected for a three-person households living in a single family detached houses. The logarithm of the income variable is used to depict a multiplicative function of form for the regression. The coefficients on all the categorical variables show the proportional difference in the income of the group identified by the variable as compared to the base. Toronto is in the base as are the other characteristics that describe the 'standardized' dwelling and household. Changing the description of the household or dwelling will shift the height of the profiles but will not affect their slope.

than households of the same size in low-rise, multi-unit buildings. In both tenures, the high-rise (over 4 floors) households have, on average, the higher incomes.

The building age variable entered in these regressions is constructed as the difference in years between the mid-point of the period of construction and 1996. The estimated coefficients show a compounding decline for the combined CMAs of less than 0.1 percent per year for renters and 0.21 percent for owners. Table 19 illustrates the income profiles. Should a standardized household be living in a new building, it would have an income just under \$36,000 compared to \$33,400 if the building that was over 50 years old in 1996. The income difference across homeowners is larger: \$71,000 compared to \$62,286.⁶

The individual CMA regressions are illustrated in Tables 20 and 21 and in Figures 6 and 7. The first column in the tables lists the projected income of a household living in unit built between 1986 and 1996. Because the averages are calculated using the predictions of the logarithm of income, the numbers in column 1 are lower than the average incomes presented in Tables 16 and 17. The columns on the right-hand side of the table show the projections as proportions of the first column. The asterisks identify the CMAs for which the building age variable could not be distinguished from zero at the 0.05 probability level. No slope could be found for Halifax, Ottawa-Hull and Vancouver. The sample size for these cities is large enough to support the conclusion that, for policy purposes, there is no difference in the incomes of renters living in dwellings built at difference points in time. Toronto and Victoria have a positive gradient with the incomes of renters in the oldest buildings being 13.3 and 23.3 percent higher

⁶ The predicted rents in the first column are lower than the average rents due to the standardization being carried out with a log-linear model. The use of the logarithm of income as the left-side variable results in a greater reduction of the high incomes. The logarithmic specification of the income variable is required to assess the proportional effect of age and it is the usual practice in econometrics. By taking the log, the heteroskedasticity in the error term is reduced or eliminated..

than renters in new buildings. The general trend in these cities is towards an increase in income with age of building, i.e., negative filtering.

Within the homeownership sector, no difference in income could be discerned for Toronto, Vancouver and Victoria. In the other cities, the decreases are larger: 28.4 percent in Regina and Saskatoon, 27 percent in Winnipeg, 26.6 percent in Sudbury and Thunder Bay. Figures 6 and 7 show that the renter income profiles for all cities except Toronto are flat. The homeowner income profiles drop with age of building for all cities except Toronto and Vancouver. Ottawa has a large (16.4 percent) decrease in the average income of households in the oldest housing. The comparison of the downward sloping income profiles in Figure 7 with the relatively flat price profiles in Figure 4 raises questions about the differences in the housing expenditure to income ratios.

Differences in Expenditure Income Ratios

A reduction in housing expenditure to income ratios with age of building would be consistent with the welfare filtering hypothesis. Tables 22 and 23 present the 1996 median housing expenditure/income ratios for each CMA by period of construction.⁷ As before, the first column lists the median for the households in dwellings built between 1986 and 1996 and the others show the proportional differences. The variation in the ratios across CMAs is small in comparison to the differences in income distribution. Canadian housing markets tend to correlate rents and prices with income. While more CMAs have increasing rent/income ratios with age of dwelling, Toronto is a notable exception with a 7 percent decline in the ratio for the households

⁷ The median is the appropriate statistic due to the large number of extreme prices created by the truncation of rents, prices and incomes as well as by the reporting of current rather than permanent income.

in the oldest housing. Older rental buildings in Toronto appear to help households reduce their housing expenditure ratios.

In the homeownership sector, the ratios decline with age of buildings in all CMAs. This is due, in part, to the lower prices of older buildings and, in part, to the likelihood that the residents in the older buildings have had more time to benefit from price increases. Nevertheless, the decline in the ratio is also accompanied by the lower income of the homeowners as described in the previous section of this report.

Figures 8 and 9 show the predicted ratios for households after accounting for differences in their size, for their having moved within the last one or last five years and for the number of rooms and dwelling type.⁸ Due to the very weak relationship between age of building and the expenditure/income ratio, the age variable was entered alone. The logarithm of the ratio is used and the coefficients for the age variable show the rate of change in the expenditure/income ratio with age of building. The horizontal lines in Figures 8 and 9 are for the CMAs for which no difference could be found. The renter profiles show modest increases with age of building in Vancouver and slight decreases in Montreal. London, Ontario has a steeper decline while Regina and Saskatoon show increases. Where a slope can be discerned, the ratio of the homeowner's monthly expenditures to income declines across the periods of construction. Owners in the older buildings in the larger CMAs tend to have lower housing expenditure burdens than their counterparts in newer buildings.

The welfare filtering hypothesis suggests that new housing is passed down the income hierarchy making the lower-income households better off. Do the lowest income households gravitate toward the older buildings and ease their housing expenditure burdens? This question is

⁸ The average age in the older buildings is considerably higher than the age of the primary maintainers in the newer housing. Entering age as a control variable did not change the estimates of the slope.

addressed by repeating the analysis presented above but using only the households in the lowest income quartile in each tenure group within each CMA. To account for systematic differences in income and household needs, the household's income was divided by the square root of the number of people in it before selecting the lowest quartile. The division of household income by the square root of household size is common practice in studies of household income distribution.

The statistics in Tables 24 and 25 and graphs in Figures 10 and 11 show that there is no discernable difference across building age in the financial effort lower-income households make to find housing in half of Canada's CMAs. In the rental sector, the results are opposite to the ones obtained by comparing the median ratios. In all of the cities for which a slope can be distinguished, the renters' ratios increase with the age of dwellings. Unless renters are gaining extra priced attributes in the older dwellings, the reversal of the slope is the exact opposite of what one would expect with the welfare filtering hypothesis. In the homeownership sector, the reverse is true as illustrated in Figures 10 and 11. The lower-income households in older dwellings have lower expenditure/income ratios in the CMAs with slopes that are distinguished from zero. In the homeownership sector, the older dwellings cost less, tend to be occupied by households with lower incomes and, in a number of CMAs, with lower expenditure/income ratios.

The Distribution of Lower-Income Households

The concentration of lower-income households in the older housing stock would tend to support the welfare filtering hypothesis. Tables 24 and 25 describe the distributions of the households in lowest income quartile within each tenure category and CMA. As before, the

household income was divided by the square root of the number of people in the household before the quartile was selected. An even distribution across the periods of construction of the lowest income quartile households would have a 0.25 ratio in each period. The statistics in Tables 24 and 25 show that there is considerable variation across the CMAs. Nevertheless, the homeownership sector is characterized by the higher concentrations of lower-income households in the dwellings built before 1960. The differences in the ownership sector are large in all CMAs except Vancouver.

Figures 12 and 13 show the proportion of households that were below the low-income cutoff (LICO) in 1996 by tenure and CMA.⁹ The results show that a high proportion of renters are below LICO and that there is a tendency in most CMAs for the households below LICO to be in the older stock. Toronto and Victoria are the only exceptions in which newer rental stock has a higher proportion of households below LICO.¹⁰ Among the homeowners, the largest proportion of households below LICO is also in the older dwellings as seen in Figure 13. Vancouver is the major exception with the proportion of owners below LICO staying the same across periods.

The distribution of households that are both below LICO and were paying more than a half of their income for housing is illustrated in Figures 14 and 15. While the proportion of households below LICO is higher in the older rental stock, so is the proportion of renters who are both below LICO and have a severe housing affordability problem. The homeownership markets show a more even distribution with the Toronto and Vancouver profiles having a decrease in the concentration of lower-income households with severe affordability problems in the older houses. These cities also have a reversal in the slope of their price gradients (Figures 4 and 5),

⁹ The PUMF lists only the families below the LICO. To develop an inclusive picture, the same criteria of household income, household size, and city size were used to assign a LICO status to non-families.

¹⁰ The PUMP does not identify subsidized housing units. This Toronto finding may be due to the lowest income households living in subsidized housing that was built since 1980.

higher-income households in the older stock (Figures 6 and 7) and lower expenditure to income ratios in the older owner occupied housing (Figures 8 and 9).

While the changes over time in price and income profiles will be discussed in the next section, the crossectional analysis of recent movers can show how the profiles are likely to change over time. Figures 16 and 17 compare the incomes of movers and non-movers. A one year period is used for renters and a five year period for homeowners. For renters, the trend is toward a small decrease in the income of the households moving in to the older buildings but most of the gradients are flat. Hamilton, Halifax, Windsor, Ottawa and Winnipeg may have somewhat increasing concentrations of lower-income households in their older rental housing.

In most homeownership markets, the trend is obvious: the households moving in to the older housing have higher incomes than the households who have been living in these units for a longer time. The notable exceptions are Ottawa and Montreal with no differentiation across periods of construction. Winnipeg and St Catherines – Niagara are the only CMAs in which the recent movers to the older stock have, on average, lower incomes than the current owners. A part of difference in the incomes of movers and non-movers can be explained by differences in their age profiles. Households in the older stock tend to be older than households in the newer housing. As a result, there are be more retired people among non-movers in the older housing and they will have lower incomes than the movers. A part of the difference can be explained by the restructuring of inner-cities due to their attracting the younger, more affluent, households.

The Changes in Filtering Over Time

The regression models were run for the four census years since 1981 on which micro-data is available. Since the state of repair and the “moved in the last one year” variables were not

available in all four census years they were dropped. The dummy variables identifying the central cities were also left out to yield comparable profiles across the four census. The dummy variables identifying the periods of construction were used instead of the continuous building age and age-squared variables. The steeper slope in the earlier census yields relative good estimates for the dummy variables that show the undulations in the gradients. The graphs in Figures 18 to 21 illustrate the rent profiles and Figures 21 to 25 show the price profiles for 1981, 1986, 1991 and 1996. Only the 13 CMAs identified in the 1981 census are included in the figures.

Figures 18 to 21 show that the rent gradients have been getting flatter over time. They show the decline in the level of rents in Calgary and Edmonton since 1981. In most cities, the 1991-1996 rents are lower than the 1986-1990 rents in constant dollars. The figures show inflections developing in the older rental stock in Toronto, Ottawa and Halifax. By 1996, the Toronto rent profile is flat. The rents in the Toronto dwellings built between 1991 and 1996 are considerably lower than those built in the previous five years for reasons that could not be determined using PUMF data.

Figure 22 to 25 profiles show the homeowners assessed price of their dwellings. While the slope is negative in all cases, the main impression is due to the changing price levels across the four census years. The 1986 levels are considerably lower than the prices in the other years but the general ranking of the CMAs appears unchanged. The growth in prices appears uneven in Vancouver, Toronto and Ottawa with the oldest buildings increasing the most. The reversal of the slopes in these CMAs suggests the presence of gentrifying inner-city neighbourhoods. The figures also show the importance of looking for the slope of the gradients and the price or rent of housing built at different points in time. Cycles affect access to homeownership much more than do possible changes due to the filtering. The very high level of the 1981 profile for Vancouver

shows a speculative bubble that burst in the middle of 1981 with house prices falling by 50 percent.

The changes in the rent and price profiles between 1981 and 1996 are estimated with a two step process: first the 1981 profiles are estimated and the coefficients are then used with the 1996 data to predict the price of each dwelling. This process helps account for some of the vintage effects that influence the cross-sectional profiles. The ratio of the actual 1996 price to the predicted 1981 price shows the proportional change since 1981. The 1996 census data for buildings built before 1981 is then used to estimate the proportional change in rents and prices for each period after accounting for possible the differences in the size and type of dwelling within each cohort.

Table 28 presents the regression coefficients for the renter and the owner models that are estimated with the combined CMA data for 1981 and 1996. The first column shows the coefficients for the 1981 renter profiles. The base is 1980-1981 for the period of construction and all of the coefficients show a steep decline with age of building.¹¹ The second pair of columns shows the results of the regression using the ratio of current rent divided by the predicted rent. The logarithm of the ratio is used to yield coefficients showing the proportional changes. The coefficients for the period of construction variables show a very clear increase in the rents of the older dwellings relative to the newer buildings. Units in buildings built before 1920 rose by 25.5 percent compared to a 10.7 percent increase for apartments built between 1961 and 1970. The coefficients show that the overall rent levels in Halifax, Quebec City, Winnipeg, Edmonton and

¹¹ Comparing the coefficients for the age variables with the ones in Table 12 shows the extent to which the gradient has flattened over time. In 1996, the coefficient for the pre-1920 rental units was -.111 compared to a coefficient of -.328 in 1981. For owners, the 1996 coefficient of -.166 compares to the 1981 coefficient of -.278. The slope of the gradients, once quite steep, has flattened considered over time.

Calgary dropped relative to the rents in Toronto. The changes in Vancouver were similar to those in Toronto while the other CMAs had higher proportional increases.

The columns on the right side of Table 28 show similar profiles for the ownership housing. The increase in prices is not as steep in the rental sector. Table 29 compares the proportional change for the ‘average’ and for the ‘standardized’ dwellings. The standardized rental dwellings show a greater change with age suggesting that the average older dwelling is smaller in size. The relative change in the price profile for the average and the standardized dwelling is the same, the oldest stock increased in price by 18 percent more than did the houses built between 1980-1981.

Figures 28 and 29 and Tables 30 to 31 illustrate the relative change between 1981 and 1996 for the CMAs identified in the 1981 census. Figures 30 and 31 show the estimates for the 1986 to 1996 period and confirm the general trend toward increasing rents and prices in the older buildings. The changes in the Table 30 and 31 and in Figures 28 and 29 are relative to the rents and prices of dwellings built in the 1980-1985 period. When the estimated coefficients were not statistically different from zero at the 0.05 probability level, they were dropped and the regressions were re-run. The asterisks (*) in the tables show that changes could not be discerned for buildings built after 1960 in six CMAs. In all cases, the older buildings become more expensive than the newer buildings. The figures illustrate the undulations in the profiles as the rents and prices in particular periods increased the most. Of particular note are the increases for the 1921-1945 rental stock in Vancouver and the ownership houses in Ottawa.

Changes in the Distribution of Households

Regressions relating the logarithm of income to period of construction, number of rooms, dwelling type and household size were run with the 1981 and 1996 data. The ratios of the predicted incomes of the “standardized” households are illustrated in Figures 32 to 35. Figure 32 shows that the average renter’s income decreased in all cities except Vancouver. In Ottawa and in St. Catherines-Niagara, the income of households living in the pre-1960 stock increased relative to that of households in the newer housing. In all cities, except for Calgary, incomes in the older buildings increased (or dropped less) than that of households in the newer buildings. The proportion of changes relative to the 1980-1985 stock is illustrated in Figure 33.

Homeowner incomes tended to decrease slightly in the older buildings relative to the changes in the newer buildings. Figure 35 shows the relative changes and illustrates the increase in the incomes of the standardized homeowners in the older buildings in Toronto and Vancouver. Montreal, Calgary and Kitchener had relative decreases as much as 10 percent in the pre-1921 stock.

The Determinants of Filtering Rates and Directions

The dependent variables that are used in the analysis of factors describe the changes in the slopes of the profiles between 1981 and 1996 as well as changes in the rents and prices of the older stock. The two variables describing the slope are constructed as the ratios of the rents and prices of the 1921-1945 stock relative to the rents and prices of the stock built in the most recent period. These variables are constructed for a standardized dwelling as defined by the variables available in both the 1981 and 1996 census. The age of building is entered as well as the age squared. In most CMAs the rent and price levels were the lowest for this period and would then

start to increase again with age. The state of repair variables was not included in either set of definitions as it is not available in the 1981 census. The 5th columns of Tables 34 and 35 are used to describe the change in the slope of the rent and price profiles between 1981 and 1996.

The means, standard deviations and range of variables for 1981 and for 1996 are listed in Table 34. Table 35 lists the proportional change in the variables. The relative change in the slope variables is kept in Table 35, but the slope variables are replaced with ones showing the proportional change in the price of the 1921-1945 stock.

The possible explanations of the slope and of the change in the slope of the rent and price gradients can be divided into two groups. One describes changes in the distribution of income and prices in the CMA. The other describes the overall changes relating to the history of the city, its growth and economy. The changes in the distributions of income and of rents and prices are measured using the Gini coefficients estimated for each CMA and census year. A coefficient close to 1 describes the perfectly unequal distribution in which the income or rent or prices are either extremely low or very high. A distribution that is perfectly equal would have a Gini coefficient equal to 0. The distribution of the rent and price statistics is included for comparison with the Gini coefficients for the income variables. Tables 34 and 36 show the differences between the distribution of rents and income. The rent distribution is more even in the sense that the lowest proportion of households, say 25 percent, pay an amount less than 25 percent of total rents in the CMA but not very much less as indicated by the 1981 Gini coefficient of .193. However, the Gini coefficient for 1981 renter incomes is .319 indicating that the same lowest 25 percent of households receives a much smaller than 25 percent share of total income. The Gini coefficients for the homeowners' income and monthly payments are similar suggesting a more even distribution of burdens.

The explanatory variables may reflect the level of housing prices and income in the CMA, as well as the size of the CMA. According to neo-classical location theory, the higher the level of housing prices, the greater is the price of being closer to the region's centers of employment. Since the older houses are closer to the center, the hypothesis suggests that CMAs with higher overall prices will have steeper land-rent gradients and, therefore, steeper rent and price profiles. The higher price levels may be due to constraints in land supply, or due to a persisting disequilibrium between demand and supply.

City size as measured by the number of households. Larger cities can be expected to have steeper rent and price profiles than smaller urban areas. The prosperity of the household in a city affects their housing demand and this is measured by the average personal income of residents and by the proportion of primary household maintainers with professional occupations (defined as being in category 1 to 4 in the PUMF 1980 classification of occupations). The sign on the correlation may be positive or negative as the higher income may be associated with the propensity to buy detached houses, and therefore, the spreading out of the city and the flattening of its land price gradients. This would flatten the housing price gradients across space and translate into smaller price differences across periods of construction. The proportion of professionals in the workforce may be associated with changes in life styles and preferences that increase demand for inner-city locations and may be associated with increases in the price of the older stock and the flattening of the gradient. The spread of the CMA is also measured by the proportion of its dwellings in single family detached houses. This variable can account for a number of other associated factors such as land supply and planning policies.

The age of the housing stock may also be related to the slope of the price gradients but in a manner that can not be determined *a priori*. Cities with older buildings will have a larger

supply of the older buildings and may, therefore, have to charge lower rents to maintain lower vacancy rates. However, these cities may also have had less growth in recent years and, therefore, have experienced fewer demand pressures. The resulting lower prices may make it easier for lower-middle income households to buy suburban houses and let their older residence filter down to lower-income households.

The Correlations between Changes in Variables

The correlations between the changes in the slope of the rent and price gradients are listed in the first two rows in Table 36. The correlations with the increase in the rents and prices of the 1921 to 1945 stock are in the third and fourth rows. The growth in the number of households in a CMA is positively correlated with the change in the slope of the price gradients, particularly the rent gradient. The more growth a CMA experienced, the more expensive the older housing became relative to the price of the newer stock, the flatter the profiles became. This suggests that growth is a factor explaining the reversal of the filtering process. Changes in average rent and price levels, income, and professional occupation are strongly correlated with change in the price of the 1921-1945 stock (columns 3 and 4). These are indications of growth in housing demand which causes the price of housing to increase. They increase the price of all housing but only the growth in income tends to flatten the price gradient somewhat. Interestingly, the growth in income raises the demand for the older ownership units and drives their prices up more than it drives the price of newer dwellings. However, income growth reduces the extent to which the rent profile flattens out. These correlations are consistent with the view of increasing income shifting demand from older rental to older ownership units. Table 35 showed that average rents increased by 27.1 percent suggesting that the possible shift in demand

brought about by increasing incomes simply reduces the inflation rate of the older buildings relative to the newer rental dwellings.

The changes in the proportion of detached houses and the changes in the age of buildings are negatively correlated with the increases in the rents and prices of the older dwellings. A large decrease in average age (negative change) would be due to a large amount of new development taking place in the CMA. These variables are indicators of supply adjusting to growing demand. They indicate that the city has a growing demand and possibly a seller's market in ownership housing and decreasing vacancy rates. Decreases in the average age of the stock (through demolition or redevelopment) and increases in the proportion of detached houses are strongly correlated with increasing average incomes as well as with rising average rents and prices. The CMAs with the greatest demand pressures have the largest increases in the price of their older housing. The price profiles in these cities tend to flatten out as indicated by the negative correlations but very little happens to the rent profiles. The association between these changes and the rotation of the profiles is weak. The only observation of possible interest is in the effect of increasing proportions of detached houses on the rental profile. The more supply of detached houses expands the less is the pressure on older rental stock and the less the rent gradients flatten. The cities with the most growth in the proportion of detached houses have the least negative filtering in the rental stock.

The changes in the Gini coefficients for income and housing expenses are negatively correlated with their changes in the respective slope of the rent and price gradients. The more the income distribution of renters became equal, the more the rent gradient flattened. Growth in the equality of renter incomes is correlated with growth in the equality of rents across periods of construction. The reduction in the disparity in the income of renters reduces the disparity of

rents. The correlation between the Gini coefficients for rents and the slope of the rent gradient is negative showing that the evening out of the rent distribution is associated with an upward rotation of the rent profile. While CMAs with the greatest inequality in renter incomes had the largest differences in the rent of a new and old dwelling, the CMAs with the greatest increases in the disparity of renter incomes had the least reduction in the differences in rents and prices. While the filtering process appears to have reversed direction in most CMAs, the least negative impact on low income renters is in the CMAs with the greatest growth in the disparity of renter incomes.

The exploratory analysis points to relationships that can be explored by further research using more refined methods. The main finding relates increases in average personal income to the flattening of the ownership profiles, i.e. to negative filtering. Growth in the number of households also encourages negative filtering. City spread through the increase in the proportion of detached houses reduces the extent of negative filtering. The implications are that slow growing cities that are experiencing increasing sprawl will have the least amount of negative filtering. In short, welfare filtering can be induced by increasing the shift to detached houses while the number of households stays about the same. These findings are consistent with the explanations of the welfare filtering that was observed in the post-WW II period with its rapid suburbanization. It follows also that constraints on spread would induce greater negative filtering pressures. These conjectures are consistent with the correlation analysis presented here as well as with the findings reported in much of the filtering literature.

The correlation analysis suggests that the following questions merit further investigation using case study methods¹²:

¹² The analysis of 13 cases can not be conclusive especially when the CMAs are so very different. As mentioned in the introduction to this chapter, case study methods are needed to examine the determinants.

- 1) To what extent is the growth of households in a sub-market related to the flattening of the price profiles? The correlations presented here show that the CMAs with more growth have experienced the most negative filtering.
- 2) How do increasing income levels change filtering rates? The results here suggest that they reverse the direction of filtering in the homeowner sub-markets, but reduce the rate of negative filtering in rental markets.
- 3) How does city spread affect filtering rates? The results here suggest that the increase in the proportion of single family detached houses results in less pressure on the price of older rental and ownership units. Policies to control “sprawl” would, therefore, increase the rate at which the relative and absolute rents and prices of older housing increase. Development constraints would induce negative filtering.

How well matched are the income and price distributions? To what extent do changes in the income and housing price distributions move together to help match price and income profiles? The correlations suggest that the extent of negative filtering is reduced by the growing disparity in renter and homeowner incomes. Housing prices are, to an extent, a profile of the income distribution

Conclusions

The profiles developed in this study show that the rental and ownership markets differ in the extent to which their housing prices have changed over time. The 1996 rental profiles tend to be flat whether defined by the median rent in each period or by using regressions to standardize the building type and number of rooms. The CMAs that have rent differences across the age of

their stock; have relatively small differences that would have evolved over a long period of time. Even if buildings over 50 years old have rents that are 10 or 15 percent lower than the rents in new buildings, it is very unlikely that the rent of the buildings that are new now will be 10 to 15 percent lower (in constant dollars) 50 years from now.

The homeownership market shows steeper price differences across buildings of different age. 50 year old houses may be as much as 30 percent lower than the price of a new house in some CMAs but the differences are much smaller in the large cities with high housing prices. In Vancouver, for example, old houses are less than four percent lower in price than new houses with the same number of rooms.

The analysis shows that there is a greater tendency for lower income people and for households below LICO to live in the older dwellings. In the rental sector, the households tend to spend a larger portion of their income on rent as a result of choosing an older building. The cross-sectional analysis shows no evidence of welfare filtering in the rental sector that houses lowest income groups. For homeowners, the opposite is true as households in the older dwellings (their primary maintainers are also older on average) spend a smaller proportion of income on housing. The aging process makes more ownership options available to lower-income households but the process takes time to have an impact and it would take much more time in the large cities with higher prices. The CMAs with the lowest housing prices have the steepest profiles. Regina and Saskatoon's oldest houses are 43.6 percent lower in price than their new houses. Winnipeg, Sudbury, Kitchener, St. Catherines and Edmonton show 20 percent declines in house prices over 50 years. The smallest traces of a past filtering process are in the large cities with the highest housing prices.

The main qualifier for any filtering based housing policy is raised by the observation that the rent and price profiles have become flatter over time, they have rotated counterclockwise in the figures presented in this report. The change is more pronounced in the rental stock but it is also evident in the inflections found in the ownership profiles. The older stock that is increasing in rent and price the most and this can clearly be seen in Figures 36 to 39. The Montreal and Toronto PUMF samples are large enough to yield estimates for single family detached ownership units and apartments in rental sector. The limitation of building type helps reduce the chance that stock characteristics influence the results of this comparison. The state of repair variables is omitted as it is not available in all of the census years depicted in the figures. The four figures show that the steep 1971 gradient rotated counterclockwise with time as the oldest dwellings increased most in their rent or price. They show a remarkable similarity between Montreal and Toronto. The figures leave no doubts as to the direction of change in the filtering process in both tenure categories.

This study finds a reversal in the direction of the filtering process in all CMAs. The implications of this finding are serious for two reasons. First, the finding removes the benefit of doubt regarding the price of relying on the filtering process to ease the housing conditions of low-income households. Even if we were to conclude that the cross-sectional price difference of 30 percent for a 50 year age difference is an indicator of welfare filtering, then observation that older buildings are increasing in price the most suggests that the current stock will certainly not decrease in price by 30 percent in 50 years relative to the price of the new stock.¹³ Second, the finding of a reversal not only suggests that filtering can not be relied upon to increase the supply of affordable dwellings but it is reducing the supply of lower priced stock. Filtering now has to

¹³ This is not saying that cycles or changes in aggregate demand may not cause the price level to drop. The conclusions apply to the price of the old stock relative to the price of new housing.

be countered by policy. In growing cities, filtering is a contributor to the housing problems not a means for their solution.

GENTRIFICATION

Introduction

This chapter examines the spatial dimensions of gentrification. It provides profiles of the neighbourhoods that are undergoing gentrification and assesses the factors and forces that are inducing the gentrification process. The section presents the method used to identify the census tracts in ten Canadian CMAs that may have been gentrifying between 1981 and 2001. The selected tracts are then compared to the ones that were not selected at both the national and CMA level. Key-informant interviews, mainly CMHC market analysts, further refined the search for gentrifying neighbourhoods within each CMA. A statistical profile of census tracts identified by key-informants is developed and compared to the other tracts. This section sheds light on both the temporal and spatial trends of gentrification that are occurring within the ten CMAs. Its focus is on the older housing stock within the lower-income inner-city neighbourhoods which may be increasingly occupied by upper-income households. This process reverses the traditional filtering model of housing stock transitions but the process is spatially uneven across the CMAs. Therefore, a profile of possible gentrifying neighbourhoods will help to develop and target appropriate policy initiatives regarding the supply of older affordable housing within Canadian cities.

The first part of this chapter describes the method that was used to identify the census tracts that may be experiencing gentrification pressures. The selected tracts with the likely characteristics of gentrification are then compared to those that were not selected at both the national and CMA level. Key-informant interviews, mainly CMHC market analysts, further refined the search for gentrifying neighbourhoods within each CMA and provide background

information on the tracts and on the factors that are encouraging the gentrification of older neighbourhoods. A statistical profile of census tracts identified by key-informants is developed and compared to those tracts that were not selected. The profiles for individual CMAs as well as the results of the interviews are presented before drawing conclusions regarding the characteristics of the neighbourhoods undergoing gentrification and the determinants.

Ten CMAs were selected (Halifax, Quebec City, Montreal, Ottawa, Kingston, Toronto, Winnipeg, Regina, Edmonton and Vancouver) to achieve a diverse regional representation of Canadian CMAs. They were also selected because most had been the subject of previous studies on gentrification (Ley 1988, 1993). The 1981 and 2001 censuses were used to look for evidence of gentrification within the selected CMAs. A twenty-year longitudinal study provided the time period necessary to capture the stage process that is often associated with gentrification as noted in the literature review.

The Variables

Selected variables were extracted from both the 1981 and 2001 censuses to describe the key attributes that are known to be associated with gentrification. Five broad categories of census variables were analyzed:

1) Distance:

The straight-line distance from the centre of the census tract to downtown (usually city hall or a well-recognized street intersection) was calculated. This variable measures the centrality of the census tract to downtown amenities, e.g., shopping, cultural and recreation facilities, employment nodes, etc., that are commonly sought after by gentrifying households.

2) Density:

The 1981 and 2001 gross population and dwelling unit densities were calculated using the area of each tract as of 1981. Curiously, neighbourhood density changes are not commonly chaptered in previous studies of gentrification (Beauregard 1990, Helms 2003, Ley 1988, 1993). Yet density changes may indicate conversions, redevelopment and occupancy of gentrifying households who usually have smaller household sizes than the households they are displacing.

3) Dwelling Type, Tenure and Age:

Various dwelling types, tenure and age are recorded as a proportion of the census tract total. Changes in the proportion of single-detached, high-rise apartments and other dwellings as well as the proportion of owned and rented dwellings per census tract describe some of the likely consequences of neighbourhoods undergoing gentrification. For instance, a rooming house rented by several households is bought and renovated by a single upper-income household resulting in a change to both the dwelling's tenure and type.

4) Economic Characteristics:

The economic variables selected include average rents (1981 and 2001) and average personal incomes (1981 and 2001). The 1981 average rent was imputed from the chaptered rent categories. These are the only two economic variables that are matched in the available data from the two census years. Overall, changes in income and rents help describe tracts undergoing gentrification. In addition, a few variables from the 2001 census, including average dwelling prices, housing needing major repairs, and low-income households, were selected and included in the re-constructed data base even though they were not chaptered in the 1981 census. This was done to assist the spatial comparison of selected versus non-selected census tracts.

5) Demographic and Household Characteristics:

Neighbourhoods undergoing gentrification are likely to experience changes to their demographic composition and household characteristics. Typically gentrifying households are young, well-educated, highly mobile and single-person households. Thus, the census variables that measure the proportion of single-person households, persons per households, movers (*i.e.*, persons who changed their residential address since the previous census), and proportion of persons aged 25 to 39, and percentage of persons with university degrees, helps to develop a profile of the census tracts that might be undergoing gentrification. Collectively, these variables also are in keeping with the published findings suggesting that gentrifying areas are being targeted by young affluent professionals. A further variable measuring the proportion of the census tract population that immigrated to Canada within four years of the census was also selected since inner-city neighbourhoods typically provide affordable housing to new immigrants.

The Spatial Unit of Analysis

Census tracts are the most appropriate spatial unit for temporal comparison since their boundaries remain either relatively constant from one census to the next, or they are split in two and can be recombined for analysis of changes. Statistics Canada attempts to maintain uniform populations of about 5,000 per tract meaning that the tracts are roughly the same size. However, when a tract experiences a large population growth it is split into two or more tracts in order to maintain this uniformity. Also, new tracts are created to accommodate growth that has occurred beyond the boundaries of existing census tracts, usually at the urban-rural fringe of a metropolitan area. Therefore, to enable a tract level comparison between the 1981 and 2001

census, a database was created that matched 2001 census variables into the appropriate 1981 census tracts using the following two methods:

- i) all new tracts created after the 1981 census were omitted from the database; and
- ii) census tracts that were split since the 1981 census were recombined using GIS software. This process tracked all the census tract splits that occurred during the 1986, 1991, 1996 and 2001 censuses. Prices of each variables were either added together or, where appropriate, a weighted average was used.

Identifying the Gentrifying Tracts

The combined database contained data on 1981 and 2001 census variables for 2,182 census tracts within the ten selected CMAs. The analysis then proceeded to identify which of the 2,182 tracts were likely candidates for the gentrification process. This analysis proceeded with a threefold screening of all the tracts based on the following criteria:

- i) Results of the principal component analysis.
- ii) 1981 average personal income.
- iii) Proportion of dwelling units built before 1946 as chaptered in 2001.

Each step in this screening process is discussed below:

The Principal Components

The first stage of the analysis explored the interrelationships among the variables describing the 1981 census tracts and the variables describing the proportional change in rents, average personal income, number of dwellings and number of people. The positive changes in the rent and income levels are an indication of gentrification when they take place within the older census tracts. The variables describing the census tracts include the set that lists the proportion of the stock in each period of construction. They also include variables describing the 1981 average rents, average personal income, distance from the centre of the CBD, population

density, dwelling unit density, building type and family orientation. The CMAs are also identified.

The variables listed in Table 37 were used in a principal components analysis to help identify the primary factors that distinguish the characteristics of cities and the changes in the character of neighbourhoods. The principal components are new variables formed by taking linear combinations of the existing variables in such a way as to maximize the variance in the first principal component. The maximization is constrained by the requirement that the sum of the squared weights used to combine the original variables is equal to one. Since the information content of a variable may be seen as a function of its variance, the first principal component is the combination of the set of original variables that potentially contains the most information in the database. The second principal component draws the maximum variance left over after the first component has been extracted. It is orthogonal (90 degrees) to the first and, therefore, describes a unique attribute. This procedure continues until there are as many principal components as there are original variables, each successive principal component draws an increasingly smaller amount of the variance in the data. The principal components are typically used as a data reduction technique as the first few components may extract most of the variance in the data and present most of the information.

The principal components are in themselves variables describing the independent dimensions or axis within the space of the original data. The interpretation given to the components is developed by examining their correlation with the original variables. Table 38 presents the correlations for the first six principal components. The Eigenprices and proportion of variance absorbed by each of the components are listed at the bottom of the table. The first component absorbs 21.2 percent of the variance, or information, contained in the original 30

variables and the second component, independent of the first, absorbs another 9.0 percent of the variance. The correlation coefficients that are greater than 0.20 are in bold to ease interpretation. The signs on the components distinguish one end of the axis from the other and have no other meaning. The signs are arbitrary; the component can be multiplied by -1 without changing its interpretation. Table 39 represents the first three components in order of their correlation with the original variables.

The Other Factors

Since gentrification is premised on low-income neighbourhoods being “invaded” by upper-income households the census tracts in the bottom 1981 income quartile for each CMA will be selected from the set of tracts that are candidates for gentrification as identified by the principal components. In other words, only census tracts with the lowest average incomes at the start of the study period were thought to be likely candidates as gentrifying neighbourhoods. This screen excluded older neighbourhoods that were also upper income at the start of the study period.

The definition of “gentrification” applies to older neighbourhoods. The method for selecting the tracts will use further screens to identify the tracts that had the highest proportion of dwellings built before 1946. In this case, the census tracts in the top quartile of dwellings built before 1946 measured as a percent of the census tract total in 2001 for each CMA will be selected. This screen represents the housing type and characteristics that have been identified by the literature as being attractive to potential gentrifiers. Housing built before 1946 is more likely to contain the architectural features, neighbourhood attributes and proximity to downtown that have been well documented by published studies of gentrified neighbourhoods. The proportion was taken as of 2001, the end of the study period, to focus on the tracts in which the older

housing stock has survived and not been replaced by new development. In this respect, an attempt was made to select census tracts gentrifying as a result of the renovation of older housing stock and not due to redevelopment, conversions or new construction. Therefore, our definition of gentrification is much narrower than that used by previous researchers, notably Ley (1988, 1993). The narrow definition is more relevant in a study of the filtering process as the focus is on the supply of low-priced housing through the stock aging process, not on neighbourhood transitions.

The Mapping of Census Variables

Spatial models of each of three variables used to screen for the 249 census tracts were also prepared. In addition, the location of the centroid of the 249 selected census tracts are shown for each CMA. The prices from the principal component analysis, 1981 average personal income and proportion of dwellings built before 1946 between the census tract centroids, were estimated using Inverse Distance Weighted (IDW) interpolation. The IDW interpolator is best suited for data that does not have any relationship or influence over neighboring data prices, such as population. The mapping colour scheme used “warm” colours (e.g., red-orange-yellow) to represent higher prices for the variable being mapped, and “cool” colours (light blue to navy) to illustrate corresponding lower prices. The maps are discussed later in the data analysis section corresponding to each CMA.

The Key Informant Interviews

A series of key-informant interviews was undertaken with CMHC housing market analysts at the regional offices to obtain a qualitative assessment of the census tracts that best met the definition of gentrification (Table 40b) and to gain an understanding of the factors

bringing about the changes. The maps illustrating the census tracts selected through the three stage data analysis work were sent to the housing market analysts in each CMA. Follow-up telephone interviews helped determine which census tracts might be gentrifying and the reasons explaining the reversal of the filtering process. The interviews also developed information on the broad market forces and other factors that are bringing about the gentrification of neighbourhoods in the ten CMAs. When possible, the information developed in the interviews was compared to published case study research of gentrifying neighbourhoods in Canadian cities (Bourne 1993, Ley 1988, 1993, 2003, Criekingen and Decroly 2003).

The Selection Process

The 2,182 census tracts in the ten CMAs were reduced to 249 through the three-fold screening process:

- i) all census tracts with a positive factor score, and
- ii) are in the lowest 1981 income quartile, and
- iii) are in the highest quartile of proportion of dwelling units built before 1946 as captured in the 2001 census.

A national statistical profile of the 249 as compared to the remaining 1,933 tracts based on key variables from the 1981 and 2001 censuses are presented in Table 41 and discussed in the data analysis section of this chapter. Furthermore, selected CMA census tracts are compared with the remaining tracts for each CMA in a series of profile tables to illustrate any regional trends that differ from the national profile.

The key-informant interviews the initial sample of 249 census tracts was further reduced to 94 and labelled as gentrifying neighbourhoods within the database.¹⁴ The profiles for each CMA compare the selected and the non-selected tracts based on the census analysis and selected versus non-selected based on the key-informant interviews. For the Kingston and Ottawa CMAs all tracts identified by the census data analysis were also identified by key-informants as gentrifying neighbourhoods, while none of the census tracts within Regina were identified as possible gentrifying neighbourhoods. The selection and identification method produced four categories of census tracts (Table 41):

- i) **All Other Census Tracts:** This category includes the 1,933 tracts not selected by the threefold screening of variables from the 1981 and 2001 censuses.
- ii) **“Poor/Old” Census Tracts:** This group includes the 249 tracts that were selected based on the screening of census variables. This group was further subdivided into the categories noted below.
- iii) **Remaining “Poor/Old” Census Tracts:** These census tracts were selected by the screening of census variables but *not* selected by key informants as likely gentrifying neighbourhoods. This category represents 155 of the 249 census tracts
- iv) **Possible Gentrifying Census Tracts:** This category includes census tracts that were selected by the screening of census variables and identified by key-informants as likely gentrifying neighbourhoods. This category represents 49 of the 249 census tracts.

Data Analysis

The data analysis is carried out in the three stages described in the methods section. Table 37 lists the means and standard deviations of the variables used in the principal component analysis. The descriptive statistics show that the average of the ratios of 2001 to 1981 rents (in \$2001) is 1.077; the mean tract rent increased by 7.7 percent over the 20 years in constant dollars. Mean incomes increased more, by 9.9 percent. The age distribution of the stock heavily

¹⁴ For example, 68 of Toronto’s 606 tracts were selected using the three-fold screening methodology outlined above. The key-informant interviews with CMHC market analysts (Toronto office) further reduced this number to only 23 tracts where gentrification is thought to be most likely taking place.

favours the 1946 to 1970 period with almost half the 1981 surviving stock coming from that period.

The first principal component (Tables 38 and 39) is clearly distinguishing the characteristics associated with inner-city and suburban differences in spatial structure. One fifth of the variance in the 30 variables is accounted for by this inner-city/suburb axis. Table 39 shows one end of the axis as being defined by a high proportion of owner-occupied dwellings (correlation 0.352), a high proportion of single-detached houses and by the concentration of family households. This side of the axis is also characterized by high average rents, a greater distance from the city centre and higher personal incomes. The other side of this dimension has a larger proportion of renters (correlation -0.351), proportionally more “other” building types, higher dwelling densities and greater proportion of dwellings built before 1920. The larger size of the stock built between 1920 and 1945 also helps define the inner-city side of the axis.

The second dimension points clearly to rent and income increases in older neighbourhoods. Nine percent of the variance is absorbed by this component whose axis is defined at one end by the predominance of old buildings in 1981 and by income and rent increases between 1981 and 2001. The older census tracts were also the ones with the higher proportion of detached houses while the presence of new high-rise apartments defines the other side of this axis. The variables identifying the CMAs are not associated with this component suggesting that the factors identified by the second principal component are ubiquitous. The analysis of micro data in Chapter 4 showed that the older buildings were increasing in price the most between 1981 and 1996 in all CMAs. As the proportion of variance absorbed by a

component decreases, it becomes harder to characterize the factors forming the other principal component.¹⁵

While the principal components appear to point to gentrifying neighbourhoods, further analysis showed that many of these neighbourhoods had people with average or above average incomes in 1981. Both rich and poor neighbourhoods appear to be undergoing gentrification-like processes. To help focus the study to the questions regarding the role of filtering in the supply of housing to lower-income households, the tracts that scored in the top quartile of the CMA tracts according to the principal component analysis were screened to eliminate all but the tracts that had average personal incomes in the lowest quartile in 1981.

The analysis of the remaining tracts showed that many showed the symptoms of gentrification but had a preponderance of new buildings added between 1981 and 2001. Neighbourhoods with low-income households that appeared to be gentrifying were actually being redeveloped. While a study of the changing neighbourhood characteristics is relevant to housing policy, the focus here is on the filtering of the existing stock. A third screen was then applied to the data to select the tracts with the highest quartile of remaining pre-1946 dwellings

¹⁵ The third and fourth components are interesting as they both identify Toronto and the differences in the post-war neighbourhoods. The third speaks to the Toronto tracts other than the post-war ones while the fourth tells about the Toronto post-war tracts. In Toronto, the non-post-war tracts tend to have high-rise apartments and large increases in both rents and personal incomes. They also had development that added dwelling units but not people! The fourth component focuses on the Toronto post-war tracts that have high-rise apartments, like before, but experienced a growth in population but did not have growth in the number of dwelling units. The third component is also defined by rent and income changes. It is identifying the increases in the census tracts with the highest proportion of high-rise apartments and with the most change in the number of dwelling units in the tract between 1981 and 2001. They are the tracts with the most development, they tend to be further out from the city and they are most likely to be in Toronto. The other side of this axis is defined by population increases and by the high proportion of post WW II buildings. These tracts have a greater chance of being in Montreal or Edmonton. After accounting for the variation due to city-suburban differences and for the gentrifying forces, this principal component is pointing to variation in the geography of Canadian urban regions whereby one side is defined by increases in personal income, rents and dwelling numbers in the non-central tracts that have higher proportions of apartment buildings and are mostly in Toronto but not in the tracts built out between 1945 and 1960. The other side has the population growth in the post war suburbs in cities other than Toronto.

in 2001. A total of 249 tracts in the ten cities survived the screening process. The characteristics of the selected tracts are described in the following sections. These were further reduced by the key-informants to 49 tracts as examples of gentrification. Just over 2.5 percent of the tracts in the ten cities were identified as undergoing a gentrification process.

Profile of Census Tracts for all 10 CMAs

Table 41 provides a national profile of selected versus non-selected census tracts based on both the analysis of census data and advice from key-informants as discussed in the method section. The first column provides information on 1,933 remaining CMA tracts while the next column illustrates data for the 249 “poor/old” tracts selected as possible gentrifying neighbourhoods. Results of the T-test for differences in means are shown in the third column. The remaining columns subdivided the 249 tracts into those that were selected by key informants as examples of gentrifying neighbourhoods (n=94) and those that were not selected (n=155) and will be referred to in this chapter as the remaining ““poor/old”” tracts. The characteristics differentiating the tracts relate to their distance from the centre, their density, their housing and tenure profiles as well as their economic and demographic characteristics.

Distance Density

There is a statistically significant difference in the distances to downtown between “poor/old” tracts and all other census tracts: the “poor/old” tracts are about 4km while “all other” tracts are on average 12.5km from the CBD. The gentrifying tracts are even closer than the remaining “poor/old” tracts: 3.7km and 4.6km respectively. This finding is consistent with the literature that demonstrates the importance of proximity to downtown facilities, amenities and employment opportunities as defining features of gentrifying neighbourhoods. The “poor/old” tracts have more than twice the population and dwelling densities than “all other” tracts, while

the highest densities are recorded by the gentrifying census tracts. This may be the result of high-rise development in certain inner city census tracts. It is also a function of the extremely small average areas of “poor/old” tracts (less than 1sqkm) when compared to “all other” tracts (13.5sqkm). Changes in population and dwelling densities between 1981 and 2001 show differing trends between “poor/old” and other census tracts; for example, “poor/old” tracts are declining in population density yet increasing in dwelling density. This may be due to the increasing proportion of small households as well as the conversions of commercial facilities to residential uses. The tracts selected as possible examples of gentrifying areas may also be experiencing a considerable amount of redevelopment.

Dwelling Tenure, Type and Age

Differences in dwelling tenure is also noted between “poor/old” and all other census tracts. In general, “poor/old” tracts have a lower proportion of owned units than “all other” tracts, 37 percent and 56 percent respectively. Furthermore, possible gentrifying tracts have a comparatively lower proportion of owned units (33 percent) when compared to the remaining “poor/old” tracts (38 percent) as recorded in 2001. The proportion of owned and rented units has remained virtually the same between 1981 and 2001 for all categories of census tracts.

The distribution of dwelling types within each of the four categories of census tracts also remains fairly consistent between the 1981 and 2001 censuses. However, differences are recorded across the various types of tracts. For example, single-detached units account for about a quarter of the housing stock in “poor/old” tracts, while “all other” tracts have almost twice this proportion. Other dwelling units account for more than two-thirds of the dwelling units in “poor/old” tracts, compared to about 40 percent for “all other” tracts. Gentrifying tracts have a much lower share of single detached units (16 percent) compared to the remaining “poor/old”

tracts (29 percent). However, gentrifying tracts have a higher proportion of other dwellings units (76 percent) than the remaining “poor/old” tracts (63 percent) in 2001. This difference may indicate that those gentrifying tracts have a greater mix of dwelling units than other census tracts; for example, the other-dwellings category includes a broad range of housing types, e.g., low-rise apartments, duplexes, and semi-detached.

Due to the selection process the “poor/old” tracts have a significantly higher proportion of dwellings built before 1946 than “all other” tracts, 51 percent and 13 percent respectively for 2001. Of note, however, are the differences within the analytically selected group in the share of dwellings built before 1946: the gentrifying tracts had a higher share of older dwellings than the remaining “poor/old” tracts in both 1981 and 2001. Although both “poor/old” tracts and the gentrifying tracts had declining shares of older dwellings between 1981 and 2001, the decrease was smaller for the gentrifying tracts that were identified by the key informants.¹⁶ Therefore, it is likely that gentrifying tracts are able to retain a higher share of older dwellings due perhaps to renovation and upgrading of the older stock.

Economic Variables

All categories of census tracts recorded an increase in average rents between 1981 and 2001; however, the gentrifying tracts had the largest absolute increase in average rent. In 1981, average rents in gentrifying tracts were slightly lower than the remaining “poor/old” tracts, \$535 and \$550 respectively. By 2001 the situation had reversed with average rents in gentrifying tracts being almost \$640 compared to \$617 for the “poor/old” tracts. Average personal income in 1981 was just under \$20,000 for the gentrifying tracts; this is slightly lower than the average income for the “poor/old” tracts. In 2001, however, average incomes increased to almost \$26,000 in the

¹⁶ For example, the remaining “poor/old” tracts share of older dwellings units declined by 14 percent, from 63 percent in 1981 to less than 50 percent in 2001, while the proportion of older dwellings in gentrifying tracts declined by 11 percent, from 66 percent in 1981 to 55 percent in 2001.

gentrifying tracts, much higher than the \$23,000 increase in average income in the “poor/old” tracts. Moreover, the \$6,000 increase in average incomes between 1981 and 2001 recorded by gentrifying tracts is almost double the \$3,000 increase recorded by the remaining CMA census tracts. There was also a \$20,000 difference between the average price of dwellings in gentrifying tracts (\$175,000) and the remaining “poor/old” tracts (\$158,000) in 2001.

Statistics from the 2001 census reveal that over a quarter of all households within “poor/old” tracts were classified as low-income compared to only 16 percent in the remaining census tracts. This proportion is slightly lower for gentrifying tracts (24 percent) when compared to the remaining “poor/old” tracts (27 percent). The proportion of dwellings requiring major repair was the same (12 percent) for both gentrifying and “poor/old” neighbourhoods, but higher than the proportion for all other census tracts (8 percent)

Demographic and Household Characteristics

Gentrification results in the changing demographic composition of neighbourhoods. In 2001, the gentrifying tracts had the smallest households (2.1) compared to the remaining “poor/old” tracts (2.3) and all other census tracts (2.5). Moreover, the decline in the average number of people in a household was the greatest for the gentrifying tracts. Related to this decline was the increasing proportion of single-person households living in gentrifying tracts, 32 percent in 1981 to 42 percent in 2001. This increase in single-person households is also higher than the increase in the remaining “poor/old” tracts and “all other” tracts, increases of 9 and 7 percent respectively over the same time period.

Gentrifying tracts and “poor/old” tracts had similar increases in their share of young people between 25 and 39 (from 24 percent in 1981 to 32 percent in 2001) while the “all-other” tracts had a slight decline (25 to 23 percent) in the proportion of persons aged 25 to 39.

Gentrifying tracts had a more mobile population in comparison to the “all other” tracts. For

example, the proportion of households that had moved in the last five years before the census increased from 53 to 56 percent in gentrifying tracts between 1981 and 2001, while “all other” tracts saw a decline from 51 to 45 percent. A key indicator of gentrification is the change in the education levels of the residents of particular neighbourhoods. The analytically selected candidate tracts show a clear increase in the proportion of the population with a university degree. For example, gentrifying tracts recorded an increase from 10 to 28 percent between 1981 and 2001.

The next sections present the census tract profiles for each CMA. The discussion in each section begins with an overview of the maps illustrating the distribution of factor scores, 1981 average personal incomes and the proportion of dwellings built before 1946. This is followed by a qualitative description of gentrifying neighbourhoods as identified by the key informant interviews. Next, the statistical profile of the four categories of census tracts in each CMA is briefly discussed.

Profile of Halifax

Map 1 illustrates the distribution of factor scores based on the principal component analysis. The highest factor scores are concentrated on the peninsula just south of Robie Street and north of the Northwest Arm, while the CBD shows negative factor scores. The highest 1981 average personal incomes are located in the south-east portions of the Halifax peninsula adjacent to Point Pleasant Park. The lowest income areas are located in the north-eastern portions of the peninsula as well as the Dartmouth area (Map 2). Most of the Halifax Peninsula contains very high proportions of dwellings built before 1946 (Map 3).

Two census tracts were identified as possible gentrifying areas within the Halifax CMA (Table 42). The highlights of the profile of these likely gentrifying tracts reveal them to be

closer to the CBD, have the highest average rents, a higher proportion of persons with university degrees and higher population and dwelling densities than all other census tracts. Furthermore, the gentrifying tracts maintained about half of its oldest housing stock between 1981 and 2001, while older dwelling units in the other “poor/old” census tracts declined from 45 to 37 percent over the same time period. Also, in 1981 the gentrifying census tracts contained a substantially higher proportion of dwellings units built before 1920 than the remaining “poor/old” tracts, 32 percent and 19 percent respectively. The gentrifying tracts also have a much more mobile population with over 60 percent movers compared to less than half the movers for all other census tracts in 2001.

Profile of Quebec City

In Quebec the highest factor scores are heavily concentrated in the downtown core between the St. Charles and St. Lawrence Rivers (Map 5). The central city area is dominated by low 1981 average personal incomes with higher income areas shown in the periphery especially in the south-west along the north shore of the St. Lawrence (Map 6). The distribution of dwellings built before 1946 reveals a classic radial pattern with the dwelling stock getting progressively younger with distance from the CBD.

Map 8 provides the location of the census tracts selected based on the screening of census variables. Within these tracts the St-Roch neighbourhood was identified as an example of a gentrifying area of Quebec City. Early in the last century the St-Roch area was inhabited by the working class. Social problems such as prostitution, drug use and other criminal activities also took place in the area. It has always been a lower income neighbourhood that later became a privileged location for artists due to the low rents; therefore, it created an identity to the neighbourhood. A first revitalisation phase took place in the late 80's. The city increased

commercial activities in the area. During the 1990s, the Universite Laval established their visual arts building in the same area. With such transformation, it became a popular neighbourhood for young professionals.

The statistical profile of Quebec City's gentrifying tracts shows them to have a higher proportion of older dwellings than the remaining "poor/old" tracts as well as "all other" tracts (Table 43). Specifically, in 1981 almost half the housing stock was built before 1920 in the gentrifying tracts compared to about 40 percent for the remaining "poor/old" tracts. However, most of the other variables do not support these census tracts as possible examples of gentrifying neighbourhoods. For example, the tracts identified as possible gentrifying tracts have very high proportion of low-income households, lower average rents and lower average dwelling prices as compared to "all other" tracts in 2001. Moreover, the proportion of persons aged 25-39 and the persons with a university degree are also substantially lower for gentrifying tracts than either the remaining "poor/old" tracts or "all other" tracts. These statistical trends may indicate that the tracts we identified through the data analysis as "gentrifying" are in the early stages of gentrification with income and rent changes not yet reflected in the 2001 census.

Profile of Montreal

Maps 9 to 15 illustrate the spatial distribution of factor scores, 1981 average income and the proportion of dwelling units built before 1946. The factor scores show the highest prices to be located in the south-central portion of Montreal Island, essentially surrounding the CBD, as well as the most westerly tip of the Island. The lowest or negative factor scores are found in the northern parts of the Montreal Island and areas known as Ville LaSalle and Lachine (Maps 9 and 10). The geographic distribution of average incomes shows a clear pattern of higher incomes on the Island's western portion and areas just north of the CBD including Mont Royal, Westmount,

etc. Correspondingly, the north-eastern portion of the Island contains the lowest average incomes (Map 11 and 12). A large section of south-central Montreal Island contains the highest proportion of dwellings built before 1946, the proportion of which gets noticeably smaller with distance from CBD. In particular, the suburban north-shore communities have some of the lowest proportion of housing stock built prior to 1946 (Map 13 and 14).

Map 15 represents some of the gentrifying tracts within the Plateau Mont-Royal (electoral district and name of the neighbourhood). This area was first developed in the 1920s and was largely inhabited by the French working class. However, as a result of industrial restructuring (1960-1970), factories and heavy industries moved to the suburbs and so did some of the workers, and the area became largely neglected. During the 1980s, the residential area began to be inhabited by writers, sculptors, and painters. Also, many students found that the area was convenient and affordable. It also had its fair share of social problems and poverty. Recently the area has become in greater demand, as the vacancy rates are currently less than 1 percent, down considerably from over 10 percent about ten years ago. Overall, Plateau Mont-Royal district's commercial and residential mix appeals to a growing number of more affluent households. Areas adjacent to the Plateau now thrive because Plateau Mont-Royal is too expensive.

Table 44 shows the profile of the Montreal gentrifying tracts. The gentrifying tracts are some of the City's smallest tracts and are closest to the CBD when compared to both the other "poor/old" tracts and "all other" tracts. Correspondingly, in both 1981 and 2001 the gentrifying tracts recorded higher population and dwelling densities than the remaining "poor/old" tracts. However, for all categories of census tracts population density declined and dwelling density increased between 1981 and 2001. This may indicate a substantial amount of dwelling

conversions within Montreal's housing market. The gentrifying tracts have only a slightly higher proportion of older housing units than the remaining "poor/old" tracts. However, the gentrifying tracts have been able to retain slightly more of their pre-1946 housing stock than the remaining "poor/old" tracts. Moreover, in 1981 gentrifying tracts recorded a higher proportion of dwellings built before 1920 than the other "poor/old" tracts, 37 percent and 34 percent respectively.

In terms of economic variables, Montreal's gentrifying neighbourhoods have had larger increases in average rents than the remaining "poor/old" tracts and rents declined slightly (in constant dollars) for "all other" tracts between 1981 and 2001. Average rents increased by over \$100 in the gentrifying tracts compared to \$73 increase in the other "poor/old" tracts. Income trends also reveal differences between gentrifying tracts and the remaining "poor/old" tracts. For example, in 1981 average incomes were lower for gentrifying tracts (\$18,462) than other "poor/old" tracts (\$19,019). However, over the next twenty years gentrifying tracts had larger gains in average incomes providing them with significantly higher average incomes (\$24,462) in 2001 than the remaining "poor/old" tracts (\$22,515). Furthermore, in 2001 gentrifying tracts recorded higher average dwelling prices and a lower proportion of low-income households than the remaining "poor/old" census tracts.

Similar demographic and household characteristics and trends are chaptered for both "poor/old" and gentrifying tracts. For example, both categories of census tracts show similar proportions of single-person households, movers, persons aged 25-39, and numbers of persons per households. However, gentrifying households had a larger increase in the proportion of persons with a university degree than "all other" tracts between 1981 and 2001.

Profile of Ottawa

The spatial distribution of Ottawa's factor scores reveals two main concentrations of high prices; one is the area to the south, known as the Glebe, and the other to the south-west of the CBD (Map 16). The distribution of 1981 average incomes has a different pattern than the factor scores (Map 17). A small area of higher income earners is shown close to the Byward market area as well as south-west of the CBD, south of Queensway and east of Parkdale. Low average incomes are found in a ring immediately adjacent to the downtown core. A large area of the central city has a high proportion of dwellings built before 1946 (Map 18). The age distributions of dwellings form concentric rings of progressively younger housing stock with increasing distance south of the CBD.

Four areas of possible gentrification were identified within the Ottawa CMA. One is referred to as "Little Italy" (Preston Street area) which has a lively commercial ambience and generally has a strong neighbourhood identity and atmosphere that may fit the profile of a gentrifying neighbourhood. Other factors include its proximity to Le Breton Flats, an area undergoing redevelopment, as well as Embassy Row - thus "spill-over" of affluent households into this area may be the result of its gentrification.

The second area includes the census tracts located immediately north of the Glebe, a very affluent area of the city. Thus, this area may also be experiencing a "spill-over" of upper-income households who cannot afford to buy houses in the Glebe sub-market. This area includes many older homes and is highly desired by young professionals. The third area includes the census tracts south of the Byward Market area and adjacent to the University of Ottawa. This area has recently experienced a considerable amount of redevelopment in terms of new condominium construction as well as conversions. The fourth area is located in Vanier, a rather poor area to the

north-east of the city. However, its close proximity to Rockcliffe Park, an affluent neighbourhood, may be resulting in the “spill-over” of affluent households wanting to live near Rockcliffe Park. This area also contains a large number of older homes with the architectural character known to attract gentrifiers. Thus, this area may be more recently experiencing gentrification than the other areas discussed above.

The profile of census tracts from the Ottawa CMA is shown in Table 45. Ottawa’s gentrifying tracts are located, on average, just over 3km from the CBD, substantially closer than the almost 11km for “all other” tracts. Population densities and dwelling densities for gentrifying tracts are considerably higher than for “all other” tracts, due in part to the rather small average size of these tracts. Between 1981 and 2001 population densities within gentrifying tracts have remained stable (approximately 6,419 per sqkm), while dwelling densities have increased from 2,753 per sqkm to over 3,200 per sqkm. By comparison, “all other” tracts increased, on average, both their population and dwelling densities. Ottawa’s gentrifying tracts are also characterized as having a lower proportion of owned units and single-detached units, but a significantly higher share of other dwellings than the average for “all other” tracts.

In both 1981 and 2001, average rents and incomes are lower in Ottawa’s gentrifying tracts as compared to “all other” tracts. However, over the twenty-year study period rents and incomes increased faster in the gentrifying tracts than in the “all other” tracts. For example, incomes increased by over \$7,400 and rents by over \$123 for gentrifying tracts compared to average income and rent increases of only \$6,000 and \$57 respectively for “all other” tracts. Moreover, gentrifying tracts had significantly higher average dwelling prices (\$256,000) than “all other” tracts (\$190, 000) in 2001.

Demographic and household characteristics also reveal differences between gentrifying and other tracts. Specifically, Ottawa's gentrifying tracts have a higher proportion of single-person households, persons aged 25-39, movers and persons with a university degree when compared to "all other" tracts. In particular, gentrifying tracts increased their share of university-educated population from 21 to 38 percent between 1981 and 2001, while other tracts increased from 24 to only 32 percent over the same time period. Also, gentrifying tracts increased while "all other" tracts decreased their proportion of young adults (aged 25-39). Finally, gentrifying tracts increased their share of movers from 61 percent in 1981 to 66 percent in 2001, whereas "all other" tracts experienced a declining share of population who are movers, 54 to 47 percent over the same time period.

Profile of Kingston

Kingston's map of factor scores illustrates only one small area with very high prices, located between the Queen's University campus and the CBD just north of Lake Ontario (Map 20). The map of 1981 average incomes also shows this area as a high income area as well as the western and eastern suburbs of Kingston (Map 21). Not surprisingly, the distribution of dwellings built before 1946 reveals a typical concentric zonal pattern with zones decreasing age with distance north-west of the CBD (Map 22).

Map 23 provides the location of Kingston's four gentrifying census tracts. Three are located north of Princess Street in an area that has been typically poor but containing older homes that are slowing being gentrified. This gentrification may be related to its close proximity to downtown, Queen's University and an affluent neighbourhood, known as Sydenham Ward, located south of Princess Street. The area north yet in close proximity to Princess Street is locally considered to be in the early stages of gentrification.

The profile of Kingston's census tracts is included in Table 46. Overall, the city's gentrifying census tracts have been able to maintain the bulk of their pre-1946 housing stock, the proportion of which declined only slightly from 51 to 46 percent between 1981 and 2001. In 1981, gentrifying tracts also had a significantly higher share of housing built before 1920 than "all other" tracts, 39 percent and 14 percent respectively. Furthermore, gentrifying tracts have a higher proportion of rental and other dwelling types than "all other" tracts.

Kingston's gentrifying tracts can also be distinguished from "all other" tracts by their more rapid increases in average rents and incomes between 1981 and 2001. Although the gentrifying tracts recorded lower rents and incomes during each census, rents increased by almost \$200 and incomes by approximately \$4,500 between 1981 and 2001. By comparison, rents increased by less than \$100 and incomes by about \$4,200 for all other census tracts over the same time period. In 2001, however, gentrifying tracts had a much higher share of low-income households than "all other" tracts, 21 percent and 10 percent respectively.

Demographic and household characteristics also reveal differences between gentrifying tracts from all other city tracts. For example, gentrifying tracts increased their share of single-person households from 35 to 42 percent, while "all other" tracts increased by only 5 percent, from 20 to 25 percent, between 1981 and 2001. Similarly, gentrifying tracts obtained a slight increase in the proportion of young adults (25-39 years old), while "all other" tracts experienced a decrease from 1981 to 2001. More importantly, Kingston's gentrifying tracts had a larger gain in the proportion of university-educated population than "all other" tracts between 1981 and 2001. Also, the gentrifying tracts' populations are becoming more mobile, while the population in other tracts is becoming less mobile.

Profile of Toronto

Toronto's geographic distribution of factor scores, 1981 average incomes, and dwellings built before 1946 are illustrated by Maps 24 to 29. Three main concentrations of high factor scores are observed. One is in the north of the former city of Toronto centred around the intersection of Yonge and Eglinton. However, this area is not commonly considered to be gentrifying through the renovation of older housing stock. The second area is eastern Toronto beyond the Don River. Part of this area is known as Riverdale which has been previously studied as a gentrifying area (Ley 1988). The third area is a large district extending east of Bathurst Street. Very low factor scores are illustrated for census tracts in the eastern part of the downtown core between Yonge Street and the Don River (Maps 24 and 25).

The distribution of 1981 average personal incomes reveal that much of the downtown area, particularly east and west of the CBD, have the lowest incomes (Map 26). However, higher incomes are observed in the north central part of the former city of Toronto, particularly north of Bloor Street and east of Yonge (Map 27). The map of the proportion of dwellings built before 1946 reveals a well-defined pattern of concentric zones of progressively younger housing with distance north of the CBD (Maps 28 and 29). From a general visual inspection of these maps, both the Riverdale area (eastern Toronto) and the area along College Street west of Bathurst emerge as likely locations with the conditions associated with gentrification.

Map 30 provides that location of the selected census tracts based on the analysis of census data. Within this map, two broad areas were identified by the key-informant interviews as undergoing gentrification. One was the south-eastern area of the former city of Toronto known as Riverdale. This area was a blue-collar working class district since about World War II. However, over the past ten to fifteen years working class households began migrating to the

suburbs and replaced by young professionals, many who fit the profile of gentrifiers. The area also has tremendous locational amenities, particularly its proximity to downtown, entertainment district, and transportation. Its stock of housing dates from the 1920s and contains architectural features sought after by upper-income households. Ley's analysis of gentrification notes that this area was beginning to experience overspill of gentrification that occurred in Don Vale and Cabbagetown during the 1970s (1993: 240).

The second likely gentrifying area surrounds College Street bounded by Bloor Street to the north, Queen Street to the south, Bathurst to the east and Dufferin to the west (Map 30). This area has a large stock of older dwellings including many 3-storey houses with detailed architectural features. The area also includes "Little Portugal" which creates an interesting and dynamic local environment. It also has many older warehouses and factories, some of which have been converted to residential condominiums.

Table 47 provides a profile of the various types of census tracts within Toronto. On average, Toronto's gentrifying tracts are located much closer to the CBD (4.2km) when compared to either the remaining "poor/old" tracts (5.8km) or "all other" tracts (16.7km). The population density of gentrifying tracts is higher than "all other" tracts yet has declined from about 9,300 persons per sqkm to just over 9,000 between 1981 and 2001. Over the same period, the remaining tracts remained constant at about 8,100 person per sqkm, while the population density of "all other" tracts increased from about 4,100 to over 4,700. Dwelling densities, however, have increased much faster for gentrifying tracts than the other types of tracts. For example, between 1981 and 2001 the dwelling densities of gentrifying tracts increased, on average, by about 660 dwellings per sqkm, much higher than the 517 and 187 increases for the remaining "poor/old" tracts and "all other" tracts respectively. More rapid increases in dwelling

densities within gentrifying tracts may be related to residential conversions. The differences in population and dwelling densities between gentrifying tracts and both the remaining “poor/old” tracts and “all other” tracts might be the result of differing trends in the number of persons per households, discussed below, and the differences in average areas.

There are no significant differences in the proportion of owned/rented units between “poor/old” tracts and “all other” tracts, as well as between gentrifying tracts and the remaining “poor/old” tracts in 1981. However, gentrifying tracts show a significantly higher share of other dwellings (76 percent) than the remaining “poor/old” tracts (61 percent) as chaptered in 2001. Furthermore, higher percentages of single-detached dwelling units are chaptered for “all other” tracts (45 percent) and remaining “poor/old” (28 percent) than for gentrifying tracts (19 percent) in 2001.

Comparing the age of the housing stock reveals differences between gentrifying and remaining “poor/old” census tracts. Specifically, Toronto’s gentrifying tracts have a significantly higher proportion of housing built before 1946 (63 percent) as compared to the remaining “poor/old” tracts (52 percent) in 2001. Gentrifying tracts also have a larger share of pre-1920 dwellings than the remaining “poor/old” tracts, 39 percent and 31 percent respectively. Furthermore, “poor/old” tracts record a larger reduction in the share of pre-1946 housing stock than gentrifying tracts between 1981 and 2001. The greater retention of older housing stock may indicate that the process of gentrification is at work within these tracts.

The economic variables also reveal interesting comparisons and trends among the various types of census tracts. Average rents and incomes in “poor/old” tracts are significantly lower than chaptered for “all other” tracts in both 1981 and 2001. However, no significant differences in average rents were discovered between gentrifying and the remaining “poor/old” tracts in both

1981 and 2001. Furthermore, all types of census tracts show the similar absolute increase in average rents (about \$150) between 1981 and 2001. Yet over the same time period average incomes rose much more rapidly in gentrifying tracts than in the remaining “poor/old” tracts, e.g., average increases of about \$7,200 and \$4,600 respectively. Also differences in 2001 average dwelling prices for gentrifying tracts (\$239,000) and remaining “poor/old” tracts (\$232,000) were found not be statistically significant.

The demographic and household characteristics of gentrifying tracts also reveal some differences from other census tracts. For example, gentrifying tracts have a higher and increasing share of single-person households than the remaining “poor/old” tracts. Similarly, persons per households are lower and have been declining faster for gentrifying tracts than all other types of tracts between 1981 and 2001. Education levels are higher for gentrifying tracts than remaining “poor/old” tracts, 28 percent compared to 20 percent of the population hold university degrees respectively.

Profile of Winnipeg

The map of Winnipeg’s factor scores reveals a concentric ring pattern with negative scores concentrated in the downtown core on the west side of the Red River (Map 31). The spatial pattern of 1981 average income is very different from that of the factor scores. Highest average personal incomes are shown for south-western areas of the city, with highest incomes illustrated for the Tuxedo and neighbourhoods located just south of the Assiniboine River (Map 32). The distribution of dwellings built before 1946 has a similar concentric pattern as the factor scores, but less pronounced. Most of the central city region has a very high proportion of older dwellings with the highest located along the Assiniboine River as well as areas to the north (Map

33). The selected census tracts are shown on Map 34 with the specific tracts identified as gentrifying discussed below.

The Wolseley area of Winnipeg located south of Portage and east of Maryland, was identified as a good example of a gentrifying neighbourhood. It is characterised by larger older homes built during the first two decades of the previous century. During the 1960s and early 1970s this area was the centre of Winnipeg's counter-culture or "hippy" movement, much like Yorkville in Toronto. Beginning in the early 1980s, however, this area's proximity to downtown, character homes, river amenity and accessibility to the University of Winnipeg was sought after by high-income earning professionals.

A more recent area of gentrification is the Fort Rouge-Earl Grey area. The area began in the 1880s as a lower-middle class suburb that is located adjacent to the CNR yards and shops. The area's commercial facilities were revitalized with the aid of a Business Improvement District. It also includes "Little Italy" which adds to the area's character and ambiance. Although this area is further from downtown than the Wolseley area, gentrification may be occurring in the Fort Rouge as a result of its proximity to River Heights and Tuxedo, two affluent residential areas.

The profile of Winnipeg's census tracts provides a further indication of the gentrification process occurring within this city (Table 48). The city's "poor/old" tracts are about twice as dense as all other city tracts. However, the gentrifying tracts could not be distinguished from the remaining "poor/old" tracts based on population and dwelling densities chaptered in 1981 and 2001. The gentrifying tracts have a significantly higher share of dwellings built before 1946 (71 percent) as compared to the remaining "poor/old" tracts (57 percent). Furthermore, gentrifying tracts are characterized as having a more diverse range of dwelling types indicated by the high

proportion of other dwellings than the remaining “poor/old” tracts, 51 percent and 32 percent respectively in 2001.

Average rents and incomes are higher in the gentrifying tracts as compared to the remaining “poor/old” tracts in both 1981 and 2001. In particular, average rents in gentrifying tracts increased by about \$25, whereas they decreased on average by about \$16 in the remaining “poor/old” tracts between 1981 and 2001. Also, average incomes rose by over \$4,000 in gentrifying tracts, while they declined by about \$100 in the remaining “poor/old” tracts over the same time period. Correspondingly, the proportion of low-income households is much higher in the “poor/old” tracts (38 percent) than the gentrifying tracts (21 percent) in 2001. Furthermore, there is a significant difference in the 2001 average dwelling prices between Winnipeg’s gentrifying tracts (\$81,000) and the remaining “poor/old” tracts (\$51,000).

The demographic and household variables also help to distinguish gentrifying tracts from “all other” tracts. Most striking is the rapid increase in the proportion of university-educated residents from 14 percent in 1981 to 31 percent in 2001 for gentrifying tracts compared to a more modest increase from 13 to 18 percent over the same time for “all other” tracts. Also, the gentrifying tracts tend to have more mobile populations, smaller household sizes and higher proportion of young adults (25-39) than the remaining “poor/old” tracts.

Profile of Regina

Regina’s geographic distribution of factor scores, 1981 average incomes, and dwellings built before 1946 are illustrated by Maps 35 to 37. The highest factor scores are located in the south-western area of the central city east of Albert Street (Map 35). The pattern of 1981 average personal income reveals more affluent areas to the south of the city centre and the lowest incomes found in the city centre and north-eastern areas (Map 36).

No census tracts were identified as possible gentrifying neighbourhoods in Regina. In general, housing stock transitions have been very slow within the inner city, partly a result of Regina's economic base. Further, Regina has a comparatively younger housing stock than the other selected CMAs. Moreover, there has been a viable market by realtors and speculators who purchase older homes as rental property aimed mainly at households on social assistance. These dwellings are not renovated to the scale and extent that would result in gentrification. Neighbourhood upgrade in Regina is more likely the result of redevelopment, particularly the building of senior housing complexes in a few inner-city tracts. Furthermore, renovation and upgrading are occurring in the Cathedral Area (census tracts 3, 5 and 12); yet this area has always maintained itself as an affluent area so it does not meet a strict definition of gentrification.

The profile of "poor/old" census tracts further indicates why none were selected as gentrifying neighbourhoods (Table 49). For example, "poor/old" tracts have a lower proportion of university educated population (9 percent) when compared to "all other" tracts (18 percent) in 2001. Furthermore, over one-third of all households in "poor/old" tracts are low-income households compared to about one-tenth in "all other" tracts as chaptered in 2001. Also, Regina's "poor/old" stock has seen a much faster decline in its share of pre-1946 housing stock than other CMAs between 1981 and 2001.

Profile of Edmonton

The spatial pattern of Edmonton's factor scores, 1981 average personal incomes and proportion of dwellings built before 1946 are illustrated by Maps 39 to 41. The lowest factor scores are observed for much of the CBD surrounded by pockets of very high scores particularly to the east and west (Map 39). The highest average incomes are found in the south-western

portion of the city on either side of the North Saskatchewan River (Map 40) as well as within the City of St. Albert. The lowest incomes are seen in the north-western parts of the city just south of St. Albert as well as south of the CBD. A larger area of the inner city is observed to have a higher proportion of dwellings built before 1946, particularly areas to the north-east of the CBD.

Map 42 illustrates the census tracts that met the threefold screening for attributes of gentrification as noted in the methods section of this chapter, which are briefly described below. The area to the south of the CBD and east of the university, known as Strathcona, is a highly desirable and older area. It also contains a considerable number of heritage buildings. The two census tracts in the north-east sector, 71-85 Streets and 112 Avenue, are emerging as an area of strong redevelopment, especially new multi-family development, partly due to its close proximity to the LRT line. The two census tracts located within 112 Avenue to Yellowhead between 92 and 96 Streets are older (affordable) areas that have seen a pick-up in house sales and prices as young families have sought affordable homeownership. This area is known as the Alberta Avenue neighbourhood. The western area near Kingsway and 109 Street is an area that has seen infill residential development. This area benefits from being close to NAIT, the Royal Alex Hospital, and the City Centre Mall, all big employment generators.

The profile of Edmonton's census tracts provides a further indication of the gentrification process occurring within this city (Table 50). The economic variables show some of the attributes of gentrifying tracts as distinguished from the remaining "poor/old" tracts. For example, average incomes in gentrifying tracts increased from \$25,597 in 1981 to almost \$27,000 in 2001, while incomes declined within the remaining "poor/old" tracts from about \$25,000 to \$22,000 during the same time period. In 2001, average incomes were higher for gentrifying tracts than "all other" tracts. Moreover, the 2001 average price of dwellings was

higher for gentrifying tracts (\$124,000) than for either the remaining “poor/old” tracts (\$102,000) or “all other” tracts (\$123,000). Also, Edmonton’s gentrifying tracts had a more rapid increase in the proportion of university-educated residents from 11 percent in 1981 to 22 percent in 2001 compared to a more modest increase from 16 to 18 percent over the same time for “all other” tracts.

Profile of Vancouver

Vancouver’s geographic distribution of factor scores, 1981 average incomes, and dwellings built before 1946 are illustrated by Maps 43 to 48. The highest factor scores are showing some of Vancouver’s most affluent neighbourhoods such as Shaughnessy and West Point Grey, located at the western tip of the Burrard Peninsula. However, the map also shows a small area of high factor scores adjacent to the CBD, an area known as the Downtown Eastside. Low factor scores are observed for areas south of Stanley Park, the district called Vancouver’s West-end (Maps 45 and 46). The distribution of 1981 average personal incomes shows a clear spatial division between the more affluent western and the much poorer eastern half of the city, roughly divided by Cambie Street. Most of Vancouver is observed to have a very high proportion of older dwellings as compared to the suburban municipalities, such as Richmond and Burnaby (Map 47). However, small pockets of newer dwellings are observed on Map 48 illustrating the newer development south of False Creek and in the city’s west-end.

Map 49 illustrates the census tracts that met the threefold screening for attributes of gentrification as noted in the methods section of this chapter. Specifically, two sets of census tracts were identified as possibly representing gentrifying neighbourhoods. One is located on the southern part of Fairview, between the affluent Shaughnessy and the newer development along the southern shore of False Creek. Ley (1993: 245) previously chaptered that starting in the mid-

1980s this area began to receive “spill-over” growth from the successful redevelopment of False Creek. It is also close to Vancouver General hospital, a main employment generator. The other likely gentrifying area is located on the fringe of Vancouver’s downtown eastside.

Table 51 provides a profile of the various types of census tracts within Vancouver. Vancouver’s gentrifying tracts are, on average, located closer to the CBD than the remaining “poor/old” tracts and “all other” tracts. However, the different types of census tracts could not be distinguished by the population or dwelling densities chaptered in 1981 or 2001. Furthermore, both gentrifying tracts and the remaining “poor/old” tracts have similar proportions of dwellings by tenure, type and age, as observed in 1981 and 2001.

The comparison of economic variables, however, helps to distinguish gentrifying tracts from the other types. For example, average rents in gentrifying tracts increased by about \$83, but by only \$26, on average, in the remaining “poor/old” tracts between 1981 and 2001. Also, average incomes rose by over \$3,000 in gentrifying tracts, while they increased by about \$100 in the remaining “poor/old” tracts over the same time period. There are also slightly higher proportions of university-educated, young adults (25-39) and single-person households in gentrifying tracts as compared to the remaining “poor/old” tracts.

Conclusions

In summary, this chapter develops a profile of the attributes of the neighbourhoods in ten Canadian CMAs that are undergoing gentrification. In developing these profiles we have taken a strict definition of gentrification – the process that involves the upgrading of older housing stock by upper-income households. Thus, it is difficult to make a definitive conclusion as to which areas are undergoing gentrification since the process of redevelopment and new construction within Canadian inner cities often works in tandem or close proximity to areas experiencing gentrification. Notwithstanding this limitation, two sets of conclusions follow. One set provides a description of the key attributes of gentrifying neighbourhoods. The second set discusses the factors that stimulate the gentrification process at work in parts of Canadian inner cities. The key attributes of gentrifying neighbourhoods are:

- proximity to the CBD;
- higher population and dwelling densities;
- increasing dwelling densities;
- more diverse housing stock, particularly a large proportion of “other” dwelling units;
- higher shares of older housing stock and a better ability to retain older units over time;
- rapid increase in average rents and personal incomes;
- larger percentage of single-person households;
- faster decline in persons per households;
- a more mobile population;
- higher share of young adults (25-39); and
- higher and rapidly increasing proportion of population with a university education.

The process of gentrification can be stimulated by several forces and factors that may be present in varying degrees within most Canadian CMAs. The following paragraphs summarize these forces and factors. The determinants are not mutually exclusive as each can be viewed as one of many “triggers” that can cause a particular neighbourhood to gentrify.

Centrality

The centrality of census tracts is a prime variable explaining, to a degree, the gentrification process. In all of the CMAs studied, gentrifying tracts are, on average, closer to the CBD than all other tracts. This indicates that the preferences for amenities commonly associated with CBDs, i.e., employment, shopping, entertainment, etc., by gentrifying households. Therefore, importance of a tract's centrality with respect to gentrification might be directly tied to activities occurring within the CBD. As a result, public policy, particularly related to downtown development, infrastructure investments, urban renewal or revitalization projects have the potential to change how home-buyers or investors view particular neighbourhoods. Moreover, inner-city employment trends will, to a degree, structure the market inner-city housing.

Furthermore, centrality may have a limited effect on smaller CMAs, such as Kingston, Regina or Winnipeg, with much shorter commute times. Much larger and more complex urban areas, such as Montreal, Ottawa, Toronto and Vancouver, that result in longer commute times might exert a greater influence on the preference for inner-city location by upper-income households.

However, centrality of tracts to the CBD is only one measure. The proximity to other big employment generators might also be another locational factor. For example, larger employers such as Edmonton's Royal Alex Hospital or the Vancouver General Hospital might have stimulated the gentrification of surrounding neighbourhoods that are not necessarily located adjacent to the CBD. This can also be mentioned for other amenities such as proximity to universities, e.g., University of Alberta or University of Ottawa, as another reason why the process of gentrification takes hold in particular neighbourhoods.

“Over-Spill”

The process of gentrification may be the result of the spill-over of upper-income households from adjacent, more affluent neighbourhoods. This was revealed for many CMAs; for example, gentrification often occurs next to affluent neighbourhoods such as Rockcliffe Park in Ottawa, Mont Royal in Montreal, Sydenham Ward in Kingston and Shaughnessy in Vancouver. It suggests that a tight housing market within more established affluent inner-city neighbourhoods is forcing upper-income households to “invade” adjacent lower-income neighbourhoods. Thus, a contagious model of gentrification regarding proximity to affluent neighbourhoods might be at work.

Evidence from the key-informant interviews also suggested that “spill-over” may also be at work with respect to areas surrounding neighbourhoods in the later stages of gentrification. For example, areas adjacent to Wolseley in Winnipeg and the Plateau in Montreal are considered to be gentrifying as they represent a more affordable option. This has resulted in public policy concerns regarding the continued loss of affordable housing as a result of gentrification.

Redevelopment and Renovation

Gentrification may stimulate the redevelopment of inner-city neighbourhood and vice-versa. On the one hand, gentrification, i.e., renovations, may be stimulated by a redevelopment project or projects within a particular inner-city neighbourhood. For example, the redevelopment of Le Breton Flats in Ottawa or False Creek in Vancouver may have triggered investment in the renovation of surrounding older dwellings. Residential redevelopment will also change the public amenities within a given neighbourhood which in turn may stimulate private renovation of older dwellings. On the other hand, renovations may trigger redevelopment when the demand for older dwellings exceeds the supply within a given area. In many CMAs, a considerable

conversion of commercial facilities to residential units also occur within or adjacent to gentrifying neighbourhoods. The evidence, presented above, that dwellings densities are increasing while population densities are decreasing in gentrifying tracts may be an indication of extensive conversions.

Overall, a more complete understanding the interrelationship between redevelopment and gentrification is necessary in order to sort out which is the cause and which is the effect of neighbourhood upgrading. Further research could examine whether the renovation and redevelopment markets are two separate markets in terms of the type of households moving into each sub-market. Qualitative information from the key-informant interviews suggest that redevelopment may be more attractive to older households, while the renovation market is typically attracting younger/affluent households.

Ethnicity and Community Identity

Role of ethnicity and community identity appears to create the atmosphere necessary to stimulate gentrification in certain neighbourhoods. It helps to explain the unevenness of gentrification across inner-city tracts. An inner-city neighbourhood with an established and distinctive identity might attract the attention of upper-income households. The character and ambiance of certain areas such as Strachona in Edmonton, Preston Street (“Little Italy”) area in Ottawa, or Wolseley in Winnipeg, suggest necessary *a priori* conditions that lure gentrifying households to a particular inner-city neighbourhood.

Mixed Communities

Gentrification is most likely to take place in diverse communities in terms of the types of dwellings. Overall, gentrifying census tracts typically have the oldest housing stock and the

highest share of “other” dwelling types than other city tracts. This mix of age and diversity of dwelling type may present the market opportunities that drive the process of gentrification.

Neighbourhood Social and Demographic Transitions

The literature suggests that gentrification results in the transformation of the composition of neighbourhood residents. Evidence from this study suggest that younger, well-educated and smaller households are good indicators of a gentrifying neighbourhood. Thus, this type of household’s dissatisfaction with the newer and predominantly large single-detached dwellings in the suburbs is an important variable that helps to explain the gentrification process. However, it is unclear, as noted by Bourne (1993: 104), what impact an aging society will have on the process of gentrification.

Investment Potential and Rent Gap

Almost all gentrifying neighbourhoods have rapidly rising rents, personal incomes and higher-dwelling prices than other inner-city neighbourhoods. However, whether these increasing rents reveal a “rent-gap” as suggested in the literature is difficult to prove. As noted in the literature, Smith suggests that market conditions are, to a degree, constrained by property developers/owners who deliberately disinvest from inner-city housing markets until a “rent gap” emerges. When the potential difference between the price of the property before renovation and after renovation is large, capital moves back into the neighbourhood, which drives the process of gentrification. It appears that gentrification is related to changes in investor perception of particular inner-city neighbourhoods. Previous studies have shown that some investors seek gentrifying neighbourhoods or neighbourhoods with gentrification potential to find bargain housing that can be renovated and re-sold for substantial profits (Kennedy and Leonard 2001). In particular, housing speculation thrives in rapidly changing markets, where properties turn over

quickly, where low-income residents are anxious to pull out newfound equity, or where original residents may not have sufficient information to understand the increasing price of their homes. In this case, the less dynamic housing markets of Kingston and Regina, and to a lesser extent Winnipeg, suggest the main reason why gentrification is less pronounced in these CMAs.

The analysis backed by key-informant interviews suggests that 5 percent of the 1981 census tracts in the 10 CMAs that were analyzed were gentrifying. A much larger proportion of old neighbourhoods had above average rent and income increases but these changes appear to be brought about by re-development and the replacement of the old stock rather than by the gentrification of the old housing. In either case, this study confirms the results obtained in the micro-data analysis presented in the second report of this study: the filtering process cannot be counted on to increase the supply of low-priced housing to households who cannot afford to pay the economic rents that would stimulate the supply of new housing.

6 CONCLUSIONS

Filtering in the Future

Demographic trends toward smaller households increase the attractiveness of inner-city locations to a growing segment of the population and reduce the decline in a dwelling's price. Demographic trends may maintain the growth in demand for the smaller dwellings left behind by the households seeking the larger family houses in the suburbs. Rose and Villeneuve (1993, 1998) examine the role of demographic trends in changing the structure of cities. They show that shifts in the gender composition of the work force and the greater tendency for professional women to find employment in the central business district increases the demand for inner-city locations. The increasing proportion of the dual income no kids households is shifting the location of demand in many cities. The aging of the stock, even without renovation, may reduce the quality of the older dwellings but not necessarily their rent or price. The filtering process can be reversed even without gentrification of neighbourhoods as older dwellings are gradually filtered up to more affluent households. The gentrification study showed that many older neighbourhoods in Canadian cities are being redeveloped and old dwellings are lost without having had the chance to filter down to lower-income groups. Redevelopment has been occurring in older neighbourhoods that have never filtered down to households with below average incomes.

What are the prospects for welfare filtering in the future? Demographic trends showing the aging of the baby-boomers suggest that an excess supply of housing will be generated in some parts of Canada as a result of population decline (Skaburskis and Warne, 2001). These changes are not immanent and the projected decline may be offset by increases in household formation and increasing housing consumption as a result of rising incomes. In the largest CMAs

in-migration and immigration are likely to maintain the level of demand or cause it to grow in selected areas. Rising incomes will further increase housing demand and will continue to support growth of the homeownership sector and help households move to new dwellings and offer the hope that the filtering process will restart to supply lower-income households with adequate and affordable housing (Skaburskis, 2001, 2002). However, decreases in household size and the city planner's "smart growth" policies that try to contain cities will encourage the "revitalization" of inner-city neighbourhoods and the withdrawal of the low-priced housing stock. Furthermore, the reduction in new apartment starts has reduced the stock that can eventually filter down to lower-income households. As income growth and other policies make homeownership more attainable to lower-income households, there will be fewer renters left with enough income bracket to generate an effective demand for new apartments. Income growth, successful homeownership policies and city planning strategies can have adverse consequences for the lowest-income households. The future filtering process may be seen as a ladder that is being slowly drawn up rather than as an escalator that is going down.

Even though the demographic and economic trends may change in the future, it is reasonable to be very cautious about claims regarding the efficacy of the filtering process in meeting the needs of lower-income households. The particular concern should be with the 15 to 20 percent of Canadian households that cannot afford to buy a dwelling. Without large subsidies, the market will not generate the "excess" supply needed to induce the filtering down of the existing stock within the growing cities.

Gentrification and Filtering Policies

The analysis of census tract level data further reveals that gentrification is particularly acute in certain areas within Canadian Cities. The Brookings Institution's report (2001) *Dealing With Neighborhood Change: A Primer on Gentrification and Policy Choices* established "equitable development" as the goal of neighborhood revitalization, "equitable development" being defined as "the creation and maintenance of economically and socially diverse communities that are stable over the long term, through means that generate a minimum of transition costs that fall unfairly on lower income residents". This raises public policies regarding low-income homeowners and renters that could be formulated to help mitigate the potential impacts of gentrification. The analysis contained in this report support goals suggested by the Brookings Institute and away from a reliance on filtering based-housing policies.

This report, moreover, suggests that gentrification must be measured at the neighbourhood level, and that "neighborhood" must be defined in a way that will allow policy makers to identify when gentrification is likely or in progress. This will allow policy makers to make investment and policy decisions that are proportionate to the level of risk of gentrification or to the stage of gentrification that is occurring already.

The Prospects for a Welfare Filtering Policy

If government policy is to increase the supply of low-income housing, what quality level should be expanded? To what extent should welfare filtering be considered in the design of policy? The literature suggests that the filtering process does not work well enough or fast

enough to alleviate the concerns that would generate the need for the policy. Galster (1996)

concludes his assessment of the empirical research on filtering:

Thus, decades of U.S.-based research on housing market dynamics in the context of a market-dominate policy regime supports the ironic conclusions that the unfettered market cannot fully be relied on to deliver decent, affordable housing to the poor. (p. 1802)

If filtering is to be considered in the formulation of housing policy, then the excess supply that has to be generated should expand the middle rather than the upper-quality housing stock. But this will create undesirable side effects as the policies would be highly disruptive for the existing private sector landlords and they would be seen to damage neighbourhoods. The policies would have to increase vacancies in the private rental sector and, if effective in stimulating the filtering process, they would cause the price of private property to decrease. Moreover, the attempt to induce welfare filtering would also lead to neighbourhood deterioration, a trend that planners and policy has successfully reversed over the last 50 years. This, in turn, would run counter to the municipal programs and plans to upgrade neighbourhoods and attract households back to the inner city. Policies attempting to improve the supply of low-income housing through the filtering process would have to encourage sprawl.

Galster (1996) accepts that government policies that ensure the continuing “massive oversupply” of high-quality construction could achieve a permanent rent/price reduction, but only if there is a permanent acceleration of the rate at which the existing stock is downgraded. He points out that the policies would have negative effects on established neighbourhoods and the fiscal health of older cities. Their efficacy is dependant on neighbourhood deterioration. In Canadian inner cities, the opposite trend is evident as neighbourhoods are being rehabilitated to make way for higher income residents. The “return to the inner-city” is heralded as a

“renaissance” by city planners who want to “revitalize” neighbourhoods and “vibrant” cities, all adjectives that describe the processes of “renewal” that gentrification and reduce the supply of affordable housing to lower-income households.

Filtering might still be considered to be a part of a policy for helping lower-income households. How big a policy would be needed to induce welfare filtering on a scale that might be noticed in a decade or two? The Montreal and Toronto 1971 profiles in Figures 36 to 39 can help answer this question. They show a steep price difference between new and old buildings in both tenure categories in 1971 and practically no difference in 1996. The 1971 profiles could be seen as reflecting an acceptable rate of filtering and the aim to establish such profiles might be the government’s long-run strategy.

The literature review pointed out the need for maintaining disequilibrium between supply and demand at the higher end of the market in order to induce welfare filtering. Researchers who observed that the disequilibrium may have been produced back in the post-World War II period as middle income households were induced to leave the inner-city behind for the new suburban houses that they could now afford and finance. Filtering appears to have been working in the 1950s and 1960s.

We cannot imagine a similar disequilibrium being created *and maintained* in the near future for at least two sets of reasons. First, the magnitude of the changes in the post-war period was huge. Not only was the economy expanding rapidly after the war, but the new housing policies, mortgage institutions, mortgage insurance as well as intra-city highway development created the necessary conditions for the scale of suburban development that changed the physical profiles of urban regions. Moreover, the institutional and policy changes introduced to help housing markets were married to cultural shifts that emphasized family formation and gave the

dream of owning a detached house mythical significance. The disequilibrium was due, in part, to the cultural significance associated with the owning of a detached home, of being “king in ones own castle”. Economics, demographics, policy and culture combined to create the 1971 profiles that are suggestive of a welfare filtering process at work. This collusion of forces in unlikely these days and policy alone will not be enough to create and then maintain the oversupply of upper end housing.

The second reason we should not try to rely on a filtering based policy is found in the pervasive economic and demographic trends that are shaping current cities and in the planning policies that are trying to change their future expansion into the countryside. Smaller households formed by professional couples are returning to renovate the older buildings in many inner cities in North America. The family formation and fertility drives of young adults have diminished measurably with their concomitant change in housing demand. Old buildings with character are priced for their style and the convenience of their location. Inner-city neighbourhoods offer proximity to the amenities young professional couples want. The downtowns are also changing to serve the leisure needs of more affluent households. In the suburbs, the city planners’ concern with “sprawl” may eventually curtail the expansion of cities and put more development and gentrification pressures on the older inner-city stock. Infill and replacement construction will continue to diminish the stock of older housing and change neighbourhoods in ways that attract more affluent households. These trends are already evident and the reversal in the direction of filtering documented in this report is their consequence.

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¹ Malpezzi and Green (1996) look for the results of filtering by studying the changes at the bottom of the US housing market. The correlation between the size of the substandard stock in a city and the number of housing completions measures of the contribution made by the filtering process. Malpezzi and Green start by noting John Weicher's (1991) observation that the proportion of poor households living in "severely inadequate housing" decreased from over 10 percent to less than two percent between 1974 and 1987 but over the same period, the proportion paying more than a half of their income for rent rose from 24 to 36 percent. The 1995 U.S. Department of Housing and Urban Development statistics show the proportion of poor households paying more than a half of their income for housing increased to over 40 percent. These trends are not consistent with the welfare filtering hypothesis.

TABLE 1
MEDIAN RENT BY AGE OF BUILDING AND BY CMA : 1996

	RENT	RATIO COMPARED TO 1986 TO 1996 RENTS			
	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	\$779	0.88	0.81	0.82	0.83
QUEBEC	651	0.85	0.85	0.80	0.79
MONTREAL	656	0.92	0.89	0.85	0.88
TR RIV, & SHERB,	571	0.85	0.82	0.81	0.76
OTTAWA-HULL	818	0.91	0.89	0.89	0.88
OSHAWA	843	0.95	0.90	0.92	0.87
TORONTO	960	0.93	0.85	0.82	0.85
HAMILTON	784	0.91	0.88	0.83	0.85
ST.CATH.NIAGARA	696	1.01	0.94	0.95	0.91
KITCHENER	777	0.93	0.85	0.82	0.86
LONDON	842	0.84	0.76	0.71	0.74
WINDSOR	727	0.98	0.91	0.96	0.92
SUDBURY TBAY	670	1.00	0.92	0.99	0.85
WINNIPEG	670	0.89	0.84	0.78	0.70
REGINA & SASK.	544	1.04	0.96	0.96	0.91
CALGARY	841	0.83	0.73	0.76	0.73
EDMONTON	702	0.85	0.77	0.82	0.92
VANCOUVER	896	0.91	0.88	0.91	0.84
VICTORIA	871	0.86	0.85	0.88	0.94

TABLE 2
MEDIAN VALUE OF DWELLING BY AGE OF BUILDING AND BY CM: 1996

	VALUE	RATIO COMPARED TO 1986 TO 1996 BUILDINGS				
	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945	
HALIFAX	\$139,601	0.83	0.80	0.83	0.92	
QUEBEC	116,334	0.90	0.85	0.90	0.80	
MONTREAL	133,784	0.87	1.04	1.04	1.04	
TR. RIV, & SHERB,	104,701	0.89	0.87	0.83	0.67	
OTTAWA-HULL	174,501	0.87	1.00	1.00	1.00	
OSHAWA	203,585	0.86	0.85	0.80	0.74	
TORONTO	267,569	0.85	0.87	0.87	0.87	
HAMILTON	226,852	0.82	0.82	0.72	0.62	
ST.CATH.NIAGARA	186,135	0.81	0.81	0.69	0.62	
KITCHENER	197,768	0.82	0.85	0.76	0.74	
LONDON	209,402	0.78	0.81	0.72	0.67	
WINDSOR	209,402	0.83	0.78	0.66	0.58	
SUDBURY T. BAY	191,952	0.82	0.76	0.64	0.61	
WINNIPEG	150,071	0.74	0.70	0.62	0.48	
REGINA & SASK	151,235	0.69	0.62	0.58	0.47	
CALGARY	197,768	0.74	0.79	0.79	0.76	
EDMONTON	174,501	0.77	0.77	0.70	0.60	
VANCOUVER	308,286	0.91	1.71	1.71	1.71	
VICTORIA	287,288	0.89	0.91	0.91	0.91	

TABLE 3
LOWEST QUARTILE RENT BY AGE OF BUILDING AND BY CMA : 1996

	RENT	RATIO COMPARED TO 1986 TO 1996 RENTS			
	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	\$619	0.911	0.872	0.835	0.847
QUEBEC	547	0.795	0.830	0.773	0.726
MONTREAL	525	0.924	0.907	0.884	0.886
TR RIV, & SHERB,	482	0.826	0.844	0.784	0.743
OTTAWA-HULL	615	0.917	0.964	0.954	0.915
OSHAWA	524	1.261	1.250	1.269	1.111
TORONTO	539	1.263	1.260	1.187	1.161
HAMILTON	462	1.260	1.236	1.158	1.134
ST.CATH.NIAGARA	378	1.598	1.386	1.386	1.278
KITCHENER	465	1.327	1.252	1.183	1.204
LONDON	683	0.852	0.830	0.750	0.723
WINDSOR	427	1.363	1.105	1.227	1.089
SUDBURY T.BAY	390	1.103	1.182	1.344	1.126
WINNIPEG	465	1.024	0.998	0.914	0.757
REGINA & SASK.	401	1.170	1.077	1.015	0.943
CALGARY	617	0.888	0.804	0.793	0.754
EDMONTON	539	0.885	0.831	0.837	0.809
VANCOUVER	640	1.028	1.045	1.033	0.691
VICTORIA	528	1.188	1.208	1.106	1.186

TABLE 4
LOWEST QUARTILE VALUE OF DWELLING BY AGE OF BUILDING AND BY CM: 1996

	VALUE	RATIO COMPARED TO 1986 TO 1996 BUILDINGS			
	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	\$107,318	0.921	0.921	0.921	0.867
QUEBEC	94,231	0.926	0.926	0.864	0.741
MONTREAL	104,701	0.978	1.000	1.000	0.944
TR. RIV, & SHERB,	87,251	0.933	0.876	0.800	0.667
OTTAWA-HULL	139,601	0.825	0.917	0.917	0.833
OSHAWA	168,685	0.828	0.862	0.828	0.759
TORONTO	209,402	0.833	0.917	0.944	0.889
HAMILTON	180,318	0.839	0.871	0.774	0.581
ST.CATH.NIAGARA	145,418	0.840	0.920	0.720	0.640
KITCHENER	157,051	0.874	0.926	0.889	0.815
LONDON	157,051	0.889	0.926	0.852	0.733
WINDSOR	174,501	0.767	0.800	0.600	0.600
SUDBURY T.BAY	157,051	0.815	0.741	0.667	0.593
WINNIPEG	110,518	0.842	0.842	0.735	0.526
REGINA & SASK	110,518	0.779	0.705	0.579	0.421
CALGARY	162,868	0.714	0.800	0.821	0.714
EDMONTON	145,418	0.760	0.796	0.720	0.600
VANCOUVER	209,402	0.972	1.222	1.333	1.389
VICTORIA	209,402	0.889	1.056	1.056	1.000

TABLE 5
COMPARISON OF VALUE, INCOME, EXPENDITURE TO INCOME RATIO AND
PROPORTION BELOW THE LOW INCOME CUT-OFF FOR RENTERS:
WEIGHTED AVERAGES FOR ALL CMAs 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
MEDIAN RENT	\$784	0.91	0.86	0.84	0.85
25 TH PERCENTILE RENT	\$542	1.19	1.21	1.11	1.19
MED. RENTERS INCOME	\$32,627	0.90	0.89	0.91	0.87
25 TH PERCENTILE INCOME	\$16,387	0.95	0.95	0.96	0.90
PROPORTION BELOW LICO	0.397	1.10	1.07	1.07	1.11
25 TH % RENT/INCOME	0.168	1.03	1.01	0.97	0.96
MEDIAN RENT/INCOME	0.242	1.05	1.02	1.01	1.03
75 TH % RENT/INCOME	0.353	1.07	1.11	1.13	1.17

TABLE 6
COMPARISON OF VALUE, INCOME, EXPENDITURE TO INCOME RATIO AND
PROPORTION BELOW THE LOW INCOME CUT-OFF FOR HOMEOWNERS:
WEIGHTED AVERAGES FOR ALL CMAs 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
MEDIAN VALUE	\$206,062	0.84	1.00	0.98	0.95
25 TH PERCENTILE	\$158,774	0.86	0.95	0.94	0.88
MED. OWNERS INCOME	\$75,155	0.95	0.88	0.78	0.79
25 TH PERCENTILE INCOME	\$50,944	0.92	0.80	0.69	0.65
PROPORTION BELOW LICO	0.087	1.13	1.34	1.36	1.92
25 TH % PAYMENT/INCOME	0.123	0.72	0.62	0.65	0.72
50 TH % PAYMENT/INCOME	0.67	0.67	0.67	0.67	0.67
75 TH % PAYMENT/INCOME	0.277	0.90	0.85	0.85	0.91

TABLE 7
COMPARISON OF RENTERS' DWELLING TYPES AND REPAIR: ALL CMAs 1996

MEANS	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
S.F.DETACHED	0.082	0.82	0.88	1.76	2.06
OTHER	0.191	0.85	0.69	0.91	0.98
APARTMENT 4-	0.422	0.92	1.00	1.28	1.38
APARTMENT 5+	0.306	1.24	1.22	0.47	0.20
NUMBER ROOMS	4.453	0.96	0.93	0.98	1.01
BEDROOMS	1.821	0.94	0.91	0.95	0.95
MINOR REPAIR	0.094	2.11	2.73	3.09	3.29
MAJOR REPAIR	0.022	2.64	4.41	5.73	7.41

TABLE 8
COMPARISON OF OWNERS' DWELLING TYPES AND REPAIR: ALL CMAs 1996

MEANS	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
S.F.DETACHED	0.687	1.01	1.14	1.23	1.04
OTHER	0.161	1.21	0.81	0.58	1.10
APARTMENT 4-	0.085	0.60	0.75	0.68	1.21
APARTMENT 5+	0.067	0.91	0.33	0.06	0.06
NUMBER ROOMS	7.015	1.02	1.03	0.97	0.97
BEDROOMS	3.060	1.03	1.05	0.96	0.94
MINOR REPAIR	0.100	2.81	3.02	3.29	3.63
MAJOR REPAIR	0.017	2.76	3.65	4.76	7.76

TABLE 9
DISTRIBUTION OF THE RENTAL STOCK BY PERIOD OF CONSTRUCTION: 1996

	N-CASES	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	1,399	0.177	0.328	0.226	0.143	0.126
QUEBEC	3,444	0.184	0.291	0.205	0.142	0.178
MONTREAL	19,074	0.113	0.239	0.237	0.238	0.173
TR. RIV. & SHERB.	1,511	0.199	0.302	0.160	0.162	0.176
OTTAWA-HULL	4,376	0.159	0.337	0.218	0.160	0.127
OSHAWA	732	0.206	0.291	0.221	0.152	0.130
TORONTO	17,174	0.131	0.284	0.283	0.177	0.125
HAMILTON	2,263	0.101	0.275	0.290	0.159	0.176
ST.CATH.NIAGARA	1,181	0.147	0.261	0.197	0.175	0.219
KITCHENER	1,445	0.170	0.352	0.246	0.113	0.119
LONDON	1,706	0.181	0.331	0.220	0.121	0.147
WINDSOR	904	0.118	0.306	0.213	0.157	0.205
SUDBURY & T.BAY	1,039	0.177	0.285	0.190	0.191	0.158
WINNIPEG	2,662	0.071	0.337	0.247	0.159	0.185
REGINA & SASK	1,608	0.062	0.431	0.243	0.160	0.105
CALGARY	2,866	0.076	0.486	0.238	0.126	0.074
EDMONTON	3,139	0.056	0.487	0.245	0.153	0.059
VANCOUVER	7,777	0.170	0.308	0.244	0.153	0.125
VICTORIA	1,305	0.113	0.323	0.248	0.166	0.151
Total	75,605	0.130	0.303	0.245	0.179	0.143

TABLE 10
DISTRIBUTION OF THE OWNERSHIP STOCK BY PERIOD OF CONSTRUCTION: 1996

	N-CASES	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	2,028	0.256	0.297	0.137	0.160	0.149
QUEBEC	4,155	0.270	0.359	0.144	0.124	0.102
MONTREAL	18,026	0.235	0.286	0.173	0.189	0.117
TR RIV. & SHERB.	1,756	0.227	0.355	0.160	0.153	0.105
OTTAWA-HULL	6,238	0.285	0.338	0.154	0.132	0.091
OSHAWA	1,853	0.314	0.287	0.129	0.161	0.108
TORONTO	24,100	0.224	0.305	0.140	0.178	0.154
HAMILTON	4,238	0.184	0.235	0.148	0.245	0.189
ST.CATH.NIAGARA	2,782	0.160	0.222	0.146	0.250	0.222
KITCHENER	2,430	0.256	0.272	0.150	0.169	0.154
LONDON	2,586	0.206	0.256	0.153	0.185	0.200
WINDSOR	2,016	0.162	0.196	0.128	0.256	0.258
SUDBURY & T.BAY	2,020	0.151	0.220	0.170	0.270	0.189
WINNIPEG	4,559	0.149	0.260	0.145	0.226	0.220
REGINA & SASK	2,741	0.144	0.386	0.183	0.187	0.100
CALGARY	5,514	0.255	0.414	0.138	0.141	0.052
EDMONTON	5,541	0.211	0.423	0.143	0.175	0.048
VANCOUVER	11,297	0.336	0.318	0.117	0.130	0.099
VICTORIA	2,211	0.228	0.333	0.111	0.169	0.159
Total	106,091	0.235	0.309	0.146	0.177	0.132

TABLE 11
MEANS OF KEY VARIABLES BY TENURE: ALL CMAs 1996

	RENTERS	OWNERS
GROSS RENT (\$2003)	\$734	-
VALUE (\$2003)	-	\$206,808
NUMBER OF ROOM	4.316	7.032
HOUSEHOLD SIZE	2.126	2.941
SINGLE FAM. DETACHED	0.098	0.736
OTHER DWELLING TYPE	0.165	0.156
APT. LOW (under 5 floors)	0.457	0.069
APT. HIGH (over 4 floors)	0.280	0.039
CONDOMINIUM	-	0.115
REPAIR MINOR NEEDED	0.231	0.261
REPAIR MAJOR NEEDED	0.090	0.060
MOVED IN LAST YEAR	0.258	0.065
MOVED IN LAST 5 YEARS	0.402	0.184
GOV. TRANSFER SOURCE	0.341	0.147
HOUSEHOLD INCOME (\$2003)	\$36,830	\$75,414
EXPENDITUR/INCOME RATIO	0.300	0.196
BELOW LICO	0.427	0.114
BELOW LICO & >50% EXP/INC	0.210	0.048
N-CASES	75,269	106,633

**TABLE 12:
RENT AND VALUE REGRESSIONS: ALL CMAs 1996**

	RENTERS log(rent)		OWNERS log(value)	
	COEFICIENT	t-stat.	COEFICIENT	t-stat.
P before 1920	-0.111	-13.2	-0.166	-23.2
P 1921 to 1945	-0.063	-8.9	-0.148	-23.9
P 1946 to 1960	-0.061	-10.3	-0.169	-34.9
P 1961 to 1970	-0.053	-9.5	-0.166	-33.2
P 1971 to 1980	-0.035	-6.3	-0.198	-44.4
P 1981 to 1985	-0.014	-1.9	-0.101	-18.4
HALFAX	-0.205	-16.8	-0.713	-66.7
QUEBEC	-0.341	-40.4	-0.785	-100.2
MONTREAL	-0.259	-51.0	-0.557	-117.8
OTTAWA	-0.135	-18.1	-0.419	-63.6
HAMILTON	-0.169	-17.3	-0.330	-42.7
ST. CATHERENS-NIAGARA	-0.242	-18.3	-0.530	-57.0
KITCHENER	-0.174	-14.5	-0.413	-42.0
LONDON	-0.190	-17.1	-0.407	-42.4
WINNIPEG	-0.327	-35.7	-0.833	-110.4
EDMONTON	-0.227	-25.2	-0.428	-61.4
CALGARY	-0.318	-36.6	-0.587	-84.4
VANCOUVER	0.036	5.9	0.293	54.5
TROIS-RIV.SHERBROOKE	-0.444	-37.1	-0.934	-81.4
OSHAWA	-0.126	-7.7	-0.382	-34.2
WINDSOR	-0.211	-14.2	-0.502	-46.6
SUDBURY & T. BAY	-0.263	-18.8	-0.534	-49.6
REGINA & SASKATOON	-0.407	-35.3	-0.908	-96.9
VICTORIA	-0.014	-1.1	0.078	7.5
ROOM2	-0.303	-52.2	ne	
ROOM3	-0.141	-30.5	-0.406	-34.4
ROOM4	ne		-0.293	-41.9
ROOM5	0.103	22.2	-0.174	-33.9
ROOM6	0.192	31.6	-0.077	-16.7
ROOM7	0.267	31.2	ne	
ROOM8	0.308	28.1	0.102	21.4
ROOM9	0.309	19.4	0.174	31.3
ROOM10	0.323	20.6	0.282	54.5
S.F. DETACHED	0.066	9.9	ne	
OTHER	0.011	2.2	-0.073	-16.6
APT. LOW RISE (4-)	ne		0.050	7.2
APT. HIGH RISE (5+)	0.110	25.0	0.139	13.8
CONDOMINIUM	ne		-0.272	-40.4
REPAIR MINOR	0.014	3.6	-0.045	-13.2
REPAIR MAJOR	0.021	3.7	-0.114	-18.4
MOVED LAST 1 YEAR	0.030	7.8	-0.026	-4.4
MOVED LAST 5 YEARS	0.074	19.3	-0.025	-7.2
INC. SOURCE GOV.	-0.178	-51.6	ne	
_CONSTANT	6.638	896.5	12.570	2306.0
	R-square = .253	N = 75605	R-square = 0.462	N = 106,091

TABLE 13
PREDICTED COMPARED TO AVERAGE RENTS AND VALUES
BY PERIOD OF CONSTRUCTION: ALL CMAs 1996

RENTERS

	1986-1996	1981-1985	1971-1980	1961- 1970	1946-1960
PREDICTED RENT*	\$651	634	620	616	605
RATIO	1	0.973	0.952	0.945	0.928
AVERAGE RENT	\$832	737	714	705	710
RATIO	1	0.886	0.858	0.847	0.853

OWNERS

	1986-1996	1981-1985	1971-1980	1961- 1970	1946-1960
PREDICTED VALUE*	\$204,490	170,999	170,757	169,698	170,772
RATIO	1	0.836	0.835	0.830	0.835
AVERAGE VALUE	\$235,942	195,346	197,621	194,516	208,723
RATIO	1	0.828	0.838	0.824	0.885

* The predicted rent and values are for a 'standardized' dwelling using the regression in Table 10.

TABLE 14
PREDICTED RENT (\$2003) FOR A STANDARDIZED DWELLING BY CMA: 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	678	0.937	0.892	0.867	0.870
QUEBEC	590	0.924	0.871	0.842	0.847
MONTREAL	567	0.979	0.964	0.954	0.959
TR RIV. & SHERB.	522	0.918	0.864	0.835	0.856
OTTAWA-HULL	644	*	*	*	*
OSHAWA	617	1.055	1.088	1.094	1.010
TORONTO	751	*	*	*	*
HAMILTON	676	*	*	*	*
ST.CATH.NIAGARA	560	*	*	*	*
KITCHENER	572	0.964	0.934	0.905	0.847
LONDON	654	*	*	*	*
WINDSOR	686	1.047	1.077	1.087	1.026
SUDBURY & T.BAY	590	0.968	0.940	0.911	0.842
WINNIPEG	623	0.952	0.904	0.858	0.762
REGINA & SASK.	533	0.971	0.938	0.909	0.850
CALGARY	691	0.916	0.857	0.818	0.792
EDMONTON	608	0.916	0.857	0.818	0.792
VANCOUVER	724	0.921	0.868	0.837	0.834
VICTORIA	671	*	*	*	*

TABLE 15
PREDICTED VALUE (\$2003) OF A STANDARDIZED DWELLING BY CMA: 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	124,654	0.955	0.955	0.938	0.950
QUEBEC	121,927	0.934	0.934	0.886	0.854
MONTREAL	141,903	0.966	0.966	0.951	0.958
TR RIV. & SHERB.	113,805	0.903	0.903	0.835	0.786
OTTAWA-HULL	205,310	0.925	0.925	0.893	0.896
OSHAWA	213,449	0.879	0.879	0.802	0.767
TORONTO	298,745	0.933	0.933	0.912	0.875
HAMILTON	228,601	0.851	0.851	0.764	0.703
ST.CATH.NIAGARA	194,441	0.840	0.840	0.739	0.673
KITCHENER	198,962	0.825	0.825	0.730	0.670
LONDON	210,081	0.863	0.863	0.779	0.718
WINDSOR	205,272	0.899	0.899	0.833	0.794
SUDBURY & T.BAY	186,016	0.847	0.847	0.751	0.695
WINNIPEG	146,958	0.875	0.875	0.774	0.697
REGINA & SASK.	142,099	0.778	0.778	0.634	0.564
CALGARY	186,936	0.863	0.863	0.792	0.776
EDMONTON	172,574	0.839	0.839	0.749	0.702
VANCOUVER	377,626	0.956	0.956	0.953	0.966
VICTORIA	304,511	0.913	0.913	0.866	0.849

* not different from zero at 0.05 p-level

FIGURE 16
AVERAGE INCOME (in \$1000 not adjusted for housing or household characteristics)
FOR RENTERS BY PERIOD OF CONSTRUCTION AND CMA: 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	\$40.8	0.817	0.744	0.907	0.915
QUEBEC	35.9	0.835	0.799	0.868	0.839
MONTREAL	37.9	0.867	0.857	0.831	0.884
TR RIV. SHERB.	32.7	0.752	0.793	0.795	0.711
OTTAWA-HULL	45.5	0.821	0.834	0.860	0.905
OSHAWA	39.5	0.902	0.973	0.949	0.861
TORONTO	46.0	0.912	0.877	0.919	0.993
HAMILTON	40.2	0.871	0.884	0.848	0.830
ST.CATH.NIAGARA	33.8	0.972	0.852	0.994	0.887
KITCHENER	38.8	1.003	0.915	0.812	0.910
LONDON	39.9	0.800	0.855	0.740	0.785
WINDSOR	36.1	1.019	0.957	1.012	0.933
SUDBURY & T.BAY	34.6	0.911	0.865	1.026	0.805
WINNIPEG	33.3	0.990	0.897	0.884	0.772
REGINA & SASK	33.0	0.956	0.941	0.859	0.726
CALGARY	48.6	0.775	0.762	0.826	0.671
EDMONTON	36.5	0.937	0.890	0.926	0.893
VANCOUVER	45.8	0.909	0.867	0.910	0.865
VICTORIA	37.0	1.031	0.881	1.061	1.151

FIGURE 17
AVERAGE INCOME (in \$1000 not adjusted for housing or household characteristics)
FOR HOMEOWNERS BY PERIOD OF CONSTRUCTION AND CMA: 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	\$73.8	0.977	0.908	0.845	0.897
QUEBEC	71.7	0.994	0.894	0.829	0.760
MONTREAL	76.0	0.974	0.863	0.838	0.910
TR RIV. SHERB.	68.6	0.941	0.894	0.803	0.783
OTTAWA-HULL	88.6	0.950	0.938	0.862	0.912
OSHAWA	89.1	0.938	0.831	0.691	0.775
TORONTO	90.9	0.946	0.915	0.832	0.947
HAMILTON	89.0	0.958	0.888	0.729	0.694
ST.CATH.NIAGARA	77.9	0.919	0.831	0.705	0.687
KITCHENER	87.6	0.906	0.853	0.726	0.716
LONDON	90.8	0.875	0.833	0.682	0.689
WINDSOR	90.6	0.884	0.941	0.728	0.703
SUDBURY & T.BAY	88.3	0.934	0.815	0.671	0.662
WINNIPEG	80.2	0.923	0.859	0.713	0.662
REGINA & SASK	82.0	0.906	0.771	0.676	0.643
CALGARY	89.2	0.860	0.824	0.729	0.782
EDMONTON	79.0	0.937	0.875	0.744	0.686
VANCOUVER	74.3	1.024	1.014	0.955	1.098
VICTORIA	72.3	0.949	0.893	0.980	0.952

TABLE 18
ESTIMATED COEFFICIENTS SHOWING THE DIFFERENCES IN THE LOGRITHM OF
HOUSEHOLD INCOME ACROSS PERIODS OF CONSTRUCTION: ALL CMAs 1996

	RENTERS		OWNERS	
	COEFFICIENT	t-STAT	COEFFICIENT	t-STAT
BLDGAGE	-0.0009	-4.77	-0.0021	-18.8
HALFAX	-0.140	-5.09	-0.155	-9.67
QUEBEC	-0.239	-12.6	-0.122	-10.43
MONTREAL	-0.239	-20.88	-0.113	-16.12
OTTAWA	-0.060	-3.55	0.050	5.09
HAMILTON	-0.151	-6.85	-0.068	-5.87
SCATHERN	-0.296	-9.98	-0.193	-13.86
KITCHENER	-0.117	-4.34	-0.056	-3.82
LONDON	-0.214	-8.53	-0.067	-4.64
WINNIPEG	-0.242	-11.74	-0.114	-10.07
EDMONTON	-0.048	-2.4	-0.066	-6.28
CALGARY	-0.175	-8.97	-0.140	-13.47
VANCOUVER	0.065	4.66	-0.097	-12.05
TR RIV. & SHERB	-0.407	-15.13	-0.220	-12.8
OSHAWA	-0.148	-3.99	-0.045	-2.69
WINDSOR	-0.214	-6.37	-0.052	-3.26
SUDBURY	-0.236	-7.47	-0.072	-4.45
SASK. & REGINA	-0.298	-11.46	-0.156	-11.11
VICTORIA	0.066	2.33	-0.066	-4.24
ROOM2	-0.696	-40.04	ne	ne
ROOM3	-0.356	-23.53	-0.405	-22.79
ROOM4	-0.212	-15.13	-0.266	-25.2
ROOM5	-0.092	-6.66	-0.187	-24.16
ROOM6	ne	ne	-0.088	-12.72
ROOM7	0.107	5.22	ne	ne
ROOM8	0.147	5.75	0.087	12.16
ROOM9	0.216	5.94	0.163	19.53
ROOM10	0.323	9.06	0.257	32.89
HOUSEHOLD 1	-0.384	-41.79	-0.714	-91.92
HOUSEHOLD 2	ne		-0.147	-23.45
HOUSEHOLD 3	0.001	0.07	ne	
HOUSEHOLD 4	0.077	5.58	0.063	9.44
HOUSEHOLD 5	0.058	2.87	0.058	6.59
HOUSEHOLD 6	0.039	1.21	0.060	4.47
HOUSEHOLD 7+	0.187	4.17	0.104	5.37
SINGLE F. DETACHED	0.066	4.41	0.018	1.89
OTHER DWELLING	-0.006	-0.52	-0.030	-2.91
APTARTMENT. HIGH	0.108	10.92	0.172	12.33
MOVED LAST 1 YEAR	-0.157	-18.12	-0.075	-8.44
MOVED LAST 5 YEARS	-0.042	-4.88	0.037	7.29
R SQUARE	.1361		.2146	
N-CASES	75,204		105,972	

TABLE 19

**PREDICTED AND AVERAGE HOUSEHOLD INCOME
BY PERIOD OF CONSTRUCTION: ALL CMAs 1996**

RENTERS

	1986-1996	1981-1985	1971-1980	1961- 1970	1946-1960
PREDICTED*	35977	35615	35354	34331	33406
RATIO	1	0.990	0.983	0.954	0.929
AVERAGE	41212	36384	35564	35731	35938
RATIO	1	0.883	0.863	0.867	0.872

OWNERS

	1986-1996	1981-1985	1971-1980	1961- 1970	1946-1960
PREDICTED*	71003	69080	67275	65598	62286
RATIO	1	0.973	0.947	0.924	0.877
AVERAGE	82216	78175	73423	66237	70623
RATIO	1	0.951	0.893	0.806	0.859

* The predicted income for a 'standardized' dwelling using the regression in Table 14

TABLE 20
PROJECTED INCOME (\$1000) FOR A STANDARDIZED RENTER HOUSEHOLD BY CMA AND BY
PERIOD OF CONSTRUCTION: 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	\$34.3	*	*	*	*
QUEBEC	28.9	0.981	0.958	0.941	0.894
MONTREAL	31.8	0.986	0.977	0.955	0.921
TR. RIV. & SHERB.	25.6	0.948	0.895	0.846	0.749
OTTAWA-HULL	42.8	*	*	*	*
OSHAWA	30.9	0.996	0.994	0.989	0.980
TORONTO	40.8	1.031	1.044	1.073	1.133
HAMILTON	32.0	*	*	*	*
ST.CATH.NIAGARA	33.2	*	*	*	*
KITCHENER	30.3	*	*	*	*
LONDON	30.0	*	*	*	*
WINDSOR	26.9	0.961	0.903	0.847	0.766
SUDBURY & T.BAY	30.1	*	*	*	*
WINNIPEG	41.1	0.920	0.845	0.775	0.637
REGINA & SASK	41.5	0.949	0.899	0.860	0.774
CALGARY	40.0	0.949	0.907	0.859	0.774
EDMONTON	35.3	0.948	0.920	0.897	0.841
VANCOUVER	46.5	*	*	*	*
VICTORIA	33.5	1.043	1.074	1.122	1.233

FIGURE 21
PROJECTED INCOME (\$1000) FOR A STANDARDIZED OWNER HOUSEHOLD BY CMA AND BY
PERIOD OF CONSTRUCTION: 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	65.6	*	*	*	*
QUEBEC	68.6	0.943	0.892	0.843	0.736
MONTREAL	67.3	0.976	0.953	0.930	0.881
TR RIV. & SHERB.	61.4	0.963	0.932	0.900	0.827
OTTAWA-HULL	81.6	0.968	0.936	0.905	0.834
OSHAWA	77.6	0.956	0.912	0.871	0.783
TORONTO	71.5	*	*	*	*
HAMILTON	79.8	0.951	0.903	0.858	0.763
ST.CATH.& NIAGARA	69.1	0.950	0.904	0.860	0.764
KITCHENER	75.2	0.954	0.910	0.869	0.775
LONDON	70.4	0.960	0.922	0.884	0.797
WINDSOR	81.3	0.962	0.932	0.900	0.841
SUDBURY & T.BAY	83.4	0.937	0.884	0.832	0.734
WINNIPEG	77.8	0.945	0.889	0.838	0.730
REGINA & SASK	72.8	0.940	0.879	0.823	0.716
CALGARY	69.9	0.958	0.918	0.881	0.800
EDMONTON	70.8	0.945	0.896	0.850	0.762
VANCOUVER	63.1	*	*	*	*
VICTORIA	69.5	*	*	*	*

* not different from zero at 0.05 p-level

TABLE 22
MEDIAN RENT/INCOME RATIOS BY CMA BY CMA AND BY PERIOD OF CONSTRUCTION: 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	0.239	1.138	1.121	0.883	0.904
QUEBEC	0.224	1.129	1.080	0.991	1.009
MONTREAL	0.224	1.116	1.080	1.089	1.049
TR RIV. SHERB.	0.228	1.114	0.996	1.079	1.167
OTTAWA-HULL	0.228	1.105	1.048	1.018	0.996
OSHAWA	0.249	1.108	0.948	1.040	1.112
TORONTO	0.262	0.996	0.973	0.927	0.935
HAMILTON	0.239	1.121	1.029	1.054	1.172
ST.CATH.&NIAGARA	0.252	1.063	1.123	1.075	1.119
KITCHENER	0.236	1.076	1.025	1.102	1.085
LONDON	0.237	1.198	1.025	1.177	1.080
WINDSOR	0.239	1.130	1.067	1.109	1.025
SUDBURY & T.BAY	0.240	1.108	1.071	1.071	1.196
WINNIPEG	0.259	0.961	0.946	0.942	0.938
REGINA & SASK	0.243	0.971	0.992	0.996	1.210
CALGARY	0.227	1.062	1.004	0.952	1.145
EDMONTON	0.265	0.872	0.902	0.891	0.928
VANCOUVER	0.254	1.016	1.031	1.047	1.122
VICTORIA	0.257	1.035	1.101	1.016	1.012

TABLE 23
MEDIAN OWNERS EXPENDITURE/ INCOME RATIOS BY CMA BY CMA AND BY PERIOD OF CONSTRUCTION: 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	0.194	0.820	0.691	0.768	0.887
QUEBEC	0.179	0.743	0.687	0.749	0.872
MONTREAL	0.19	0.811	0.821	0.826	0.868
TR RIV. SHERB.	0.174	0.713	0.632	0.851	0.782
OTTAWA-HULL	0.198	0.823	0.662	0.652	0.773
OSHAWA	0.206	0.869	0.782	0.782	0.835
TORONTO	0.218	0.862	0.720	0.674	0.734
HAMILTON	0.201	0.816	0.682	0.771	0.856
ST.CATH.NIAGARA	0.186	0.860	0.720	0.812	0.919
KITCHENER	0.192	0.813	0.786	0.729	0.932
LONDON	0.184	0.924	0.766	0.755	0.957
WINDSOR	0.177	0.808	0.633	0.814	0.853
SUDBURY & T.BAY	0.186	0.715	0.720	0.828	0.871
WINNIPEG	0.181	0.834	0.729	0.757	0.895
REGINA & SASK	0.164	0.921	0.829	0.854	0.860
CALGARY	0.192	0.875	0.688	0.698	0.880
EDMONTON	0.186	0.855	0.667	0.704	0.812
VANCOUVER	0.197	0.858	0.741	0.640	0.690
VICTORIA	0.178	0.882	0.725	0.792	0.966

TABLE 24
MEDIAN RENT/INCOME RATIOS FOR STANDARDIZED RENTERS IN LOWEST INCOME QUARTILE
BY CMA AND BY PERIOD OF CONSTRUCTION: 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	0.397	*	*	*	*
QUEBEC	0.384	*	*	*	*
MONTREAL	0.462	1.019	1.043	1.076	1.119
TR RIV. SHERB.	0.445	*	*	*	*
OTTAWA-HULL	0.387	1.028	1.070	1.124	1.196
OSHAWA	0.453	1.062	1.143	1.265	1.446
TORONTO	0.392	1.043	1.099	1.179	1.281
HAMILTON	0.415	1.034	1.077	1.137	1.212
ST.CATH.&NIAGARA	0.336	1.057	1.128	1.235	1.366
KITCHENER	0.365	1.074	1.170	1.315	1.515
LONDON	0.447	*	*	*	*
WINDSOR	0.481	*	*	*	*
SUDBURY & T.BAY	0.372	*	*	*	*
WINNIPEG	0.360	*	*	*	*
REGINA & SASK	0.450	*	*	*	*
CALGARY	0.430	*	*	*	*
EDMONTON	0.392	*	*	*	*
VANCOUVER	0.398	1.030	1.070	1.128	1.196
VICTORIA	0.399	1.045	1.108	1.201	1.316

TABLE 25
MEDIAN EXPENDITURE/INCOME RATIOS FOR STANDARDIZED HOMEOWNERS
IN THE LOWEST QUARTILE:

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	0.219	*	*	*	*
QUEBEC	0.212	0.972	0.939	0.896	0.849
MONTREAL	0.28	0.979	0.950	0.918	0.879
TR RIV. SHERB.	0.234	*	*	*	*
OTTAWA-HULL	0.204	0.985	0.961	0.931	0.897
OSHAWA	0.293	0.956	0.908	0.850	0.778
TORONTO	0.292	0.949	0.887	0.812	0.729
HAMILTON	0.262	0.977	0.943	0.905	0.859
ST.CATH.NIAGARA	0.265	*	*	*	*
KITCHENER	0.245	*	*	*	*
LONDON	0.210	*	*	*	*
WINDSOR	0.256	*	*	*	*
SUDBURY & T.BAY	0.224	*	*	*	*
WINNIPEG	0.235	0.970	0.936	0.889	0.838
REGINA & SASK	0.241	0.967	0.925	0.880	0.826
CALGARY	0.259	0.958	0.907	0.846	0.768
EDMONTON	0.239	0.958	0.908	0.845	0.774
VANCOUVER	0.215	*	*	*	*
VICTORIA	0.211	*	*	*	*

* not different from zero at 0.05 p-level

TABLE 26
DISTRIBUTION OF ALL RENTERS IN THE LOWEST INCOME QUARTILE IN THEIR CMA
AND BY PERIOD OF CONSTRUCTION : 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	0.188	0.263	0.272	0.254	0.215
QUEBEC	0.187	0.285	0.295	0.281	0.290
MONTREAL	0.209	0.269	0.289	0.289	0.259
TR RIV. SHERB.	0.206	0.342	0.277	0.332	0.354
OTTAWA-HULL	0.239	0.252	0.241	0.233	0.227
OSHAWA	0.236	0.256	0.205	0.155	0.270
TORONTO	0.216	0.223	0.214	0.196	0.194
HAMILTON	0.248	0.278	0.209	0.221	0.308
ST.CATH.&NIAGARA	0.287	0.226	0.258	0.288	0.307
KITCHENER	0.270	0.184	0.226	0.218	0.271
LONDON	0.226	0.245	0.241	0.285	0.290
WINDSOR	0.240	0.241	0.235	0.278	0.288
SUDBURY & T.BAY	0.220	0.258	0.313	0.247	0.341
WINNIPEG	0.259	0.250	0.229	0.294	0.384
REGINA & SASK	0.255	0.239	0.310	0.348	0.446
CALGARY	0.119	0.224	0.231	0.212	0.310
EDMONTON	0.287	0.223	0.273	0.271	0.299
VANCOUVER	0.233	0.219	0.200	0.215	0.302
VICTORIA	0.266	0.239	0.198	0.216	0.177

TABLE 27
DISTRIBUTION OF ALL OWNERS IN THE LOWEST INCOME QUARTILE IN THEIR CMA
AND BY PERIOD OF CONSTRUCTION : 1996

	1986 to 1996	1971 to 1985	1961 to 1970	1946 to 1960	before 1945
HALIFAX	0.186	0.217	0.302	0.312	0.347
QUEBEC	0.186	0.225	0.307	0.324	0.440
MONTREAL	0.192	0.236	0.304	0.341	0.317
TR RIV. SHERB.	0.232	0.254	0.305	0.384	0.404
OTTAWA-HULL	0.151	0.204	0.225	0.281	0.266
OSHAWA	0.147	0.174	0.273	0.334	0.362
TORONTO	0.169	0.203	0.236	0.263	0.268
HAMILTON	0.147	0.180	0.214	0.301	0.370
ST.CATH.NIAGARA	0.170	0.227	0.254	0.339	0.417
KITCHENER	0.146	0.203	0.250	0.332	0.359
LONDON	0.149	0.182	0.251	0.289	0.329
WINDSOR	0.146	0.230	0.193	0.268	0.353
SUDBURY & T.BAY	0.143	0.171	0.235	0.327	0.360
WINNIPEG	0.169	0.223	0.222	0.310	0.395
REGINA & SASK	0.184	0.223	0.276	0.344	0.383
CALGARY	0.187	0.240	0.223	0.307	0.339
EDMONTON	0.198	0.229	0.282	0.340	0.424
VANCOUVER	0.254	0.243	0.250	0.275	0.270
VICTORIA	0.196	0.271	0.265	0.227	0.296

TABLE 28
REGRESSIONS WITH 1981 RENTS AND VALUES AND THE RATIO OF 1996 RENTS AND VALUES DIVIDED BY THE
1981 PREDICTED RENTS AND VALUES FOR THE SAME PERIODS OF CONSTRUCTION

	1981 LOG (RENT)		1996 LOG (1996/1981)		1981 LOG (VALUE)		1996 LOG (1996/1981)	
	Coefficient.	t-stat.	Coefficient.	t-stat.	Coefficient.	t-stat.	Coefficient.	t-stat.
P before 1920	-0.328	-29.43	0.255	28.69	-0.278	-35.22	0.200	23.51
P1921 to 1945	-0.276	-26.13	0.246	32.09	-0.231	-30.85	0.167	21.88
P1946 to 1960	-0.201	-19.77	0.174	26.05	-0.167	-23.5	0.087	13.67
P1961 to 1970	-0.132	-13.21	0.107	16.92	-0.122	-17.23	0.036	5.58
P1971 to 1980	-0.083	-8.39	0.065	10.2	-0.120	-17.3	-0.011	-1.81
HALFAX	-0.092	-9.04	-0.045	-3.44	-0.529	-72.25	0.026	1.94
QUEBEC	-0.183	-25.27	-0.102	-11.7	-0.630	-115.57	0.033	3.37
MONTREAL	-0.185	-43.08	0.001	0.23	-0.470	-145	0.123	22.92
OTTAWA	-0.106	-16.12	0.053	6.93	-0.426	-88.16	0.209	25.61
HAMILTON	-0.204	-24.74	0.108	10.88	-0.451	-88.36	0.294	32.24
ST.CATHERINES	-0.268	-22.4	0.123	8.88	-0.613	-96.04	0.262	24
KITCHENR	-0.211	-20.04	0.138	10.81	-0.520	-75.91	0.295	24.04
LONDON	-0.201	-19.72	0.081	6.83	-0.512	-72.25	0.273	23.58
WINNIPEG	-0.172	-22.5	-0.084	-9.2	-0.527	-102.59	-0.137	-15.7
EDMONTON	0.210	28.08	-0.358	-40.07	0.014	2.63	-0.279	-32.88
CALGARY	0.117	16.44	-0.352	-41.32	-0.049	-9.75	-0.375	-45.38
VANCOUVER	0.132	22.43	-0.007	-1.15	0.294	76.79	0.237	35.9
ROOM2	-0.351	-55.96	0.046	7.62	ne		ne	
ROOM3	-0.157	-35.6	0.025	5.2	-0.256	-20.09	-0.137	-8.97
ROOM4	ne		ne		-0.266	-45.35	-0.039	-4.44
ROOM5	0.113	29.06	-0.007	-1.53	-0.201	-55.93	0.010	1.54
ROOM6	0.223	44.84	-0.018	-2.86	-0.100	-30.98	0.016	2.74
ROOM7	0.309	45.62	-0.025	-2.88	ne		ne	
ROOM8	0.344	37.1	-0.022	-1.91	0.110	31.8	-0.005	-0.87
ROOM9	0.360	25.01	-0.032	-1.91	0.190	45.3	-0.011	-1.57
ROOM10	0.305	22.11	0.046	2.83	0.302	71.82	-0.003	-0.47
S.F.DETACHED	0.086	16.73	-0.041	-6.42	0.082	27.74	-0.119	-23.56
APT. HIGH	0.076	18.85	0.069	15.96	ne		ne	
CONDOMINIUM	ne		ne		-0.258	-46.23	0.064	8.02
MOVED 1 YEAR	0.078	23.16	-0.063	-15.29	0.010	2.22	-0.049	-5.72
MOVED 5 YEAR	0.106	32.64	-0.029	-7.25	0.029	11.98	-0.066	-14.65
GOV. INCOME	0.150	14.88	-0.317	-87.75	ne		ne	
CONSTANT	6.500	592.16	0.027	3.57	12.375	1582.2 5	-0.082	-10.11
R-SQUARE	0.414		0.184		0.406		0.140	
N-CASES	84614		65767		146858		81119	

TABLE 29
THE 1996/1981 RATIO OF AVERAGE AND OF PREDICTED RENTS AND VALUES
BY PERIOD OF CONSTRUCTION: ALL CMAs

PERIOD	RENTERS		OWNERS	
	AVEARGE	PREDICTED	AVEARGE	PREDICTED
1971 to 1985	1.047	1.050	1.022	0.850
1961 to 1970	1.089	1.114	1.059	0.889
1946 to 1960	1.132	1.191	1.086	0.935
before 1945	1.220	1.284	1.195	1.026

TABLE 30
PROPORTIONAL CHANGE IN RENTS BETWEEN 1981 AND 1996 FOR A STANDARDIZED
DWELLING BY PERIOD OF CONSTRUCTION

	1981-1985	1971-1980	1961- 1970	1946-1960	1921- 1945	pre 1921
HALIFAX	1.205	1.205	1.205	1.263	1.346	1.197
QUEBEC	1.017	1.017	1.017	1.134	1.243	1.296
MONTREAL	1.079	1.079	1.079	1.176	1.320	1.390
OTTAWA-HULL	1.150	1.219	1.282	1.391	1.373	1.494
TORONTO	1.308	1.308	1.308	1.368	1.392	1.393
HAMILTON	1.313	1.313	1.313	1.406	1.449	1.508
ST.CATH.NIAGARA	0.967	1.239	1.209	1.325	1.380	1.259
KITCHENER	1.019	1.103	1.198	1.247	1.390	1.359
LONDON	1.163	1.163	1.163	1.260	1.353	1.187
WINNIPEG	1.020	1.020	1.020	1.086	1.104	1.087
CALGARY	0.817	0.817	0.817	0.896	0.940	1.024
EDMONTON	0.707	0.777	0.798	0.890	0.931	0.944
VANCOUVER	0.892	1.076	1.194	1.202	1.307	1.186

TABLE 31
PROPORTIONAL CHANGE IN VALUES BETWEEN 1981 AND 1996 FOR A STANDARDIZED
DWELLING BY PERIOD OF CONSTRUCTION

	1981-1985	1971-1980	1961- 1970	1946-1960	1921- 1945	pre 1921
HALIFAX	0.744	0.840	0.845	0.983	0.975	1.084
QUEBEC	0.811	0.838	0.904	0.962	0.949	1.003
MONTREAL	0.882	0.936	0.998	1.040	1.184	1.212
OTTAWA-HULL	0.947	1.053	1.112	1.145	1.403	1.305
TORONTO	1.007	1.012	1.024	1.066	1.203	1.207
HAMILTON	1.070	1.136	1.152	1.175	1.259	1.357
ST.CATH.NIAGARA	0.958	1.123	1.100	1.112	1.253	1.117
KITCHENER	1.058	1.123	1.189	1.258	1.284	1.324
LONDON	0.912	1.125	1.148	1.181	1.225	1.292
WINNIPEG	0.666	0.702	0.737	0.790	0.837	0.836
CALGARY	0.584	0.590	0.663	0.665	0.781	0.701
EDMONTON	0.546	0.534	0.578	0.610	0.582	0.613
VANCOUVER	1.035	1.100	1.228	1.302	1.290	1.291

TABLE 32
RELATIVE CHANGES IN RENTS FOR A STANDARDIZED DWELLING BETWEEN 1981 1996

	1981-1985	1971-1980	1961- 1970	1946-1960	1921- 1945	pre 1921
HALIFAX	1.000	*	*	1.048	1.117	0.993
QUEBEC	1.000	*	*	1.115	1.222	1.275
MONTREAL	1.000	*	*	1.090	1.223	1.289
OTTAWA-HULL	1.000	1.059	1.114	1.209	1.193	1.298
TORONTO	1.000	*	*	1.046	1.064	1.065
HAMILTON	1.000	*	*	1.071	1.103	1.148
ST.CATH.NIAGARA	1.000	1.281	1.250	1.369	1.427	1.301
KITCHENER	1.000	1.083	1.176	1.224	1.364	1.334
LONDON	1.000	*	*	1.083	1.163	1.021
WINNIPEG	1.000	*	*	1.065	1.082	1.066
CALGARY	1.000	*	*	1.096	1.151	1.254
EDMONTON	1.000	1.099	1.129	1.258	1.317	1.335
VANCOUVER	1.000	1.207	1.339	1.348	1.466	1.331

TABLE 33
RELATIVE CHANGES IN VALUES FOR A STANDARDIZED DWELLING BETWEEN 1981 1996

	1981-1985	1971-1980	1961- 1970	1946-1960	1921- 1945	pre 1921
HALIFAX	1.000	1.129	1.136	1.322	1.310	1.458
QUEBEC	1.000	1.033	1.115	1.186	1.170	1.237
MONTREAL	1.000	1.061	1.132	1.179	1.343	1.375
OTTAWA-HULL	1.000	1.112	1.174	1.210	1.482	1.378
TORONTO	1.000	1.005	1.017	1.059	1.195	1.199
HAMILTON	1.000	1.062	1.077	1.098	1.177	1.269
ST.CATH.NIAGARA	1.000	1.172	1.148	1.160	1.308	1.166
KITCHENER	1.000	1.062	1.124	1.190	1.214	1.252
LONDON	1.000	1.234	1.259	1.295	1.343	1.416
WINNIPEG	1.000	1.055	1.108	1.187	1.258	1.256
CALGARY	1.000	1.010	1.137	1.140	1.338	1.201
EDMONTON	1.000	0.978	1.059	1.117	1.065	1.123
VANCOUVER	1.000	1.063	1.186	1.258	1.246	1.247

TABLE 34
MEANS STANDARD DEVIATIONS OF POSSIBLE EXPLANATORY VARIABLES: 1981 1996

1981	Mean	Std. Deviation	Minimum	Maximum
Rel.Rent chg 96/81	1.222	0.132	1.064	1.466
Rel Value chg 96/81	1.265	0.105	1.065	1.482
Slope rent1981	0.758	0.047	0.706	0.856
Slope value 1981	0.821	0.131	0.599	0.996
Average Rent 1981	704	133	583	998
Average Value1981	177389	60676	121376	320640
Number Household 1981	305,386	324,170	79,860	1,040,325
Average Income 1981	\$13,584	1,252	11,668	15,795
Prop. Professional Occ.	0.140	0.022	0.093	0.175
Prop S.F.Detached	0.473	0.101	0.225	0.643
Rent bldg..age 1981	21.467	3.427	15.435	26.495
Own bldg. age 1981	21.777	3.720	14.615	25.868
GINI RENTER INCOME	0.373	0.022	0.334	0.426
GINI OWNER INCOME	0.319	0.034	0.290	0.411
GINI RENT	0.193	0.025	0.163	0.242
GINI OMP	0.300	0.031	0.263	0.385
1996	Mean	Std. Deviation	Minimum	Maximum
Slope rent 1996	0.916	0.108	0.775	1.105
Slope value 1996	0.799	0.170	0.580	1.029
Average Rent 1996	712	95	588	884
Average Value1996	183665	67260	112264	363406
Number Household 1981	444,635	455,121	127,480	1,488,355
Average Income 1981	\$28,597	2,229	25,558	32,927
Prop. Professional Occ.	0.111	0.024	0.063	0.154
Prop S.F.Detached	0.519	0.103	0.310	0.688
Rent bldg. age 1996	30.249	2.690	26.610	34.140
Own bldg. age 1996	28.325	4.617	22.340	35.540
GINI RENTER INCOME	0.403	0.012	0.383	0.429
GINI OWNER INCOME	0.328	0.017	0.302	0.364
GINI RENT	0.225	0.015	0.206	0.256
GINI OMP	0.349	0.022	0.321	0.411

N-cases = 13

TABLE 35
MEANS STANDARD DEVIATIONS OF PROPORTIONAL CHANGES IN POSSIBLE EXPLANATORY
VARIABLES: 1996 / 1981

RATIO 1996/1981	Mean	Std. Deviation	Minimum	Maximum
Rent 21-45 chg 96/81	1.271	0.171	0.931	1.449
Own 21-45 chg 96/81	1.094	0.245	0.582	1.403
Average rent 96/81	1.031	0.160	0.708	1.189
Average value 96/81	1.053	0.210	0.657	1.285
Households 96/81	1.379	0.085	1.206	1.478
Average Income 96/81	2.087	0.127	1.827	2.279
Prop. Prof. Change 96/81	1.279	0.111	1.106	1.474
Prop SFD change 96/81	1.114	0.156	0.942	1.436
Rent bldg. age 96/1981	1.430	0.159	1.214	1.726
Own bldg. age 96/1981	1.311	0.132	1.082	1.554
GINI RENTER INC, 96/81	1.082	0.055	0.986	1.188
GINI OWNER INC, 96/81	1.035	0.081	0.882	1.136
GINI RENT 96/81	1.181	0.122	0.932	1.356
GINI OMP 96/81	1.035	0.081	0.882	1.136

TABLE 36
CORRELATION OF CHANGES IN VARIABLES WITH THE CHANGE IN THE RELATIVE RENTS AND
PRICES OF THE 1921- 1945 STOCK AND WITH THE SLOPE OF THE 1981 AND 1996 RENT AND
VALUE GRADIENTS

RATIO 1996/1981	CHANGE IN SLOPE:		PRICE CHANGE 1921-45 STOCK:	
	RENTS	VALUES	RENTS	VALUES
Chg Rent 21-45 96/81	0.025	0.264	1.000	
Chg Value 21-45 96/81	0.195	0.469	0.896	1.000
Household growth 96/81	0.304	0.222	0.002	0.194
Average rent 96/81	0.025	0.234	0.971	0.886
Average value 96/81	0.180	0.238	0.935	0.929
Income growth 96/81	-0.233	0.367	0.818	0.745
Prop. Prof. Change 96/81	0.115	0.195	0.793	0.728
Prop SFD change 96/81	-0.386	0.270	-0.423	-0.320
Rent bldg..age 96/1981	-0.170	-0.259	-0.755	-0.593
Own bldg. age 96/1981	-0.031	-0.208	-0.718	-0.660
GINI RENTER INC. 96/81	-0.617	-0.012	-0.534	-0.530
GINI OWNER INC. 96/81	-0.172	-0.361	0.060	-0.106
GINI RENT 96/81	-0.527	0.146	-0.289	-0.186
GINI OMP 96/81	-0.172	-0.361	0.060	-0.106

TABLE 37
DESCRIPTION OF VARIABLES USED IN THE PRINCIPAL COMPONENTS ANALYSIS

Variable	Observations	Mean	Std. Dev.
RENT CHANGE 2001/1981 (rent01/81)	2148	1.077	0.267
INCOME CHANGE 2001/1981 (inc01/81)	2152	1.099	0.277
UNIT # CHANGE 2001/1981 (unita01/81)	2190	1.693	2.06
POPULATION CHANGE 01/81 (pop01/81)	2147	0.939	0.291
AGERAGE RENT 1981 (rent81)	2155	\$680	202
AVERAGE INCOME 1981 (inc81all)	2167	\$28,327	8277
DISTANCE TO CENTER OF CMA (distance)	2190	11.513	9.313
POPULATION DENSITY 1981 (popden81)	2180	4562	5003
DWELLING DENSITY 1981 (dwden81)	2181	1845	2485
PROPORTION SFD1981 (psfd81)	2170	0.435	0.33
PROPORTION HIGH-RISE 1981 (papthigh81)	2170	0.128	0.208
PROPORTION "OTHER" 1981 (pothier81)	2170	0.428	0.306
PROPORTION RENTED 1981 (prented81)	2170	0.467	0.286
PROPORTION OWNED 1981 (powned81)	2170	0.532	0.281
PROPORTION FAMILY HH 1981 (pfam81)	2170	0.736	0.19
PROP. BUILT BEFORE 1921 (prop81p1920)	2170	0.091	0.139
PROP. BLT. 1921 – 1945 (prop81p2145)	2170	0.137	0.163
PROP. BLT 1946 – 1960 (prop81p4660)	2170	0.25	0.204
PROP. BLT. 1961 – 1970 (prop81p6170)	2170	0.24	0.195
PROP. BLT. 1970 – 1975 (prop81p7075)	2170	0.142	0.151
PROP. BLT. 1976 – 1981 (prop81p7681)	2170	0.134	0.18
HALIFAX	2190	0.028	0.166
QUEBEC CITY	2190	0.057	0.232
MONTREAL	2190	0.304	0.46
OTTAWA	2190	0.061	0.24
KINGSTON	2190	0.016	0.124
TORONTO	2190	0.277	0.447
WINNIPEG	2190	0.062	0.241
REGINA	2190	0.016	0.127
EDMONTON	2190	0.067	0.25
VANCOUVER	2190	0.112	0.316

TABLE 38
PRINCIPAL COMPONENTS

Variable	1	2	3	4	5	6
rent01/81	-0.071	0.257	0.33	0.137	-0.271	-0.067
inc01/81	-0.049	0.389	0.239	0.02	0.034	0.041
units01/81	0.091	0.076	0.297	-0.328	-0.081	-0.024
pop01/81	-0.155	-0.022	-0.37	0.298	0.056	-0.043
rent81	0.249	-0.051	0.093	0.077	0.327	0.342
inc81all	0.211	0.029	0.103	0.137	0.194	0.321
distance	0.247	-0.019	0.128	-0.058	-0.387	0.081
dwden81	-0.264	-0.065	0.072	0.094	0.046	0.158
psfd81	0.33	0.216	-0.134	0.035	0.053	-0.083
papthigh81	-0.101	-0.246	0.392	0.315	0.121	-0.111
poth81	-0.291	-0.06	-0.122	-0.239	-0.143	0.172
prented81	-0.351	-0.175	0.129	-0.011	0.033	0.025
powned81	0.352	0.181	-0.122	0.008	-0.038	-0.026
pfam81	0.305	0.015	-0.189	-0.031	-0.276	-0.016
prop81p1920	-0.211	0.311	0.072	-0.18	0.098	-0.099
prop81p2145	-0.196	0.392	-0.032	-0.051	0.183	0.103
prop81p4660	-0.009	0.194	-0.251	0.293	-0.118	0.139
prop81p6170	0.062	-0.333	-0.016	0.318	-0.186	-0.044
prop81p7075	0.136	-0.336	0.13	-0.112	0.001	-0.165
prop81p7681	0.169	-0.17	0.163	-0.399	0.092	0.009
HALIFAX	0.009	0.007	-0.027	-0.019	0.058	-0.209
QUEBEC CITY	-0.024	-0.027	-0.079	-0.141	0.043	-0.318
MONTREAL	-0.169	-0.083	-0.183	-0.189	-0.393	0.321
OTTAWA	0.02	-0.024	0.096	-0.001	0.112	-0.065
KINGSTON	0.008	0.063	0.013	-0.046	-0.037	-0.257
TORONTO	0.067	0.125	0.316	0.357	-0.151	-0.009
WINNIPEG	0.012	0.059	-0.132	0.012	0.178	-0.419
REGINA	0.012	-0.008	-0.094	0.023	0.138	-0.128
EDMONTON	0.058	-0.145	-0.146	-0.04	0.347	0.142
VANCOUVER	0.086	0.023	0.064	-0.086	0.188	0.301
Eigenvalue	6.363	2.707	2.492	1.989	1.645	1.385
Proportion Varia	0.212	0.09	0.083	0.066	0.055	0.046

TABLE 39

THE FIRST THREE PRINCIPAL COMPONENTS RANKED BY THEIR CORRELATION WITH
THE ORIGINAL VARIABLES

Variable	1 Variable	2 Variable	3
powned81	0.352 prop81p2145	0.392 papthigh81	0.392
psfd81	0.33 inc01/81	0.389 rent01/81	0.33
pfam81	0.305 prop81p1920	0.311 TORONTO	0.316
rent81	0.249 rent01/81	0.257 units01/81	0.297
distance	0.247 psfd81	0.216 inc01/81	0.239
inc81all	0.211 prop81p4660	0.194 prop81p7681	0.163
prop81p7681	0.169 powned81	0.181 prop81p7075	0.13
prop81p7075	0.136 TORONTO	0.125 prented81	0.129
units01/81	0.091 units01/81	0.076 distance	0.128
VANCOUVER	0.086 KINGSTON	0.063 inc81all	0.103
TORONTO	0.067 WINNIPEG	0.059 OTTAWA	0.096
prop81p6170	0.062 inc81all	0.029 rent81	0.093
EDMONTON	0.058 VANCOUVER	0.023 prop81p1920	0.072
OTTAWA	0.02 pfam81	0.015 dwden81	0.072
REGINA	0.012 HALIFAX	0.007 VANCOUVER	0.064
WINNIPEG	0.012 REGINA	-0.008 KINGSTON	0.013
HALIFAX	0.009 distance	-0.019 prop81p6170	-0.016
KINGSTON	0.008 pop01/81	-0.022 HALIFAX	-0.027
prop81p4660	-0.009 OTTAWA	-0.024 prop81p2145	-0.032
QUEBEC CITY	-0.024 QUEBEC CITY	-0.027 QUEBEC CITY	-0.079
inc01/81	-0.049 rent81	-0.051 REGINA	-0.094
rent01/81	-0.071 pothier81	-0.06 powned81	-0.122
papthigh81	-0.101 dwden81	-0.065 pothier81	-0.122
pop01/81	-0.155 MONTREAL	-0.083 WINNIPEG	-0.132
MONTREAL	-0.169 EDMONTON	-0.145 psfd81	-0.134
prop81p2145	-0.196 prop81p7681	-0.17 EDMONTON	-0.146
prop81p1920	-0.211 prented81	-0.175 MONTREAL	-0.183
dwden81	-0.264 papthigh81	-0.246 pfam81	-0.189
pothier81	-0.291 prop81p6170	-0.333 prop81p4660	-0.251
prented81	-0.351 prop81p7075	-0.336 pop01/81	-0.37

TABLE 40
CENSUS TRACTS

CMA	N	%
Halifax	4	1.6%
Quebec City	18	7.2%
Montreal	95	38.2%
Ottawa	8	3.2%
Kingston	5	2.0%
Toronto	68	27.3%
Winnipeg	21	8.4%
Regina	5	2.0%
Edmonton	7	2.8%
Vancouver	18	7.2%
Total	249	100%

TABLE 41 KEY INFORMANT INTERVIEWS			
CMA	Gentrifying Neighbourhoods	Description (census tract numbers)	Key Informant Interview
Halifax		11, 21	David McCulloch Senior Market Analyst, Halifax
Quebec City	1) St. Roch	11, 12, 13, 20	Bertrand Recher*** Market Analyst Trois-Rivières/Montréal
Montreal*	1) Plateau-Mont-Royal and surrounding areas	22-29, 33, 36, 44, 47, 48, 51, 59, 135, 139-42, 146-48, 150- 51, 153, 155-160, 165-70, 181-	Bertrand Recher*** Market Analyst Trois-Rivières/Montréal
Ottawa*	1) Little Italy 2) North of Glebe	39-41, 43, 46, 50-51, 104	Christian Douchant Senior Market Analyst, Ottawa
Kingston**	3) By-Market 4) Vanier south of Rockcliffe Park 1) North of Princess - adjacent to downtown	2, 8-10	Christian Douchant Senior Market Analyst, Ottawa
Toronto*	1) Riverdale 2) College Street area	18, 19, 25-29, 38, 41 45, 55-59 72-74, 76, 79-81, 83	Robert Genier Manager of Analysis and Ted Tsiakopoulos Senior Market Analyst, Toronto.
Winnipeg	1) Woleseley	3, 16, 17	Dianne Himbeault Senior Market Analyst, Winnipeg
Regina	None selected	none	Paul Caton Senior Market Analyst, Regina.
Edmonton*	1) Stratchona (east of University)	14, 17	Richard Goatcher Senior Market Analyst, Edmonton
Vancouver*	1) parts of east Vancouver 2) south of Fairview slopes	39, 52-54	Cameron Muir Senior Market Analyst, Vancouver

Notes: *also compared to published research (Ley 1988, 1993)

**supplemented by authors' local knowledge

***interviewed by Guillaume Neault

TABLE 42
PROFILE OF CENSUS TRACTS FROM 10 CMAs

Variables	All other tracts	Poor/Old Tracts	T-test	Remaining Poor/Old Tracts	Possible Gentrifying Tracts	T-test
Density						
distance (km)	12.47	4.25	13.65	4.57	3.72	2.75
area (sq km)	13.53	0.91	3.19	0.75	1.16	-0.73
1981 Population Density (sqkm)	3,966	9,226	-16.56	7,782	11,606	-4.86
2001 Population Density (sqkm)	4,144	8,286	-13.02	7,115	10,218	-4.93
1981 Dwelling Density (sqkm)	1,623	3,587	-12.13	2,949	4,641	-4.99
2001 Dwelling Density (sqkm)	1,922	4,035	-12.08	3,319	5,209	-5.38
Dwelling Tenure, Type and Age						
Owned Units, 1981 (%)	0.56	0.37	10.12	0.40	0.32	2.56
Owned Units, 2001 (%)	0.58	0.36	12.88	0.38	0.33	2.05
Rented Units, 1981 (%)	0.44	0.63	-10.12	0.60	0.68	-2.56
Rented Units, 2001 (%)	0.42	0.64	-12.88	0.62	0.67	-2.05
Single Detached, 1981 (%)	0.46	0.24	10.40	0.29	0.16	3.53
Single Detached, 2001 (%)	0.44	0.24	8.94	0.29	0.16	3.81
High Rise, 1981 (%)	0.14	0.06	5.85	0.05	0.06	-0.78
High Rise, 2001 (%)	0.15	0.08	4.62	0.08	0.08	-0.14
Other, 1981 (%)	0.39	0.71	-16.05	0.66	0.78	-3.20
Other, 2001 (%)	0.40	0.68	-13.62	0.63	0.76	-3.47
Dwelling built before 1946, 1981 (%)	0.15	0.64	-35.19	0.63	0.66	-1.47
Dwelling built before 1946, 2001 (%)	0.13	0.51	-33.02	0.49	0.55	-2.94
Dwellings built before 1920, 1981 (%)	0.06	0.32	-34.11	0.30	0.35	-2.74
Economic Variables						
Average Rent 1981 (\$2001)	698	545	11.60	550	535	0.90
Average Rent 2001	726	625	6.01	617	639	-1.07
Average Personal Income, 1981 (\$2001)	29,459	20,238	17.90	20,399	19,973	1.22
Average Personal Income, 2001	32,379	24,107	8.04	23,148	25,688	-3.60
Major Repairs, 2001 (%)	0.08	0.12	-17.22	0.12	0.12	-0.51
Low Income Households, 2001 (%)	0.16	0.26	-12.62	0.27	0.24	2.32
Average Dwelling Value	200,068	164,558	4.25	158,418	174,682	-1.36
Demographic and Household Characteristics						
Single person households, 1981 (%)	0.21	0.30	-8.52	0.29	0.32	-2.35
Single person households, 2001 (%)	0.28	0.39	-12.07	0.38	0.42	-2.21
Persons per household, 1981	2.81	2.61	5.19	2.67	2.51	2.51
Persons per household, 2001	2.49	2.19	8.19	2.27	2.06	3.51
Average number of children, 1981	1.66	1.75	-4.24	1.74	1.75	-0.19
Average number of children, 2001	1.11	1.02	4.97	1.07	0.95	3.57
Movers, 1981 (%)	0.51	0.50	0.63	0.48	0.53	-3.91
Movers, 2001 (%)	0.45	0.54	-12.30	0.53	0.56	-2.53
Aged 25-39, 1981 (%)	0.25	0.23	3.96	0.22	0.24	-4.06
Aged 25-39, 2001 (%)	0.23	0.30	-16.83	0.29	0.32	-2.98
University Education, 1981 (%)	0.16	0.08	10.13	0.06	0.10	-4.37
University Education, 2001 (%)	0.23	0.22	1.04	0.19	0.28	-6.18
Immigrated 0-4 years, 1981 (%)	0.15	0.13	2.40	0.14	0.13	0.62
Immigrated 0-4 years, 2001 (%)	0.10	0.09	1.18	0.10	0.09	0.16
N-cases	1,933	249		155	94	

Notes: (%) - percent of census tract total.

Variables	All other tracts	Poor/Old Tracts	T-test	Remaining Poor/Old Tracts	Possible Gentrifying Tracts	T-test
Density						
distance (km)	7.71	1.90	1.50	2.41	1.39	6.28
area (sq km)	43.15	0.92	0.79	0.95	0.90	0.45
1981 Population Density (sqkm)	1,801	4,836	-3.22	4,168	5,504	-0.59
2001 Population Density (sqkm)	1,752	4,077	-2.69	3,398	4,756	-0.55
1981 Dwelling Density (sqkm)	682	1,838	-2.87	1,520	2,156	-0.72
2001 Dwelling Density (sqkm)	831	1,958	-2.44	1,676	2,241	-0.48
Dwelling Tenure, Type and Age						
Owned Units, 1981 (%)	0.58	0.41	1.26	0.50	0.32	2.67
Owned Units, 2001 (%)	0.59	0.40	1.46	0.46	0.33	2.08
Rented Units, 1981 (%)	0.42	0.59	-1.26	0.50	0.68	-2.67
Rented Units, 2001 (%)	0.41	0.60	-1.46	0.54	0.67	-2.08
Single Detached, 1981 (%)	0.53	0.36	1.28	0.41	0.32	1.18
Single Detached, 2001 (%)	0.50	0.31	1.35	0.35	0.28	2.89
High Rise, 1981 (%)	0.11	0.16	-0.55	0.08	0.23	-1.42
High Rise, 2001 (%)	0.11	0.10	0.04	0.07	0.13	-0.99
Other, 1981 (%)	0.32	0.48	-1.55	0.51	0.45	-0.35
Other, 2001 (%)	0.38	0.58	-1.92	0.58	0.59	-1.32
Dwelling built before 1946, 1981 (%)	0.17	0.47	-3.42	0.45	0.49	-1.31
Dwelling built before 1946, 2001 (%)	0.14	0.46	-3.99	0.37	0.55	-2.11
Dwellings built before 1920, 1981 (%)	0.08	0.25	-3.47	0.19	0.32	-1.77
Economic Variables						
Average Rent 1981 (\$2001)	657	585	1.07	517	652	0.23
Average Rent 2001	667	614	0.91	547	681	-0.01
Average Personal Income, 1981 (\$2001)	26,568	20,360	2.46	20,689	20,031	-1.10
Average Personal Income, 2001	30,036	24,385	1.50	24,373	24,398	1.55
Major Repairs, 2001 (%)	0.08	0.10	-1.40	0.09	0.12	-1.15
Low Income Households, 2001 (%)	0.13	0.20	-1.37	0.23	0.18	-1.88
Average Dwelling Value	146,950	131,809	0.48	112,541	151,077	-0.34
Demographic and Household Characteristics						
Single person households, 1981 (%)	0.18	0.27	-1.26	0.20	0.34	-0.26
Single person households, 2001 (%)	0.27	0.39	-1.56	0.38	0.40	2.40
Persons per household, 1981	2.95	2.54	1.43	2.72	2.36	0.90
Persons per household, 2001	2.42	2.05	1.68	2.05	2.05	-2.05
Average number of children, 1981	1.61	1.80	-1.32	1.77	1.83	0.00
Average number of children, 2001	1.03	0.91	1.00	0.93	0.88	-0.06
Movers, 1981 (%)	0.42		-1.20			0.00
Movers, 2001 (%)	0.47	0.55	1.59	0.49	0.61	-0.86
Aged 25-39, 1981 (%)	0.26	0.22	-1.10	0.22	0.22	-1.48
Aged 25-39, 2001 (%)	0.24	0.27	0.90	0.27	0.27	0.33
University Education, 1981 (%)	0.18	0.12	-0.20	0.08	0.16	0.60
University Education, 2001 (%)	0.25	0.27	1.94	0.19	0.34	0.07
Immigrated 0-4 years, 1981 (%)	0.21	0.15	-1.72	0.15	0.14	0.03
Immigrated 0-4 years, 2001 (%)	0.12	0.17	0.01	0.19	0.15	0.07
N-cases	58	4		2	2	
Notes: (%) - percent of census tract total.						

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TABLE 46
PROFILE OF CENSUS TRACTS FROM OTTAWA CMA

Variables	All other tracts	Poor/Old Tracts	T-test
Density			
distance (km)	10.56	3.17	2.69
area (sq km)	19.39	0.59	0.85
1981 Population Density (sqkm)	2,676	6,419	-4.48
2001 Population Density (sqkm)	2,871	6,415	-4.21
1981 Dwelling Density (sqkm)	1,099	2,752	-3.71
2001 Dwelling Density (sqkm)	1,356	3,295	-3.98
Dwelling Tenure, Type and Age			
Owned Units, 1981 (%)	0.56	0.24	3.18
Owned Units, 2001 (%)	0.60	0.26	3.75
Rented Units, 1981 (%)	0.44	0.76	-3.18
Rented Units, 2001 (%)	0.40	0.74	-3.75
Single Detached, 1981 (%)	0.45	0.19	2.47
Single Detached, 2001 (%)	0.44	0.13	3.07
High Rise, 1981 (%)	0.19	0.19	0.05
High Rise, 2001 (%)	0.20	0.27	-0.90
Other, 1981 (%)	0.35	0.63	-3.23
Other, 2001 (%)	0.35	0.60	-3.24
Dwelling built before 1946, 1981 (%)	0.13	0.51	-5.39
Dwelling built before 1946, 2001 (%)	0.11	0.42	-4.99
Dwellings built before 1920, 1981 (%)	0.07	0.25	-4.82
Economic Variables			
Average Rent 1981 (\$2001)	743	610	2.08
Average Rent 2001	800	733	0.77
Average Personal Income, 1981 (\$2001)	31,409	22,405	3.85
Average Personal Income, 2001	37,377	29,811	1.60
Major Repairs, 2001 (%)	0.0661	0.1343	-5.46
Low Income Households, 2001 (%)	0.1281	0.1966	-1.73
Average Dwelling Value	190,232	256,652	-2.05
Demographic and Household Characteristics			
Single person households, 1981 (%)	0.21	0.40	-3.34
Single person households, 2001 (%)	0.27	0.45	-3.40
Persons per household, 1981	2.81	2.19	2.81
Persons per household, 2001	2.47	1.89	3.26
Average number of children, 1981	1.64	1.61	0.20
Average number of children, 2001	1.09	0.79	3.51
Movers, 1981 (%)	0.54	0.61	-1.26
Movers, 2001 (%)	0.47	0.66	-4.59
Aged 25-39, 1981 (%)	0.26	0.29	-1.28
Aged 25-39, 2001 (%)	0.23	0.35	-5.22
University Education, 1981 (%)	0.24	0.21	0.60
University Education, 2001 (%)	0.32	0.38	-1.03
Immigrated 0-4 years, 1981 (%)	0.16	0.15	0.46
Immigrated 0-4 years, 2001 (%)	0.11	0.11	0.10
N-cases	126	8	
Notes: (%) - percent of census tract total.			

TABLE 47
PROFILE OF CENSUS TRACTS FROM KINGSTON CMA

Variables	All other tracts	Poor/Old Tracts	T-test
Density			
distance (km)	8.68	4.80	1.08
area (sq km)	53.54	14.00	0.98
1981 Population Density (sqkm)	1,293	2,966	-2.43
2001 Population Density (sqkm)	1,246	2,499	-1.94
1981 Dwelling Density (sqkm)	456	1,307	-2.81
2001 Dwelling Density (sqkm)	608	1,338	-2.09
Dwelling Tenure, Type and Age			
Owned Units, 1981 (%)	0.64	0.42	1.72
Owned Units, 2001 (%)	0.69	0.40	2.35
Rented Units, 1981 (%)	0.36	0.58	-1.72
Rented Units, 2001 (%)	0.31	0.60	-2.35
Single Detached, 1981 (%)	0.65	0.41	1.69
Single Detached, 2001 (%)	0.64	0.38	1.77
High Rise, 1981 (%)	0.06	0.07	-0.16
High Rise, 2001 (%)	0.10	0.07	0.36
Other, 1981 (%)	0.28	0.52	-1.91
Other, 2001 (%)	0.24	0.55	-2.93
Dwelling built before 1946, 1981 (%)	0.19	0.51	-3.55
Dwelling built before 1946, 2001 (%)	0.15	0.46	-3.94
Dwellings built before 1920, 1981 (%)	0.14	0.39	-3.30
Economic Variables			
Average Rent 1981 (\$2001)	596	450	2.38
Average Rent 2001	689	643	0.55
Average Personal Income, 1981 (\$2001)	26,043	18,084	4.62
Average Personal Income, 2001	30,286	22,576	1.94
Major Repairs, 2001 (%)	0.08	0.10	-0.68
Low Income Households, 2001 (%)	0.10	0.21	-2.38
Average Dwelling Value	153,977	148,259	0.20
Demographic and Household Characteristics			
Single person households, 1981 (%)	0.20	0.35	-2.32
Single person households, 2001 (%)	0.25	0.42	-2.36
Persons per household, 1981	2.85	2.25	2.83
Persons per household, 2001	2.37	1.98	1.38
Average number of children, 1981	1.52	1.63	-1.00
Average number of children, 2001	0.99	0.85	1.45
Movers, 1981 (%)	0.49	0.57	-1.05
Movers, 2001 (%)	0.45	0.60	-2.03
Aged 25-39, 1981 (%)	0.27	0.21	1.20
Aged 25-39, 2001 (%)	0.22	0.22	-0.15
University Education, 1981 (%)	0.16	0.15	0.08
University Education, 2001 (%)	0.21	0.28	-1.19
Immigrated 0-4 years, 1981 (%)	0.17	0.14	1.08
Immigrated 0-4 years, 2001 (%)	0.13	0.14	-0.48
N-cases	29	5	

Notes: (%) - percent of census tract total.

[illegible]

[illegible]

TABLE 50
PROFILE OF CENSUS TRACTS FROM REGINA CMA

Variables	All other tracts	Poor/Old Tracts	T-test
Density			
distance (km)	3.35	1.42	3.39
area (sq km)	26.84	1.34	0.42
1981 Population Density (sqkm)	2,431	2,311	0.20
2001 Population Density (sqkm)	2,146	2,151	-0.01
1981 Dwelling Density (sqkm)	936	944	-0.02
2001 Dwelling Density (sqkm)	1,013	1,089	-0.18
Dwelling Tenure, Type and Age			
Owned Units, 1981 (%)	0.64	0.53	1.08
Owned Units, 2001 (%)	0.66	0.46	1.95
Rented Units, 1981 (%)	0.36	0.47	-1.08
Rented Units, 2001 (%)	0.34	0.54	-1.95
Single Detached, 1981 (%)	0.68	0.68	0.02
Single Detached, 2001 (%)	0.67	0.80	-1.16
High Rise, 1981 (%)	0.05	0.00	0.99
High Rise, 2001 (%)	0.05	0.00	0.85
Other, 1981 (%)	0.26	0.31	-0.52
Other, 2001 (%)	0.28	0.19	1.08
Dwelling built before 1946, 1981 (%)	0.11	0.54	-4.65
Dwelling built before 1946, 2001 (%)	0.10	0.37	-3.60
Dwellings built before 1920, 1981 (%)	0.03	0.21	-4.73
Economic Variables			
Average Rent 1981 (\$2001)	672	583	1.53
Average Rent 2001	582	527	1.59
Average Personal Income, 1981 (\$2001)	28,831	19,940	3.46
Average Personal Income, 2001	28,473	19,411	3.29
Major Repairs, 2001 (%)	0.09	0.14	-1.92
Low Income Households, 2001 (%)	0.13	0.34	-5.39
Average Dwelling Value	98,637	39,760	5.06
Demographic and Household Characteristics			
Single person households, 1981 (%)	0.22	0.41	-2.40
Single person households, 2001 (%)	0.30	0.47	-2.34
Persons per household, 1981	2.81	2.19	2.48
Persons per household, 2001	2.36	2.04	1.59
Average number of children, 1981	1.52	1.64	-0.95
Average number of children, 2001	1.04	1.08	-0.26
Movers, 1981 (%)	0.51	0.49	0.26
Movers, 2001 (%)	0.43	0.60	-4.04
Aged 25-39, 1981 (%)	0.23	0.18	1.79
Aged 25-39, 2001 (%)	0.22	0.23	-0.72
University Education, 1981 (%)	0.13	0.03	2.37
University Education, 2001 (%)	0.18	0.09	1.81
Immigrated 0-4 years, 1981 (%)	0.20	0.15	1.66
Immigrated 0-4 years, 2001 (%)	0.11	0.13	-0.97
N-cases	31	5	

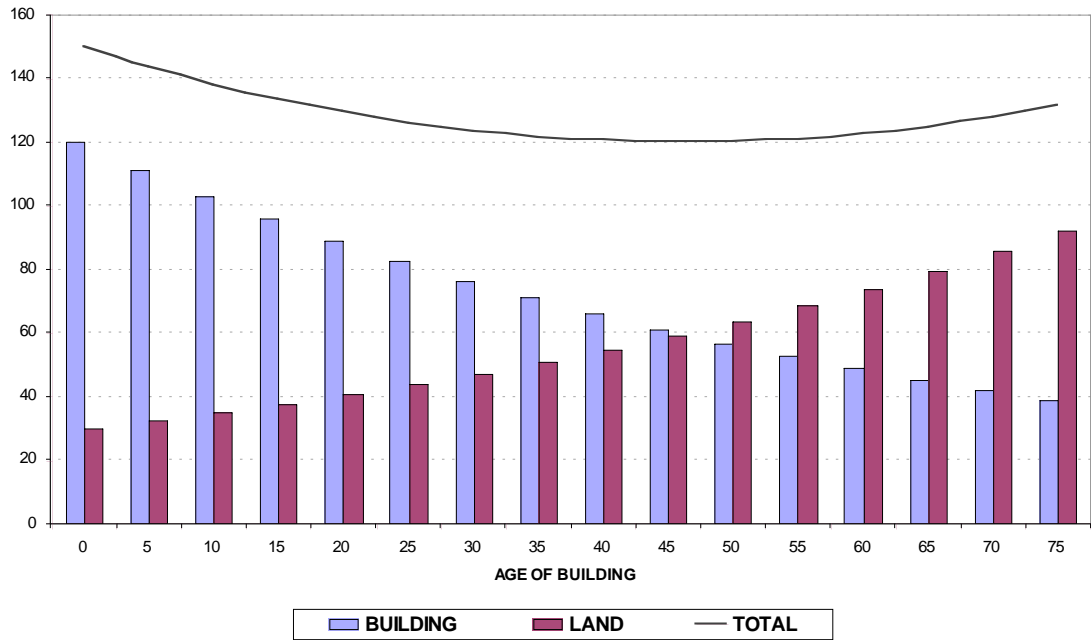
Notes: (%) - percent of census tract total.

TABLE 51
PROFILE OF CENSUS TRACTS FROM EDMONTON CMA

[illegible]

[illegible]

FIGURE 1
CHANGE IN THE PRICE OF A PROPERTY OVER TIME ASSUMING A DEPRECIATION RATE OF
1.5 PERCENT FOR THE STRUCTURE AND AN APPRECIATION OF 1.5 PER YEAR FOR THE
LAND COMPONENT



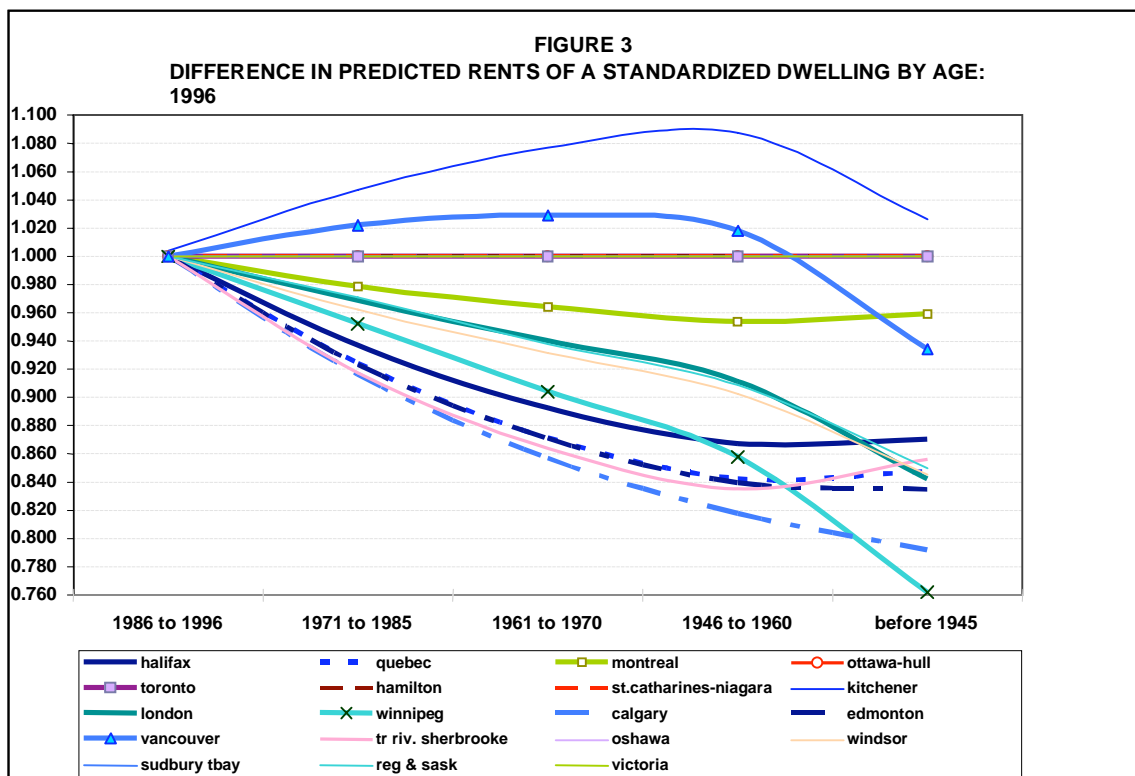
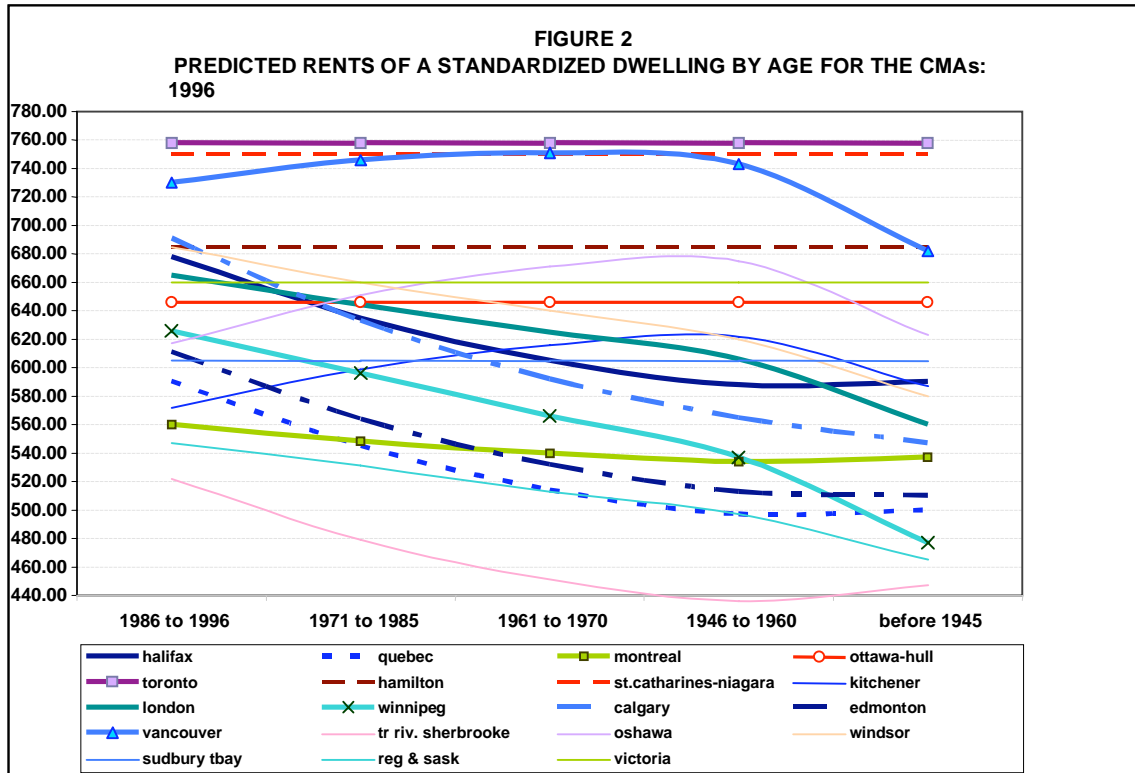
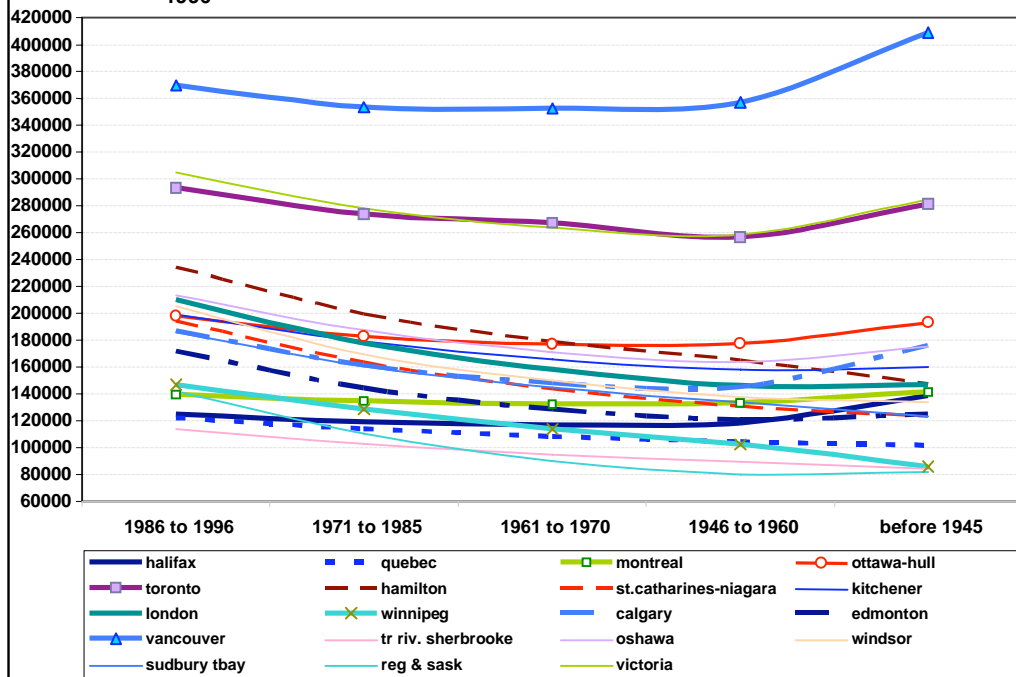
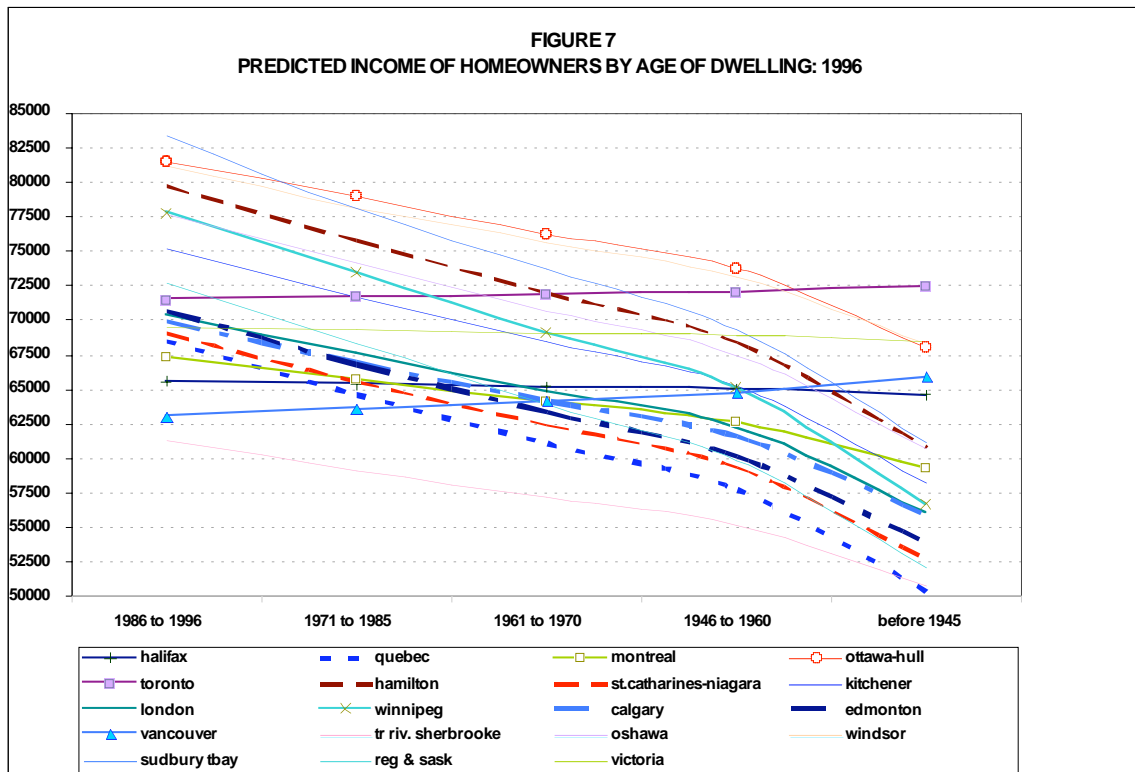
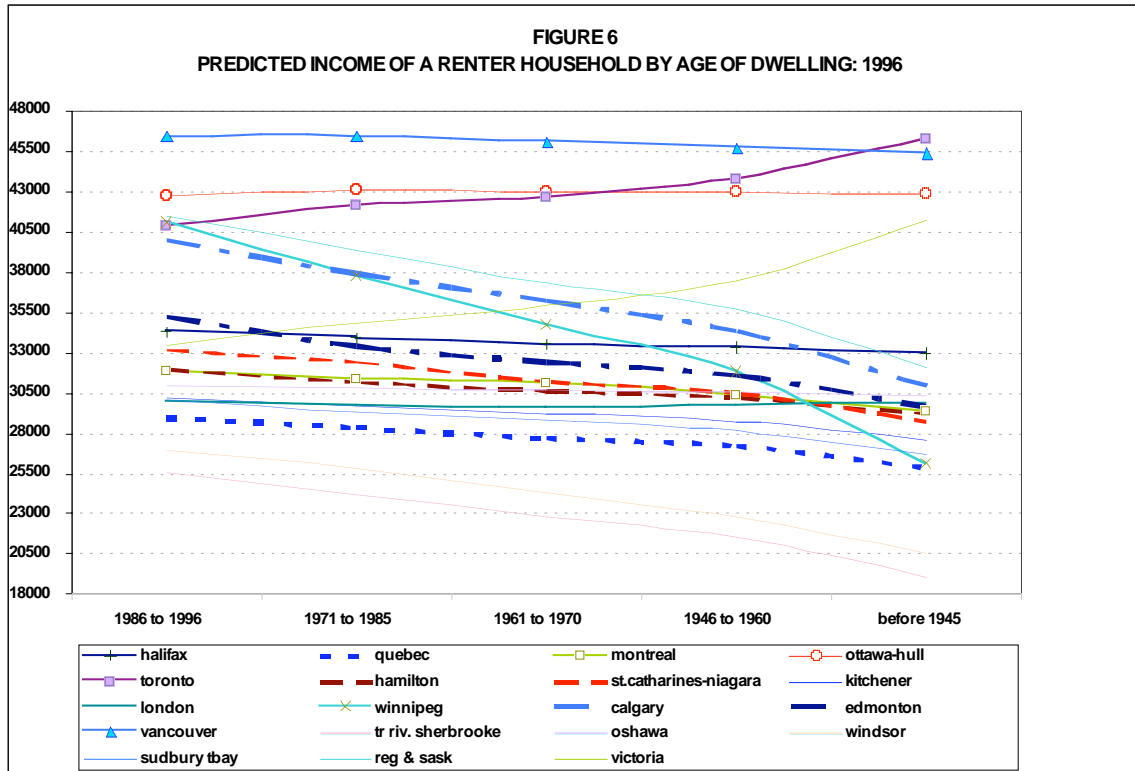


FIGURE 4
PREDICTED VALUES OF A STANDARDIZED DWELLING BY AGE FOR THE CMAs:
1996





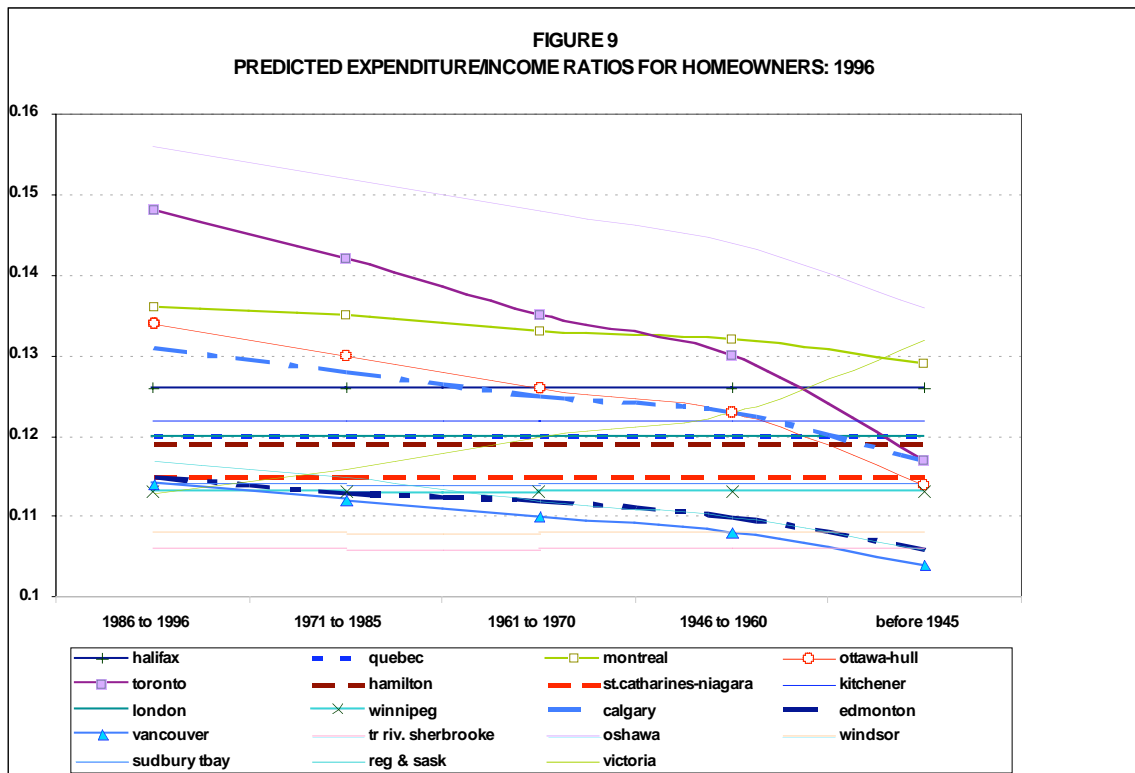
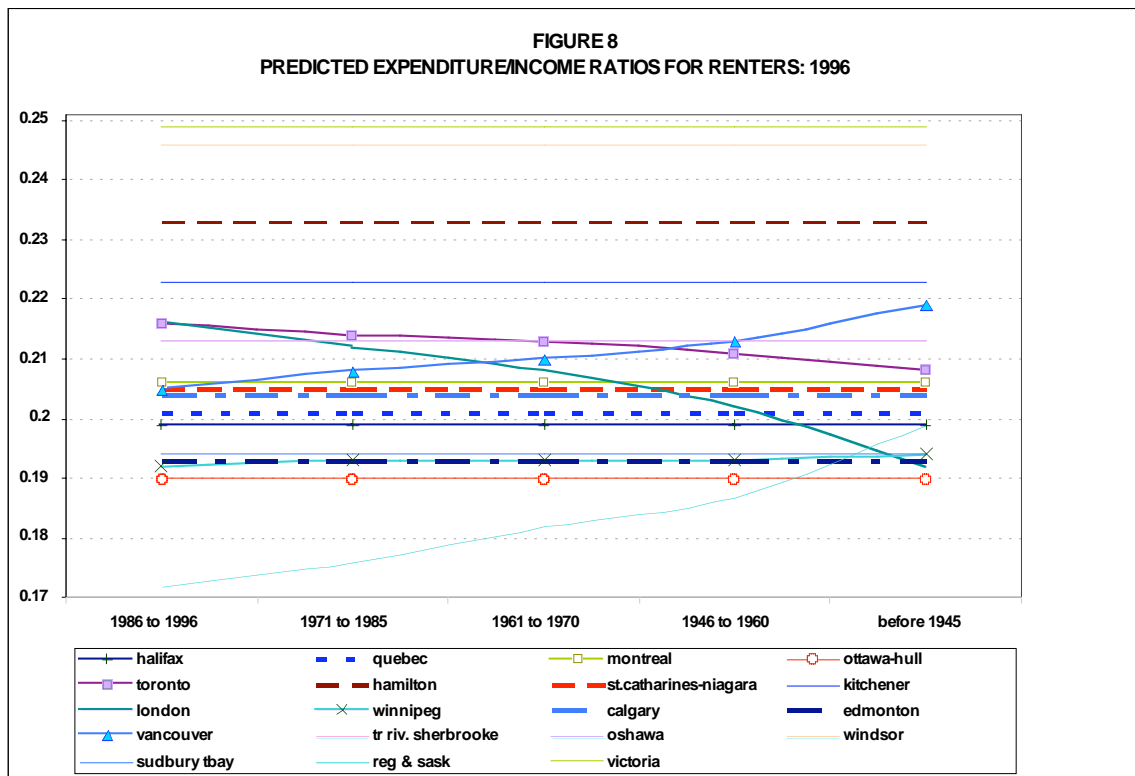


FIGURE 10
PREDICTED EXPENDITURE/INCOME RATIOS FOR RENTERS IN BOTTOM INCOME
QUARTILE: 1996

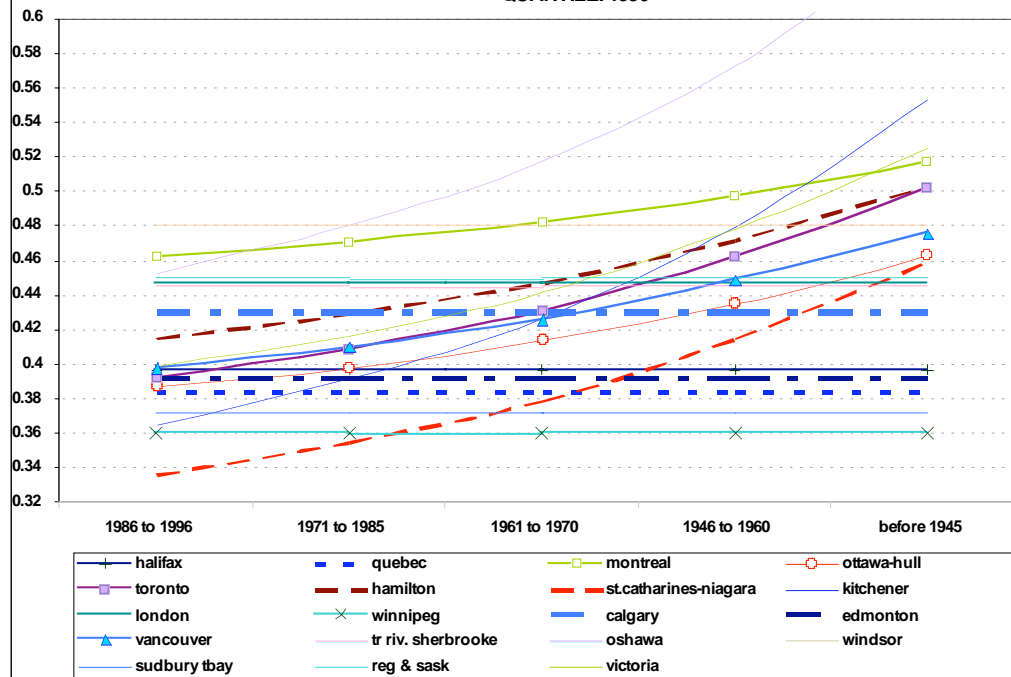


FIGURE 11
PREDICTED EXPENDITURE/INCOME RATIOS FOR OWNERS IN BOTOM INCOME QUARTILE:
1996

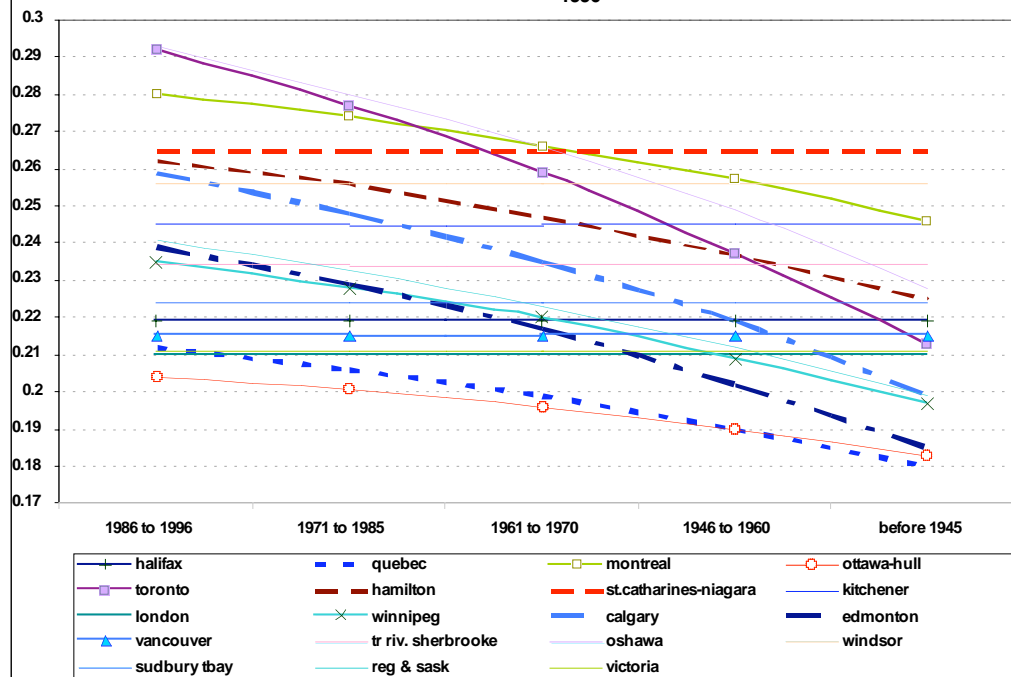


FIGURE 12
PROPORTION RENTERS BELOW LOW INCOME CUTOFF(AFTER ACCOUNTING FOR DWELLING SIZE) : 1996

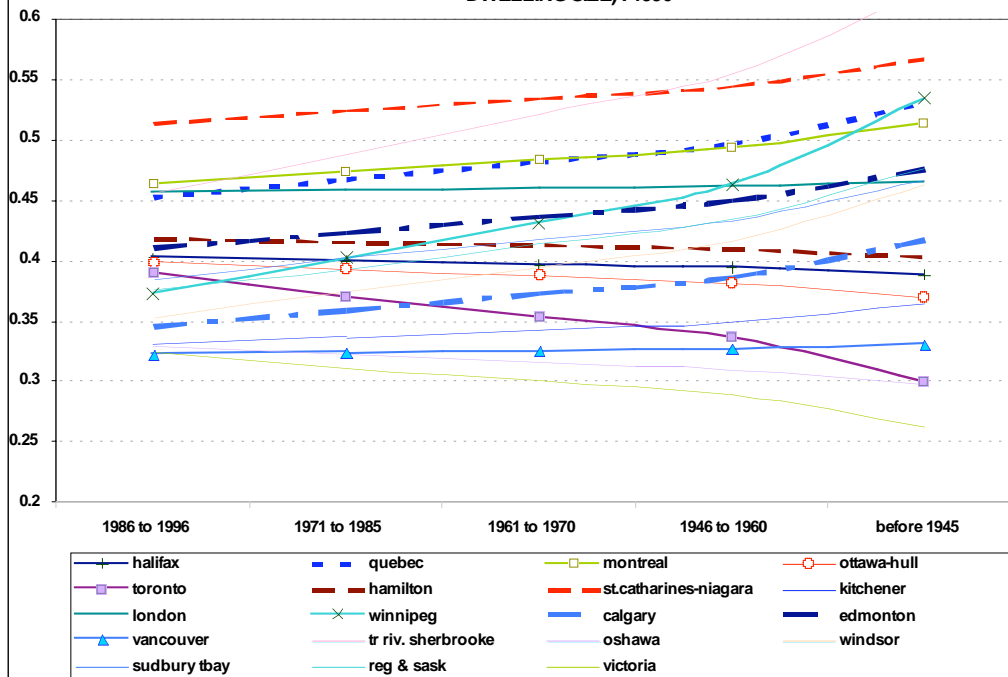
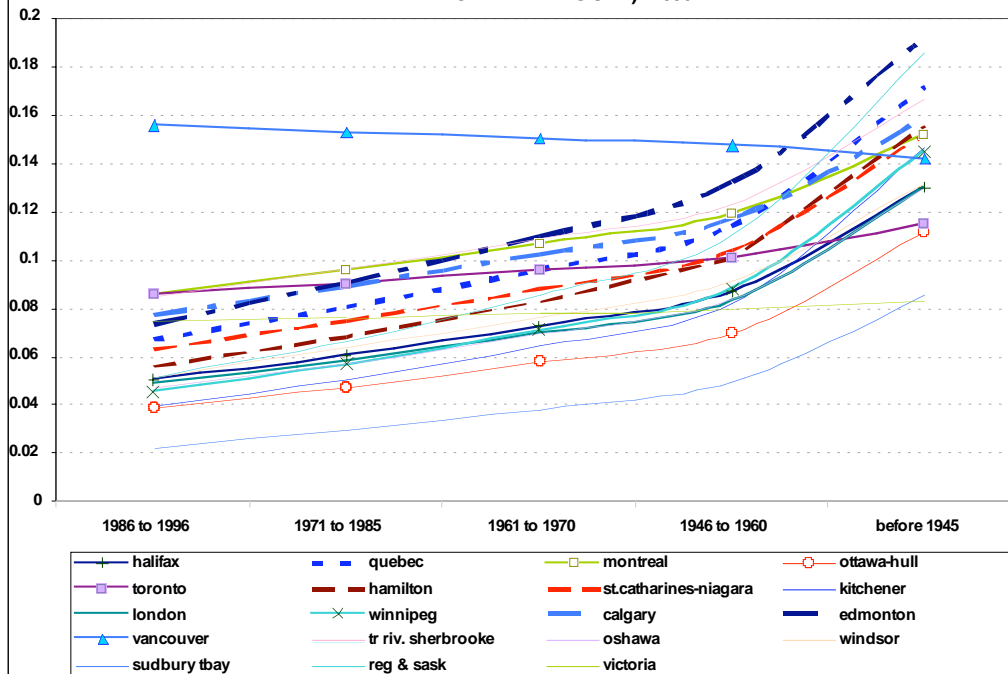
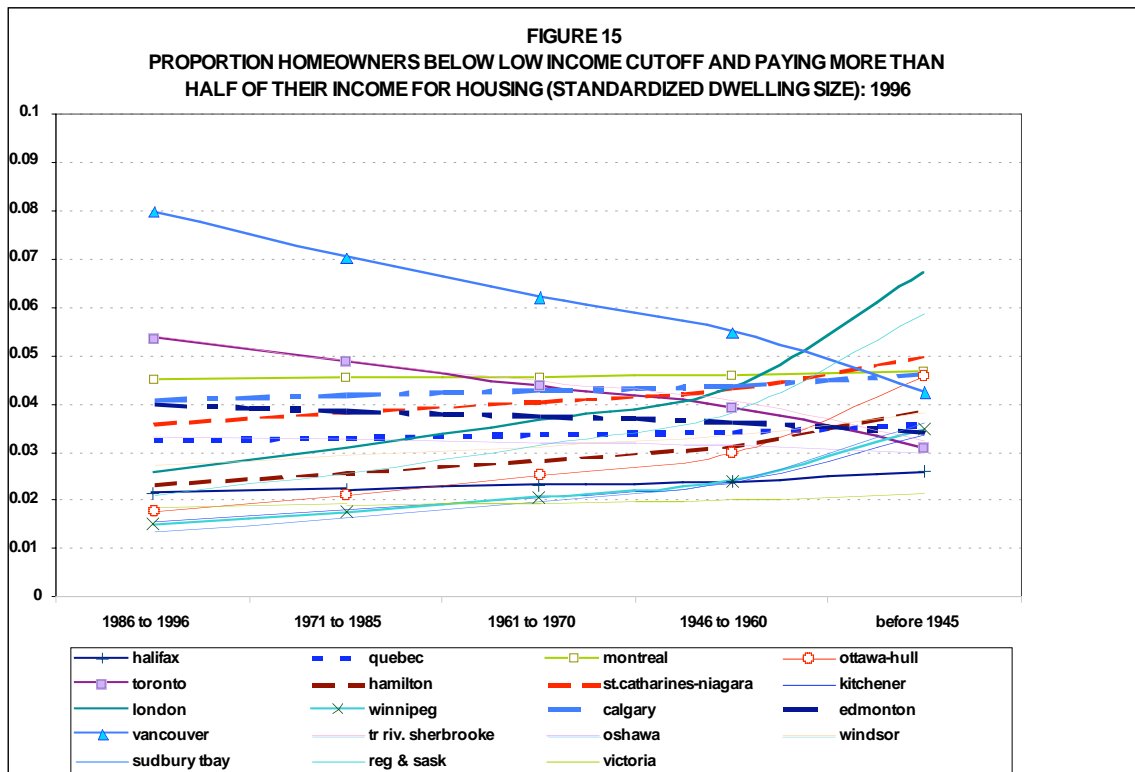
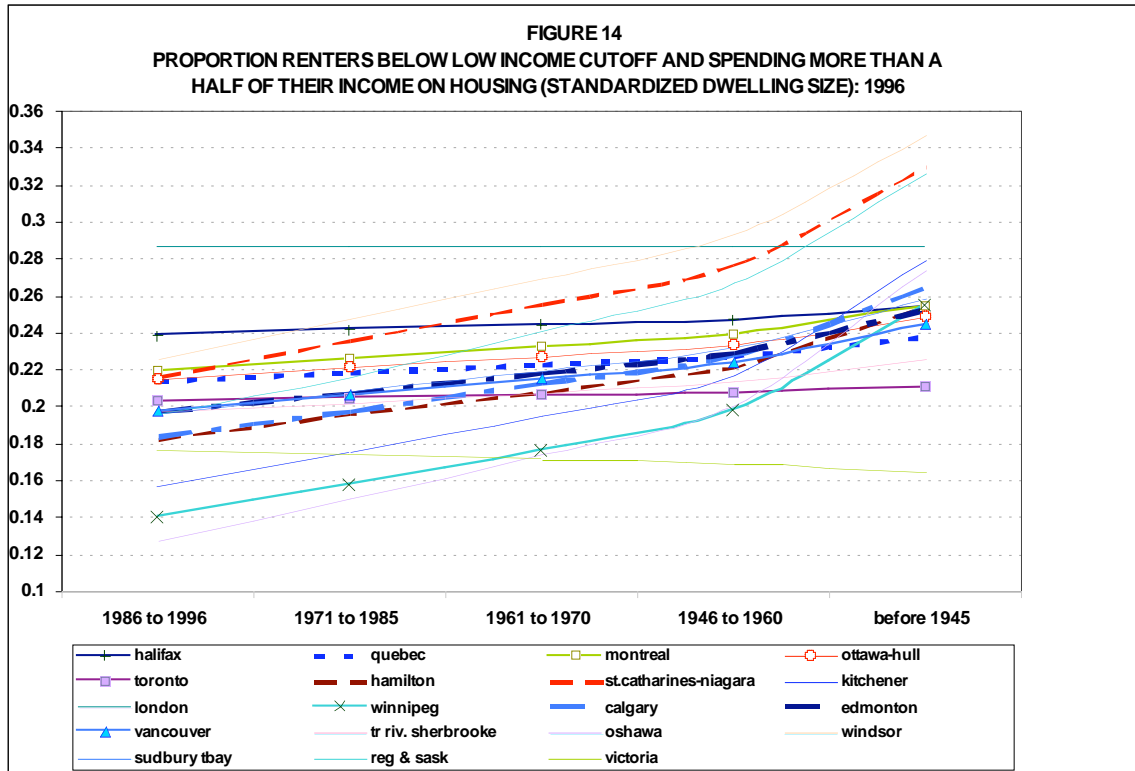
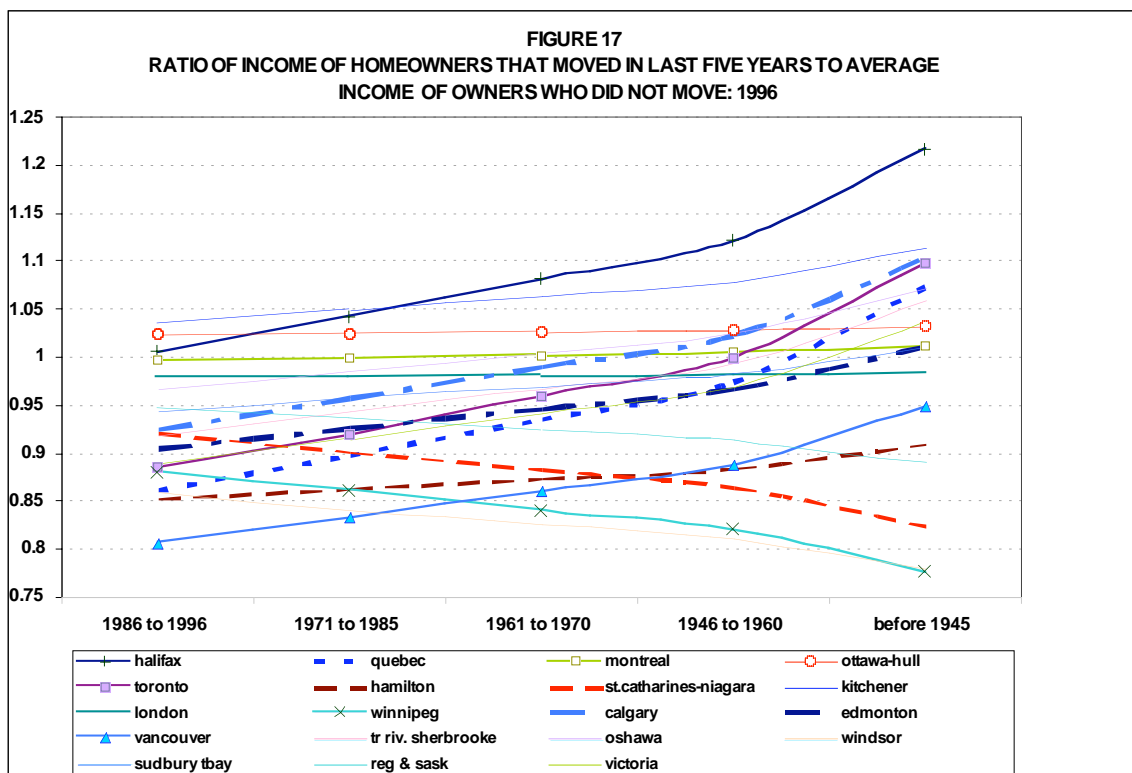
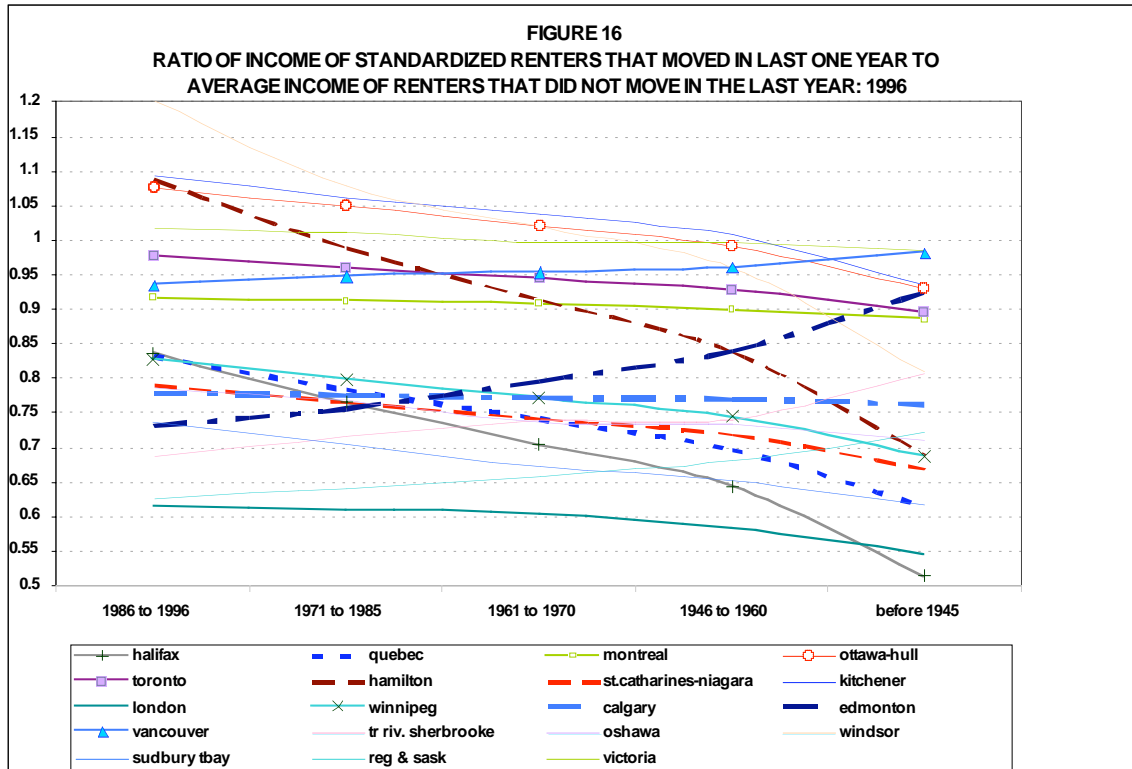
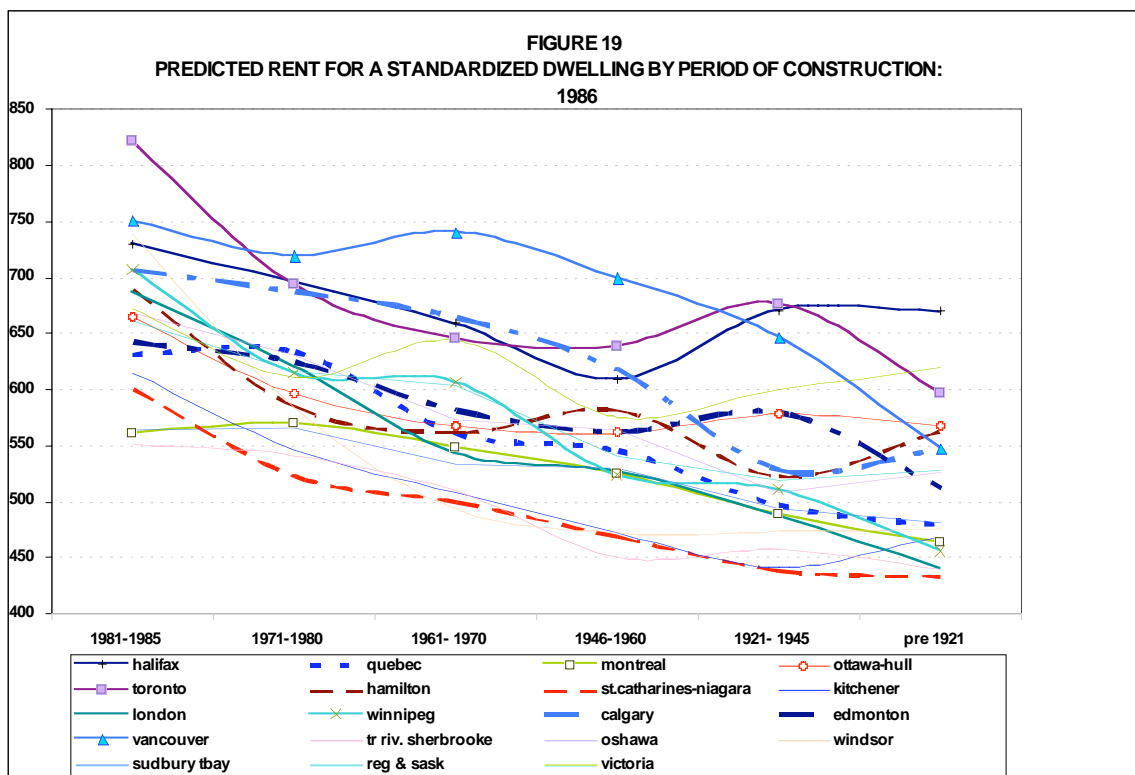
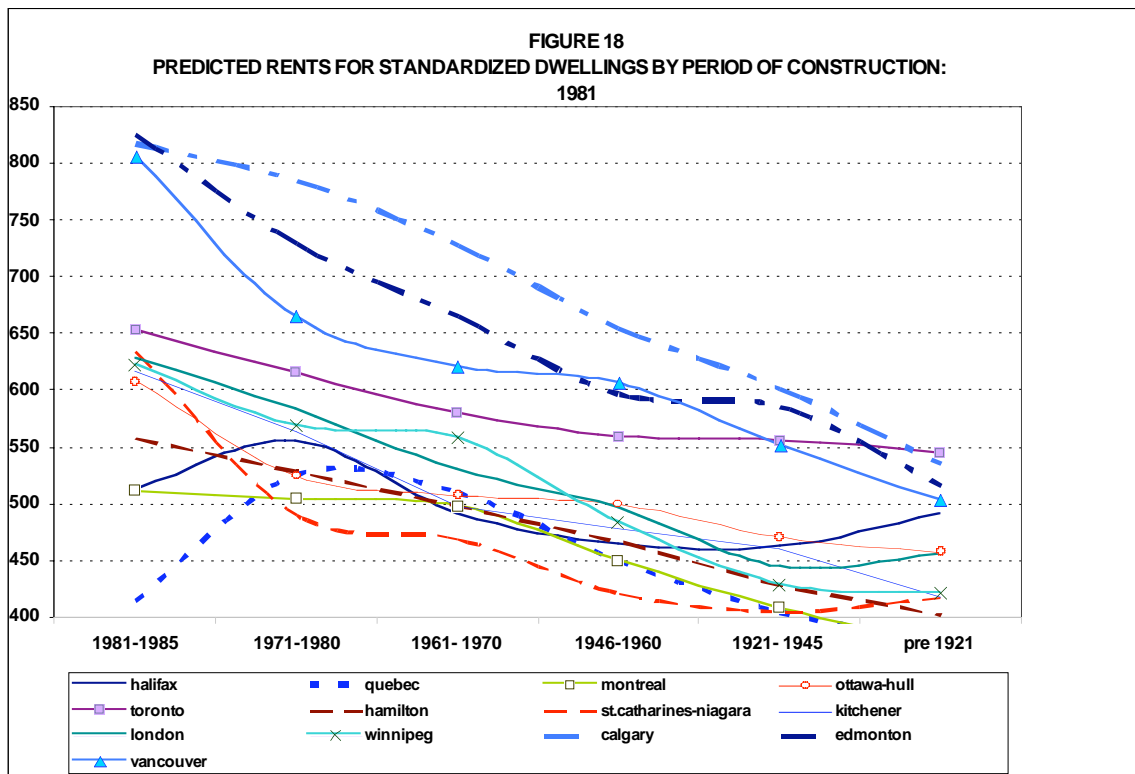


FIGURE 13
PROPORTION OF HOMEOWNERS BELOW LOW INCOME CUTOFF (AFTER ACCOUNTING FOR DWELLING SIZE) : 1996









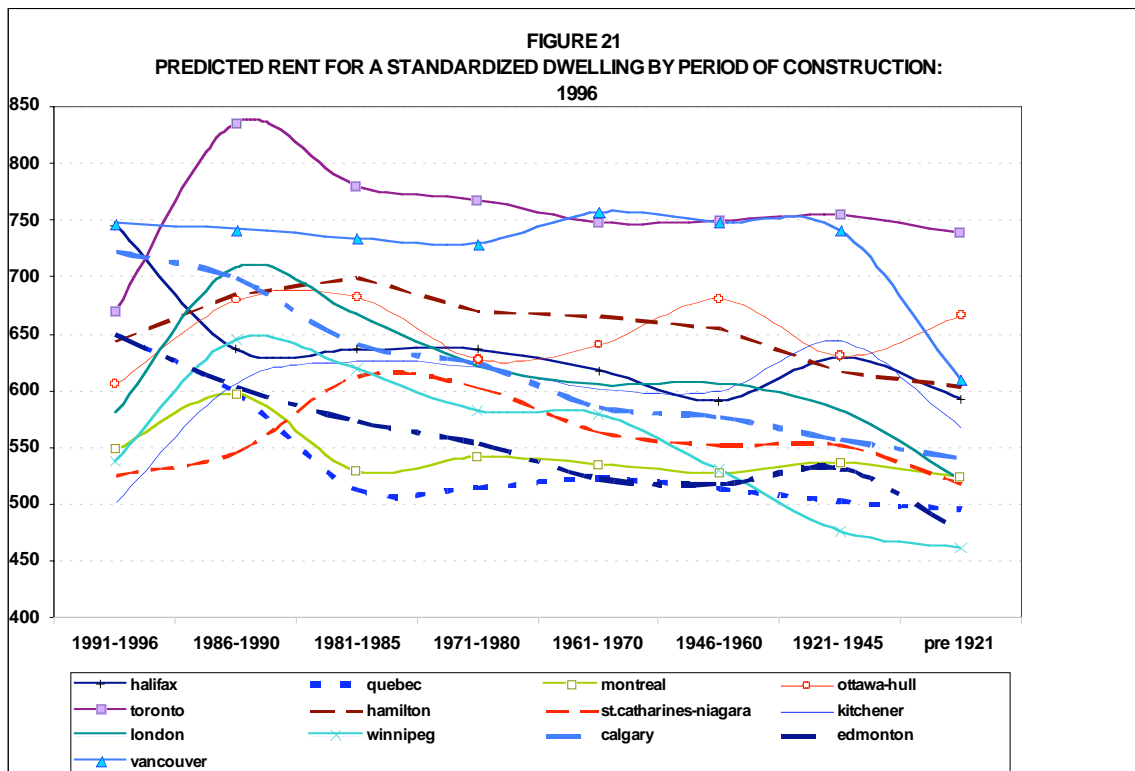
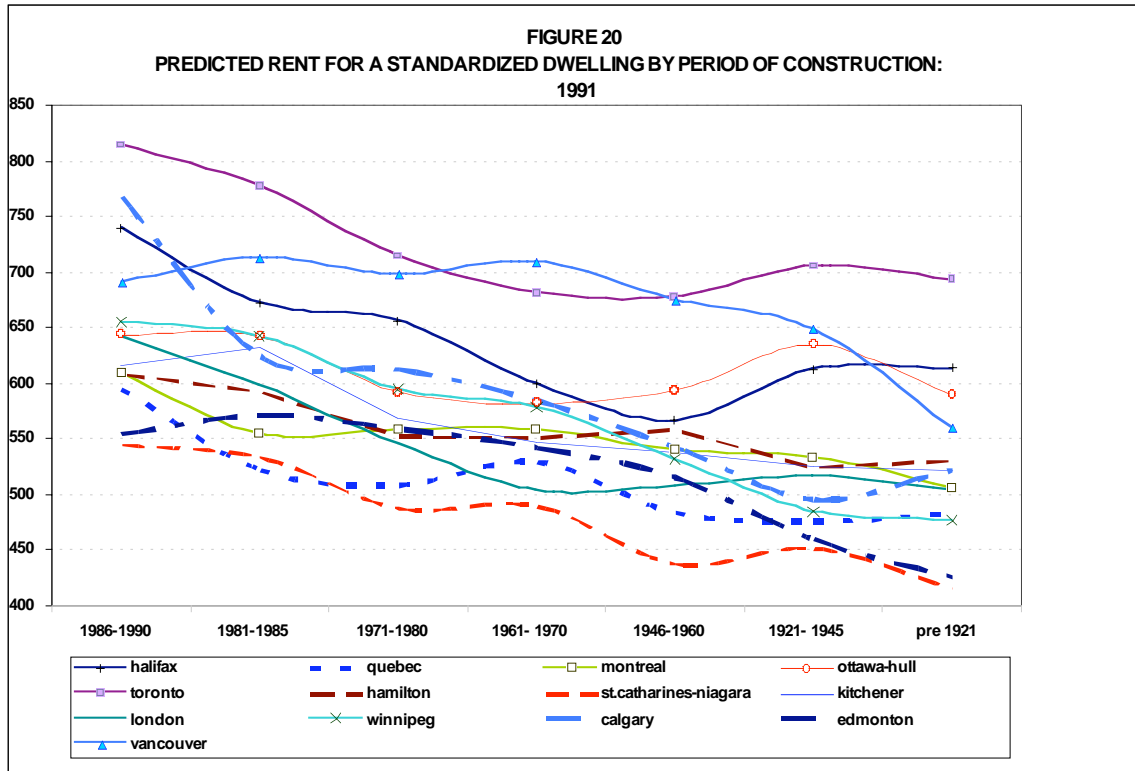


FIGURE 22
PREDICTED VALUE OF A STANDARDIZED DWELLING BY PERIOD OF CONSTRUCTION:
1981

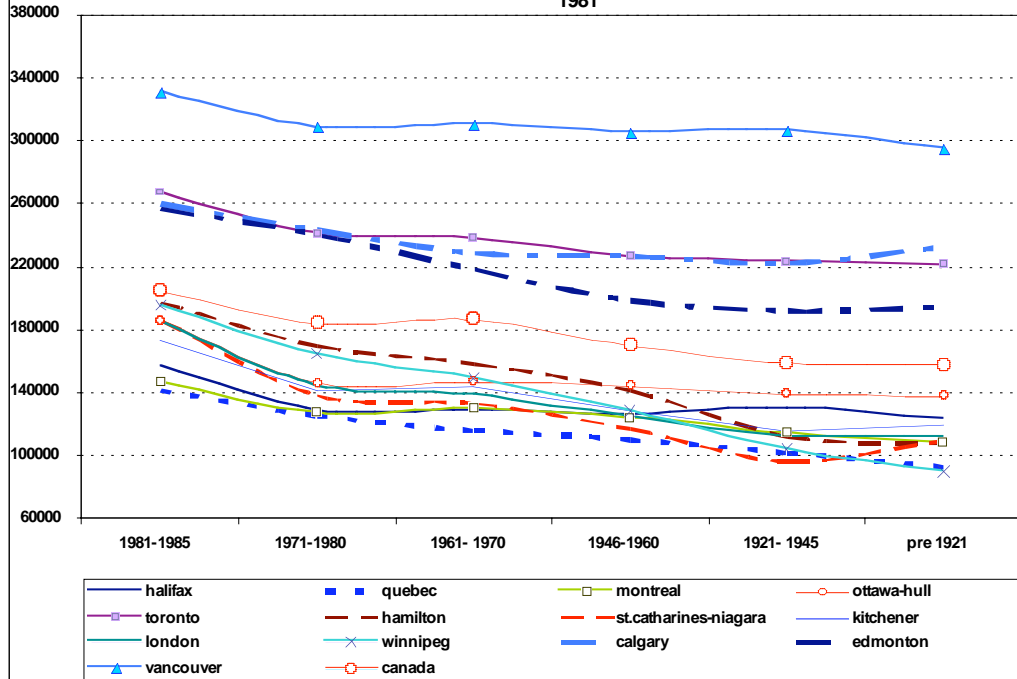
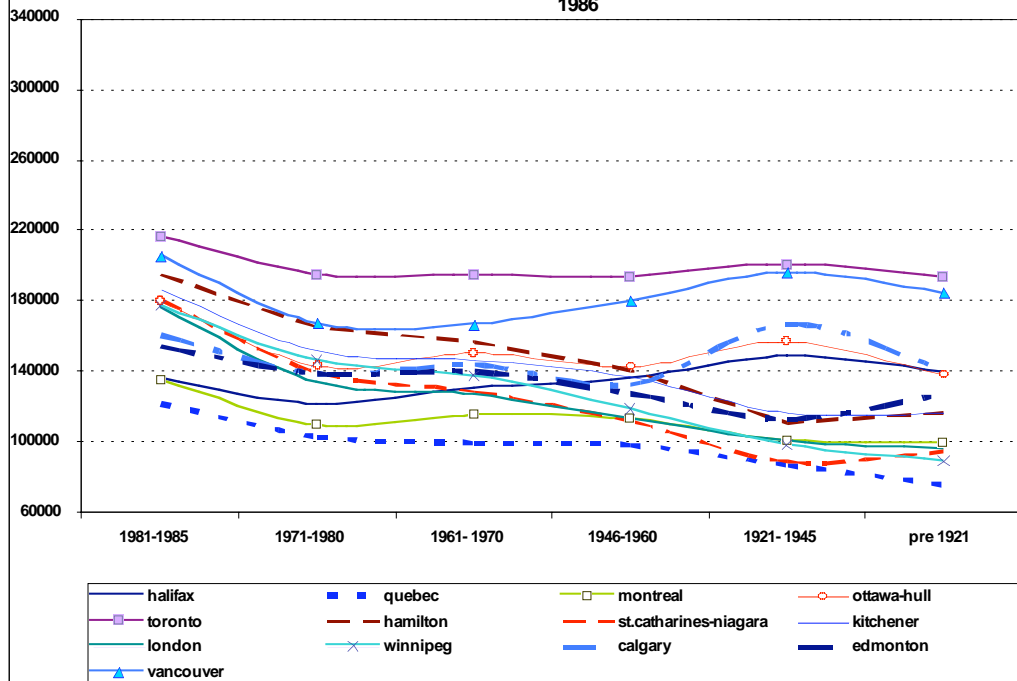
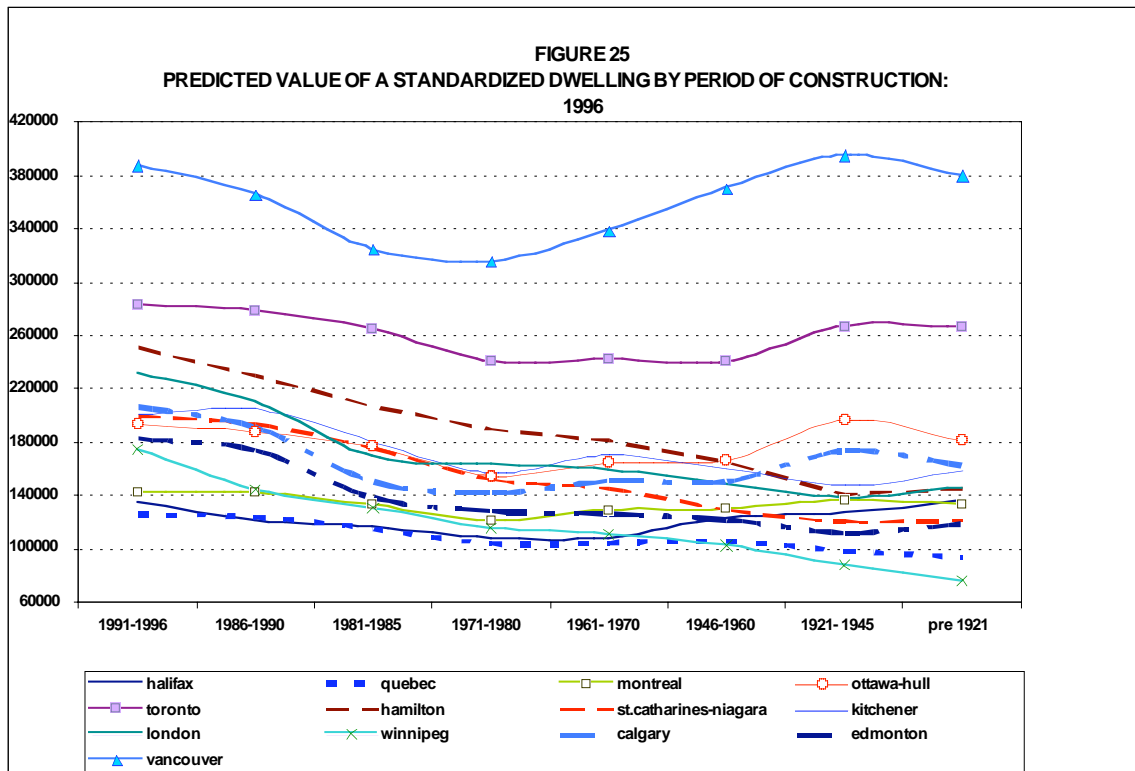
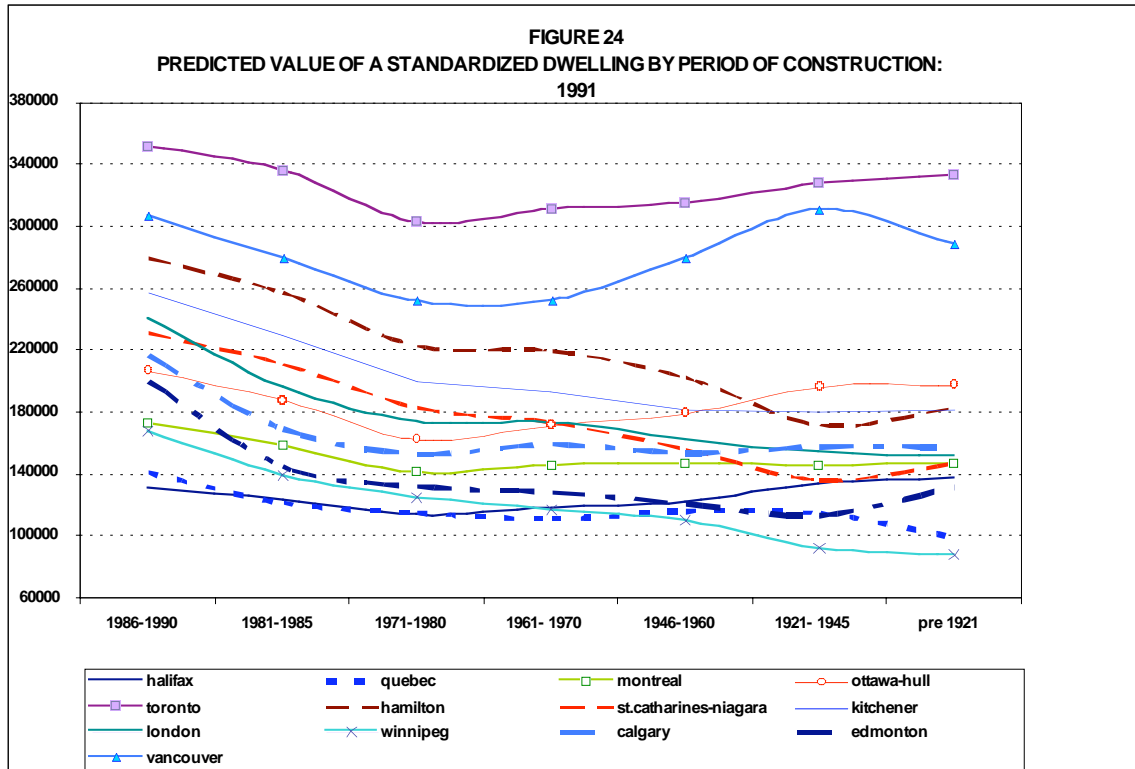


FIGURE 23
PREDICTED VALUE OF A STANDARDIZED DWELLING BY PERIOD OF CONSTRUCTION:
1986





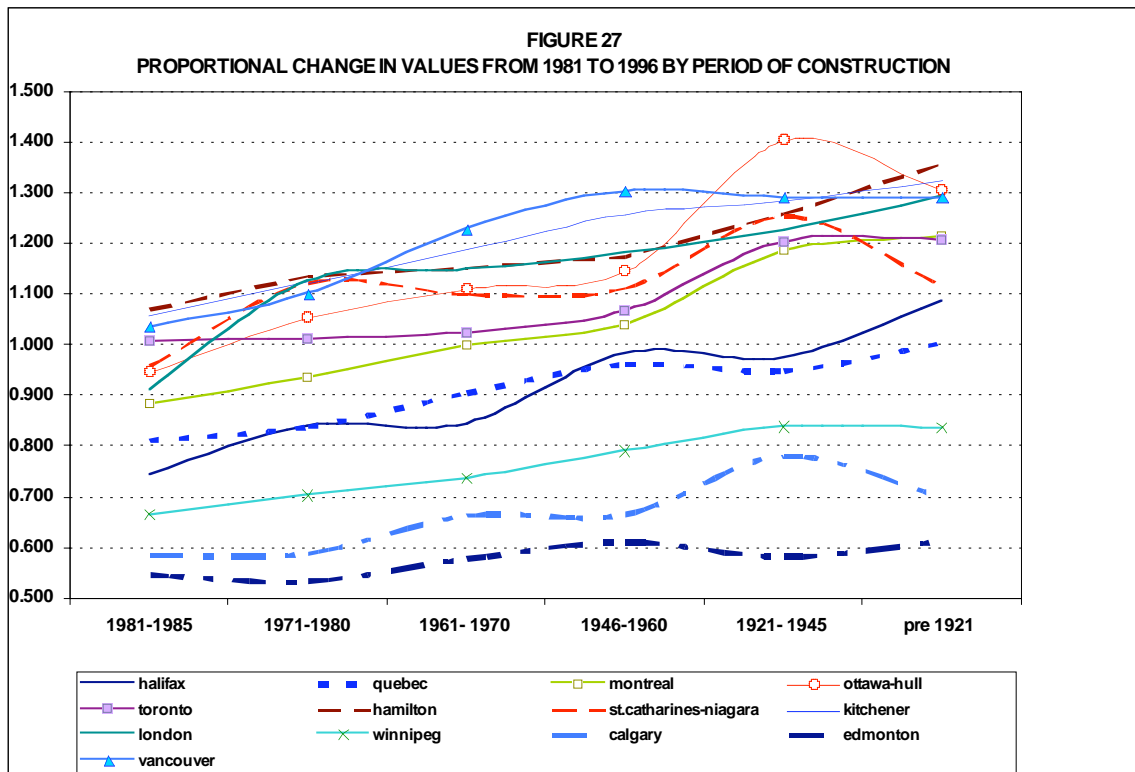
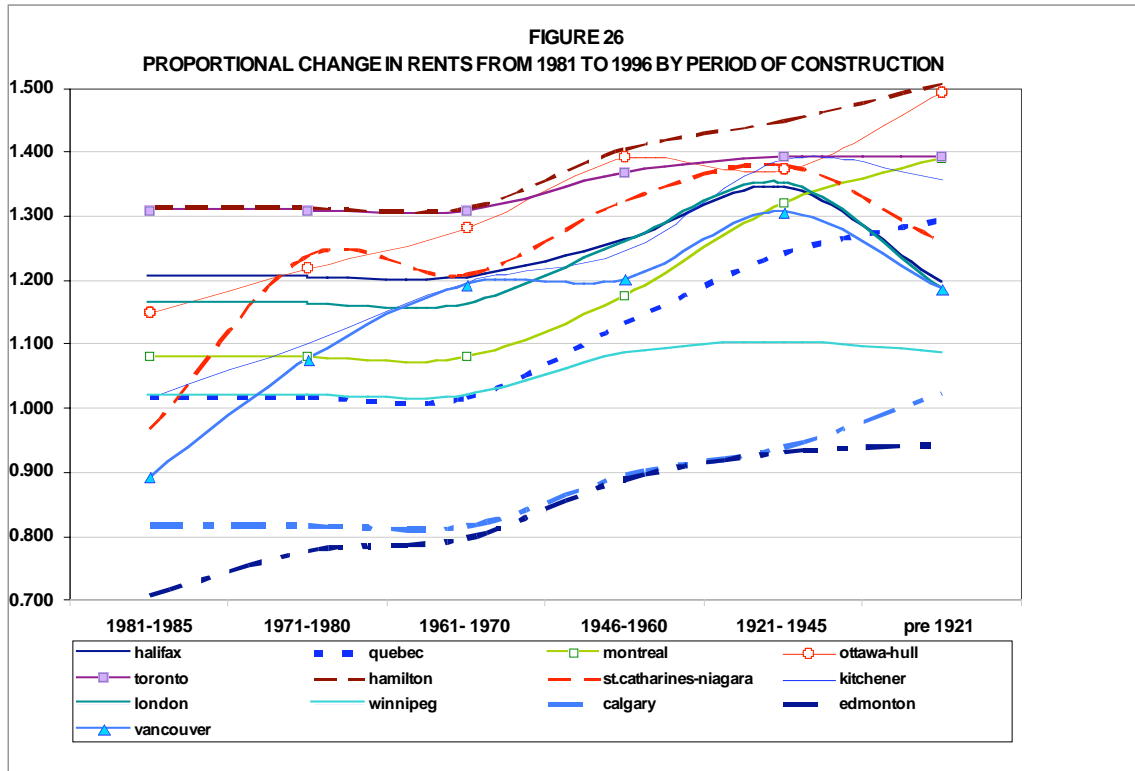


FIGURE 28
RATIO OF PROPORTIONAL CHANGE IN RENTS FROM 1981 TO 1996 BY PERIOD OF CONSTRUCTION

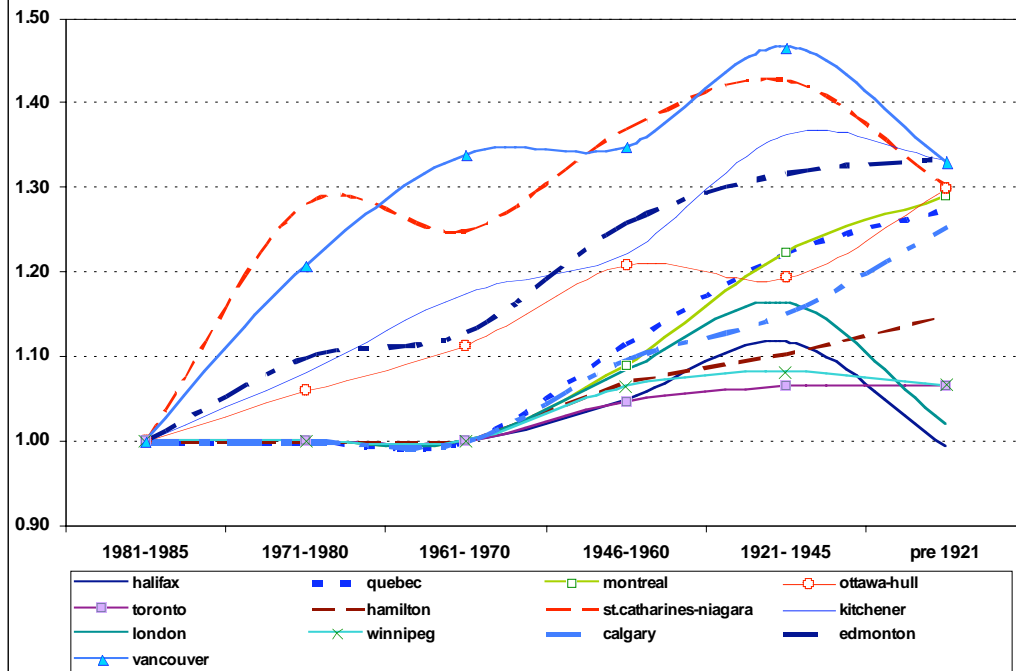


FIGURE 29
RATIO OF PROPORTIONAL CHANGE IN VALUES FROM 1981 TO 1996 BY PERIOD OF CONSTRUCTION

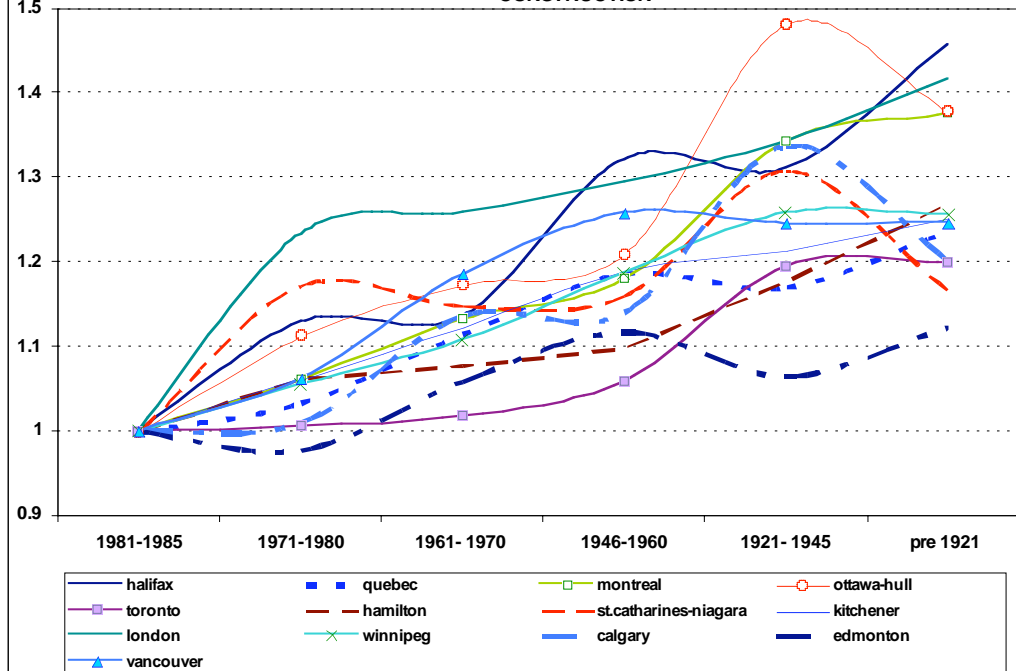


FIGURE 30
CHANGE IN RENTS FROM 1986 TO 1996 BY PERIOD OF CONSTRUCTION

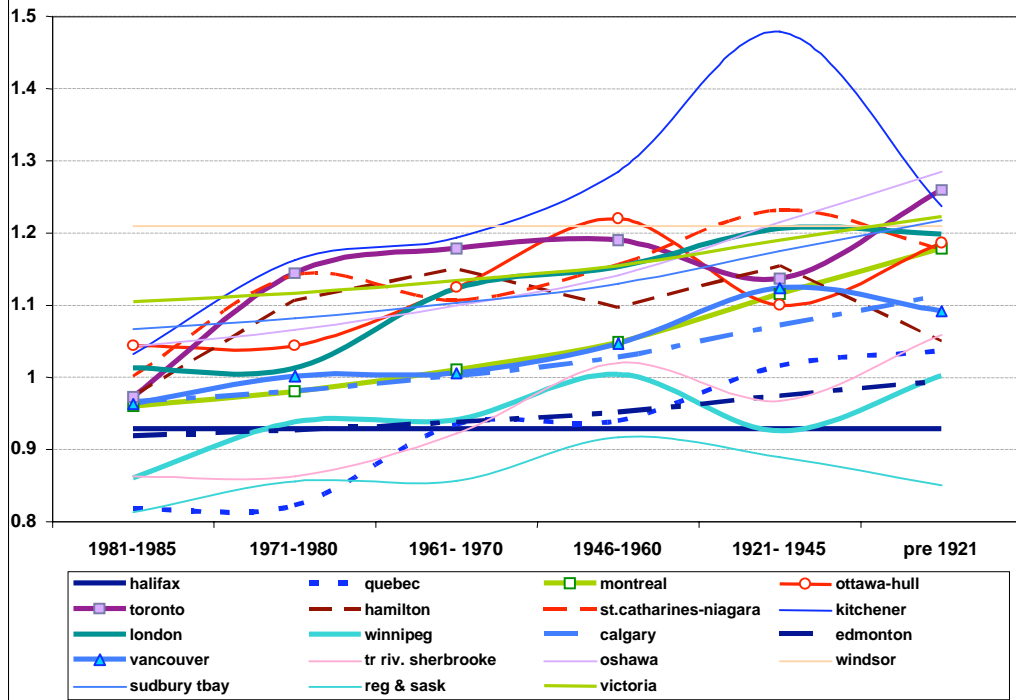
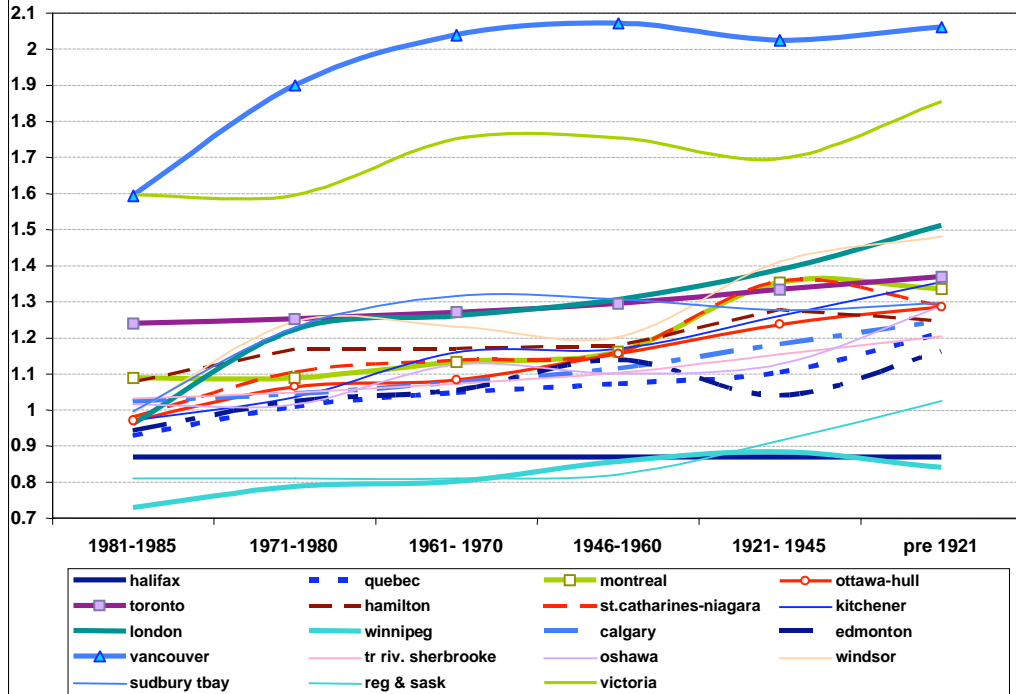
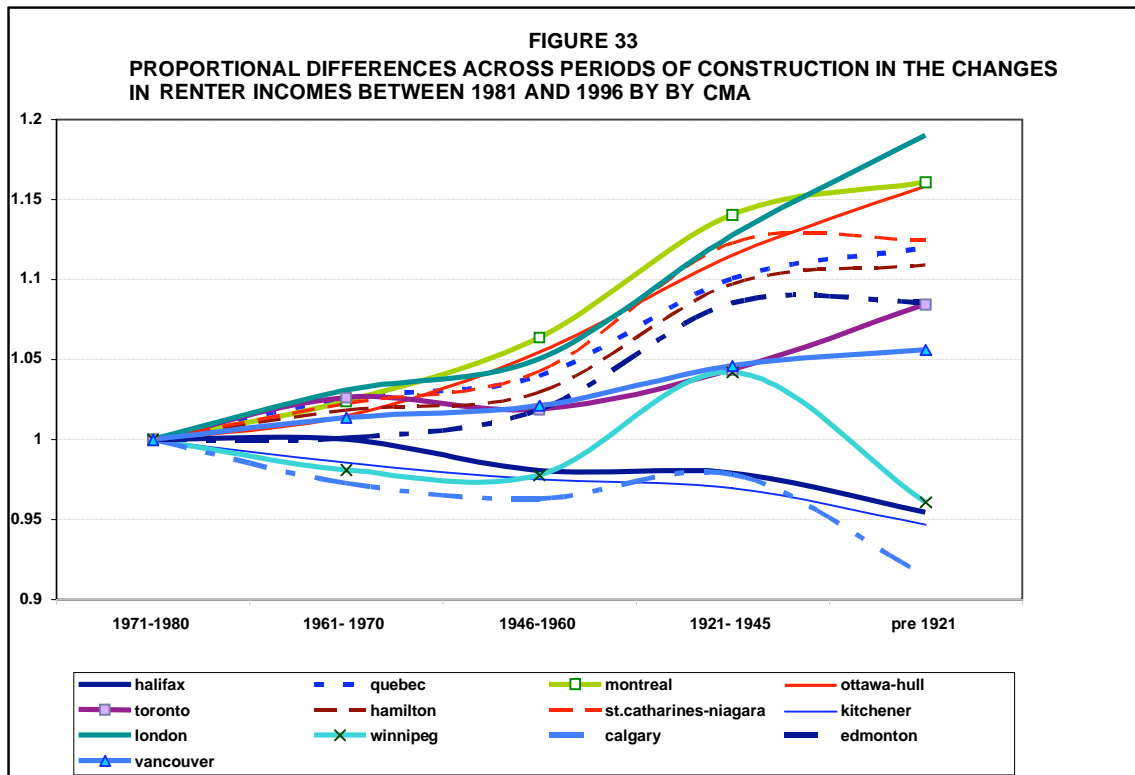
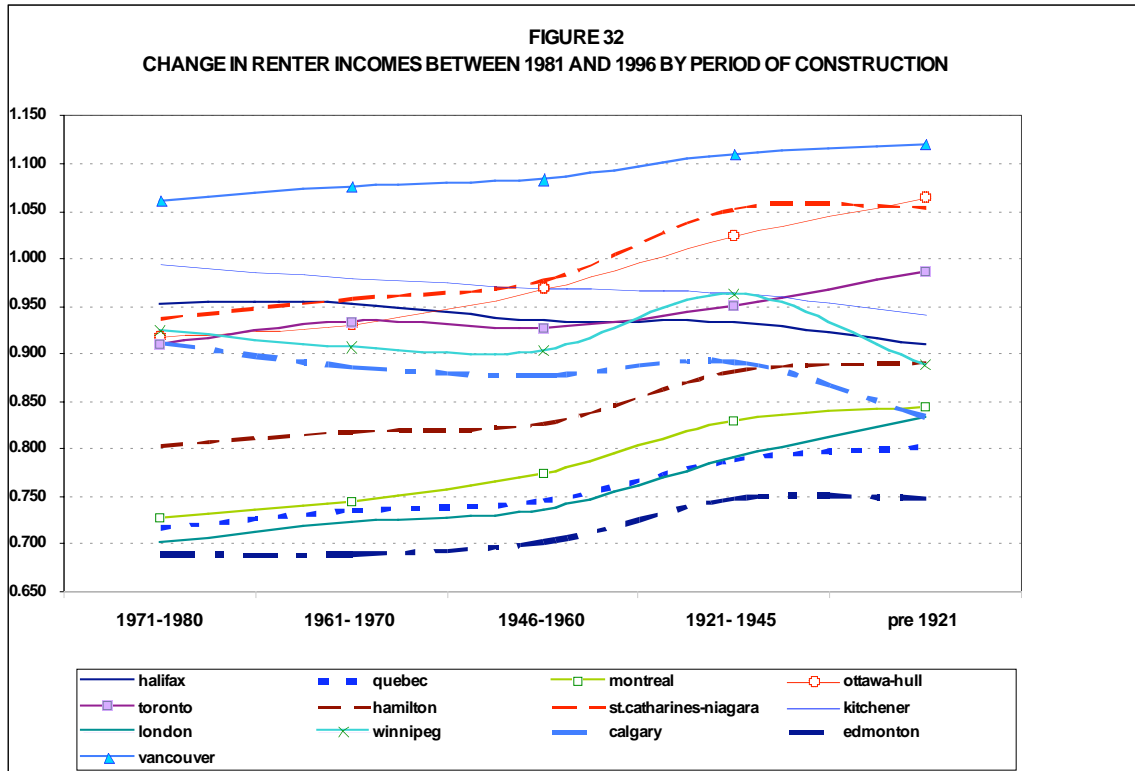


FIGURE 31
CHANGE IN VALUES FROM 1986 TO 1996 BY PERIOD OF CONSTRUCTION





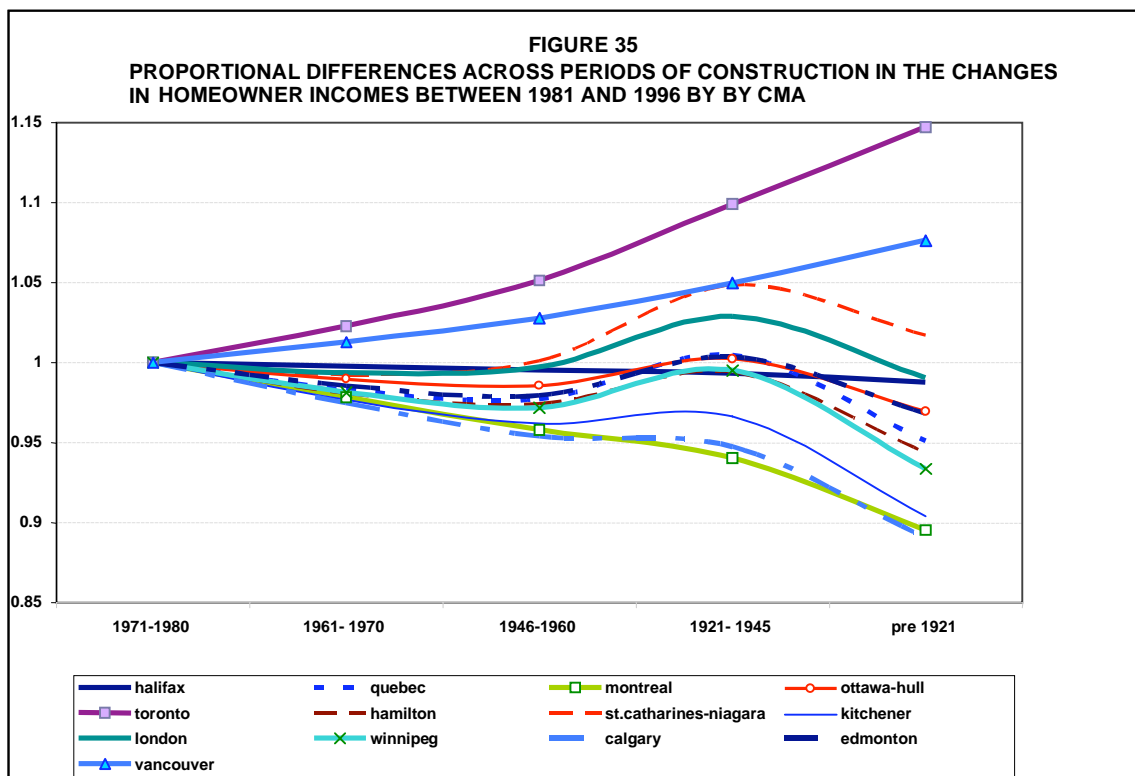
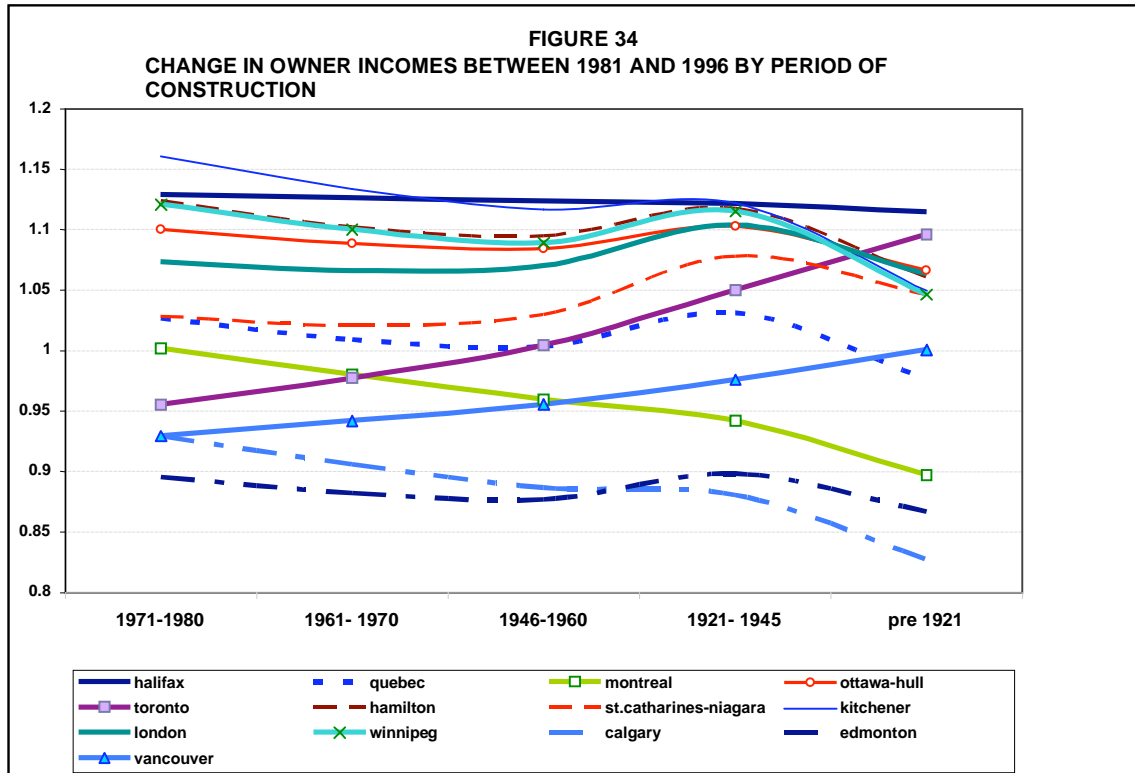


FIGURE 36
COMPARISON OF THE 1971 TO 1996 RENT PROFILES FOR APARTMENTS, TOWNHOUSES
AND SEMI-ATTACHED DWELLINGS IN MONTREAL

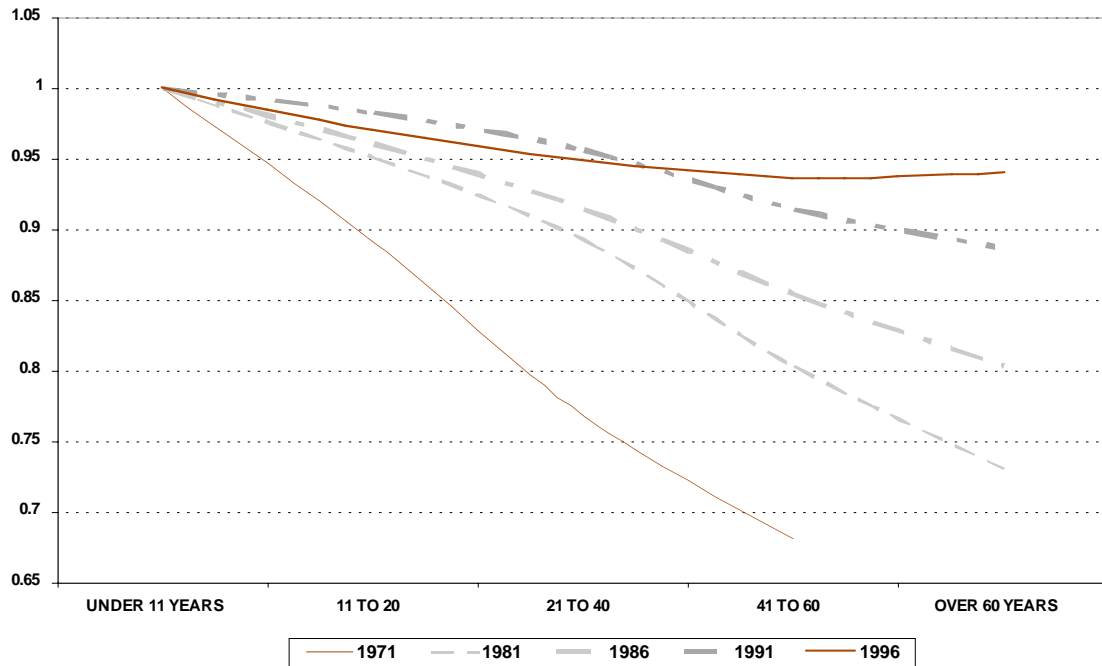


FIGURE 37
COMPARISON OF THE 1971 TO 1996 RENT PROFILES FOR APARTMENTS, TOWNHOUSES
AND SEMI-ATTACHED DWELLINGS IN TORONTO

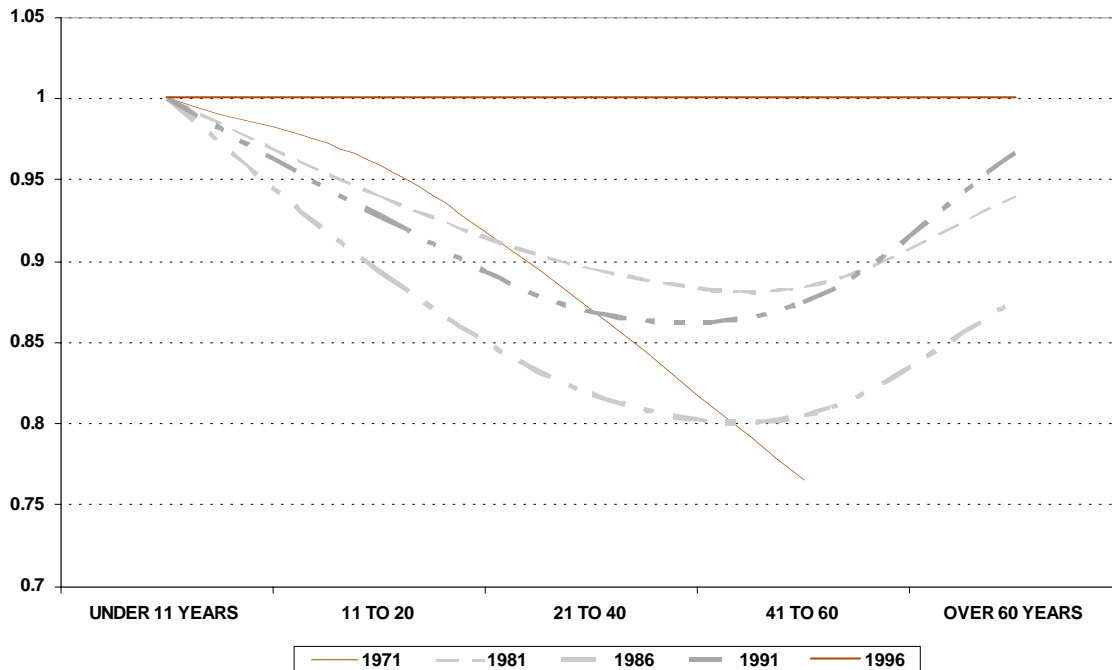


FIGURE 38
COMPARISON OF THE 1971 TO 1996 PROFILES FOR OWNER OCCUPIED SINGLE FAMILY
DETACHED HOUSES IN MONTREAL

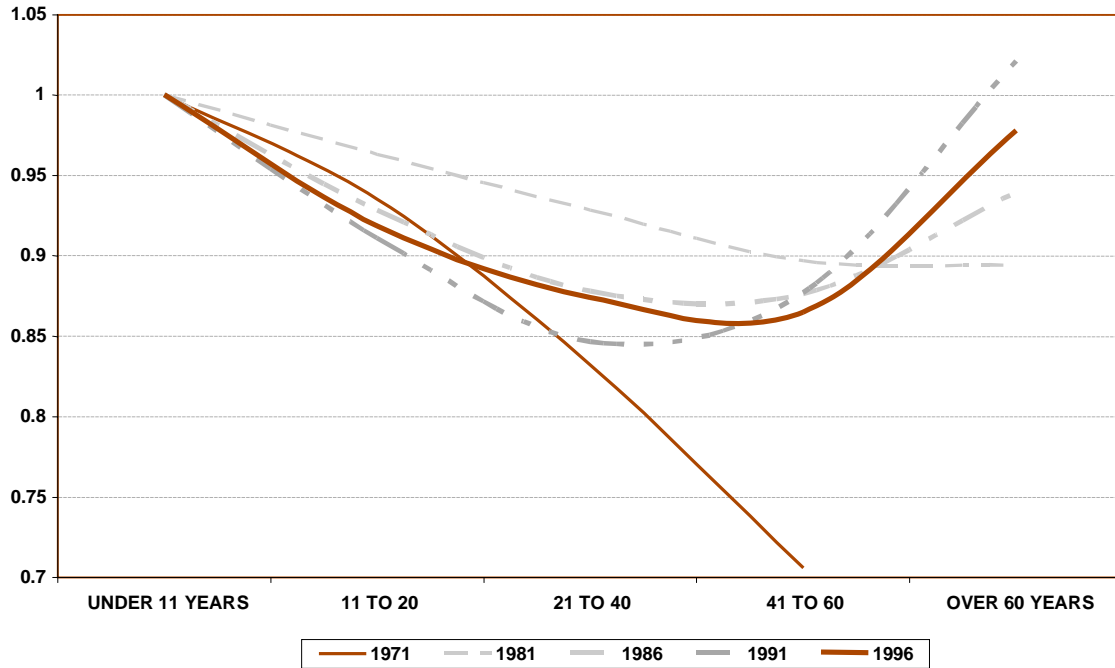
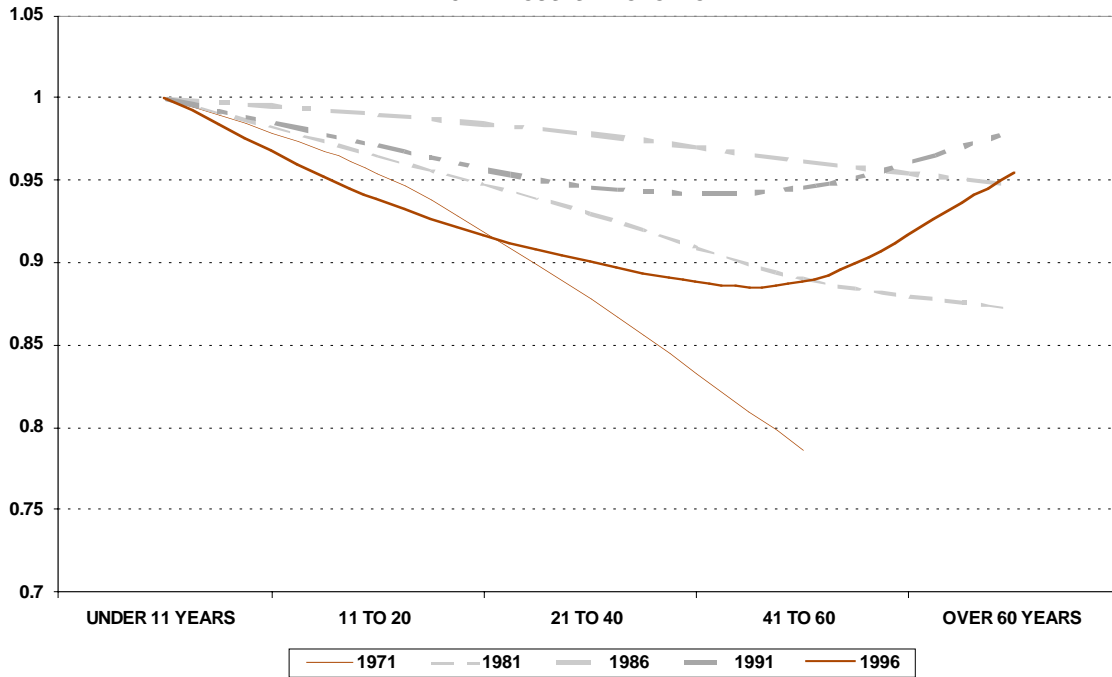
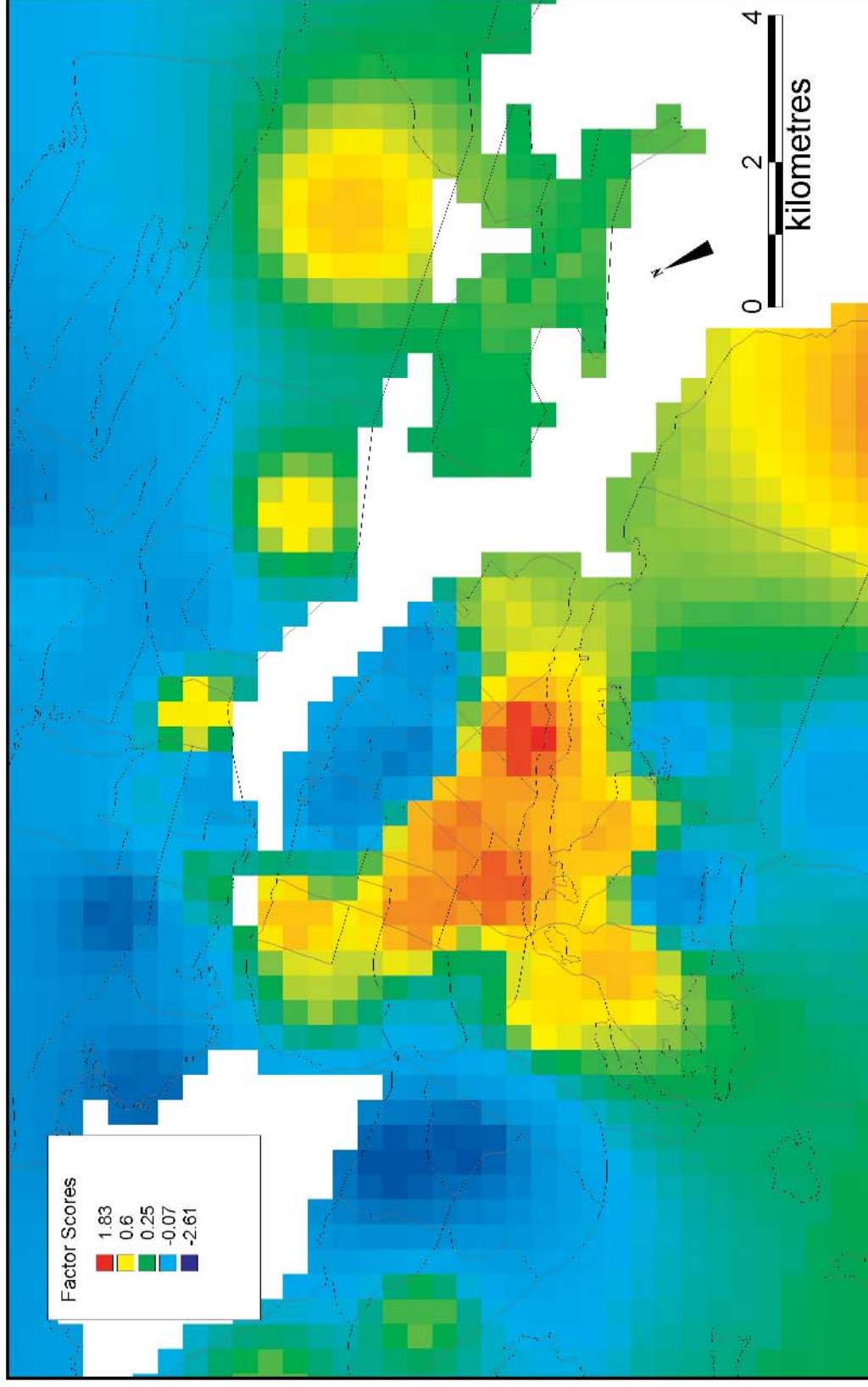
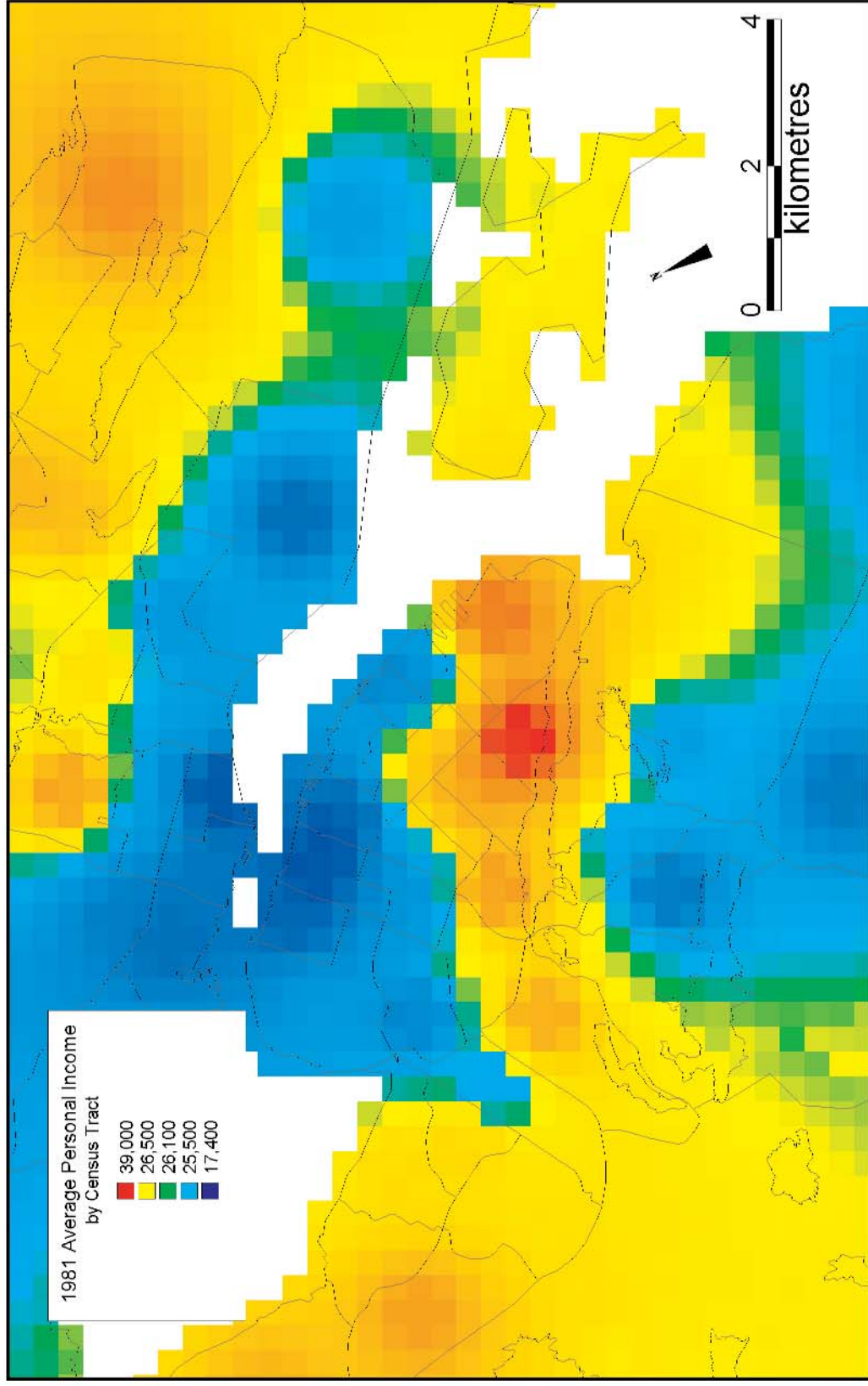


FIGURE 39
COMPARISON OF THE 1971 TO 1996 PROFILES FOR OWNER OCCUPIED SINGLE FAMILY
DETACHED HOUSES IN TORONTO

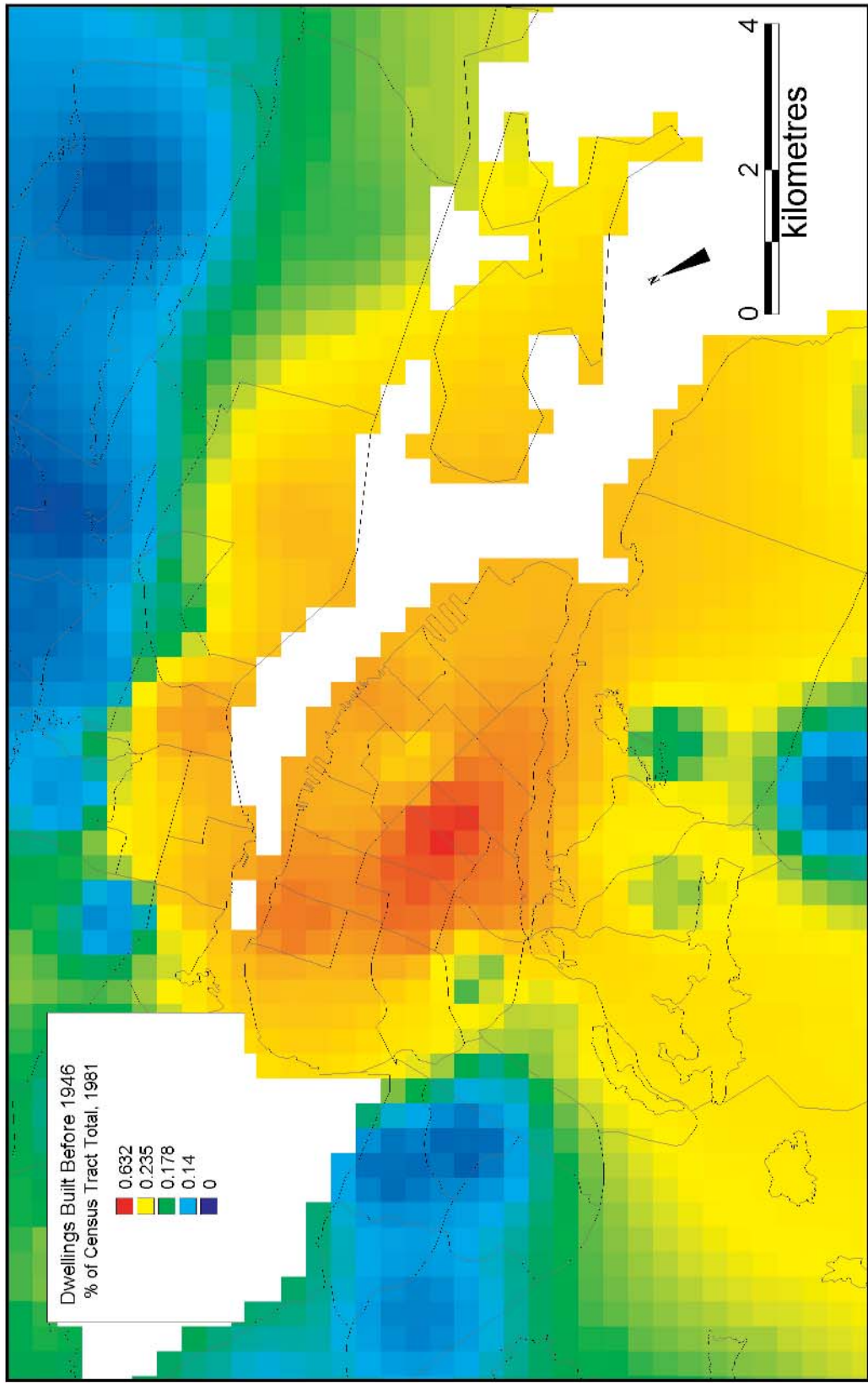




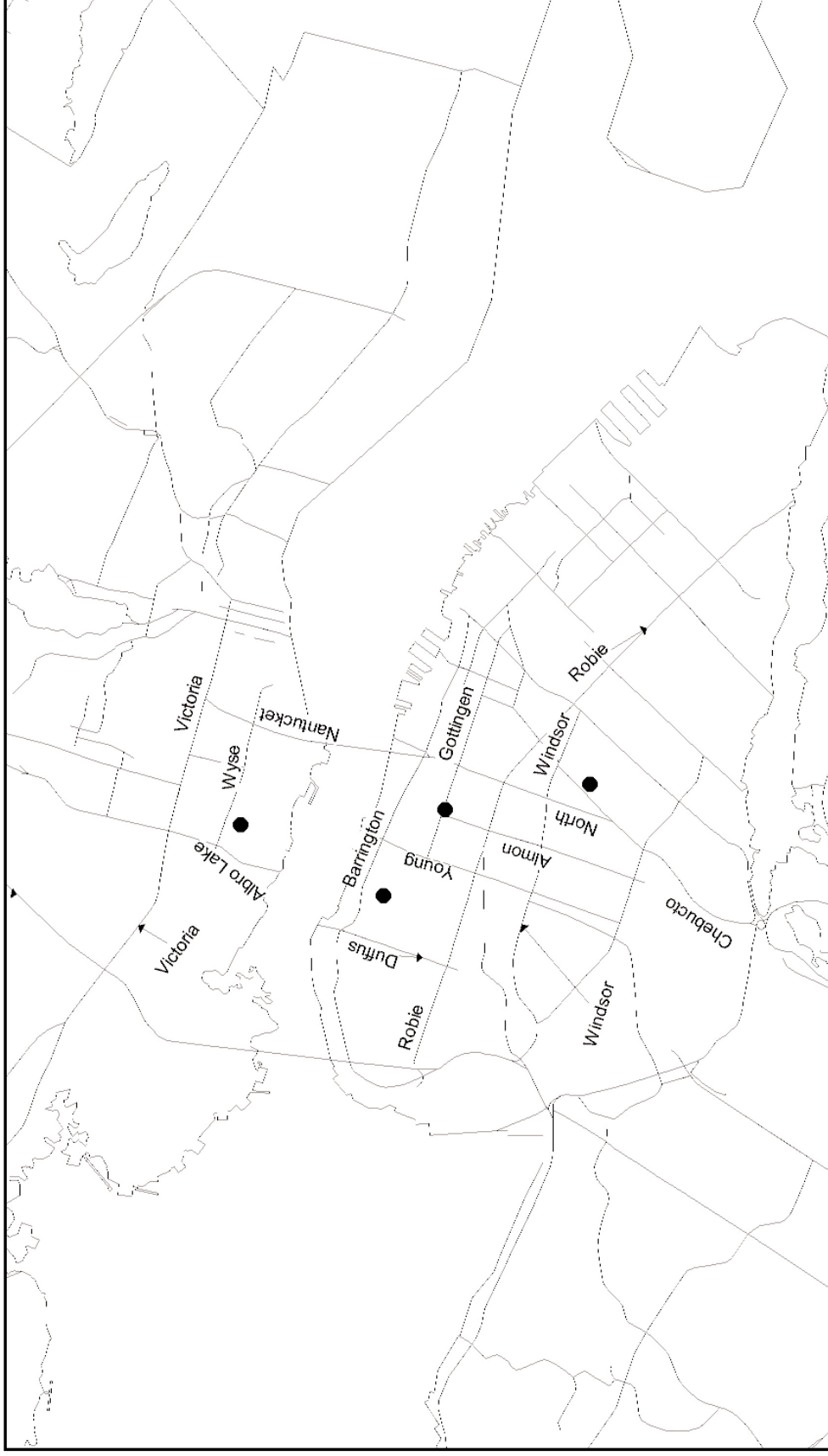
Map 1. Factor Scores Halifax Census Metropolitan Area



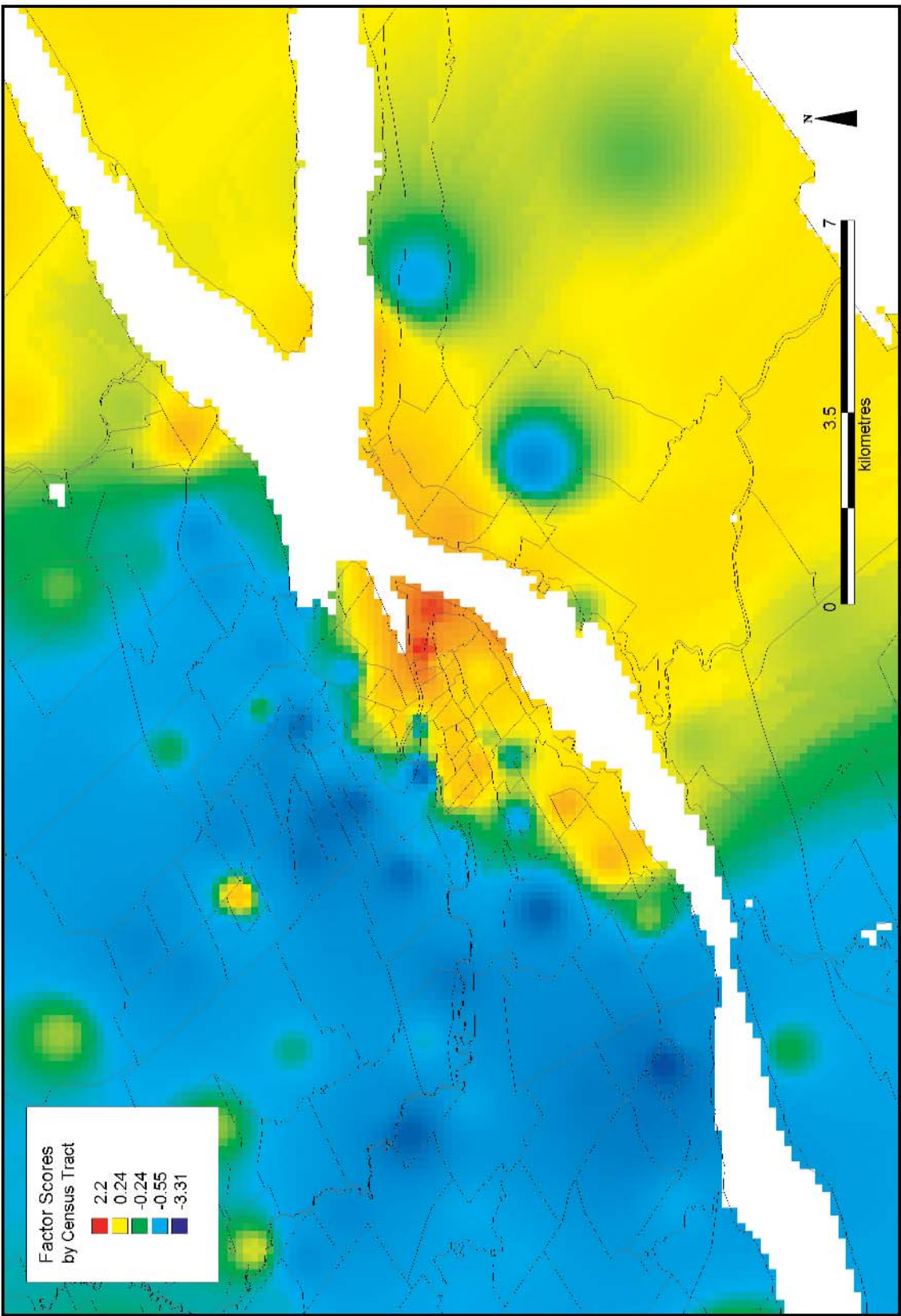
Map 2. 1981 Income Distribution, Halifax Census Metropolitan Area



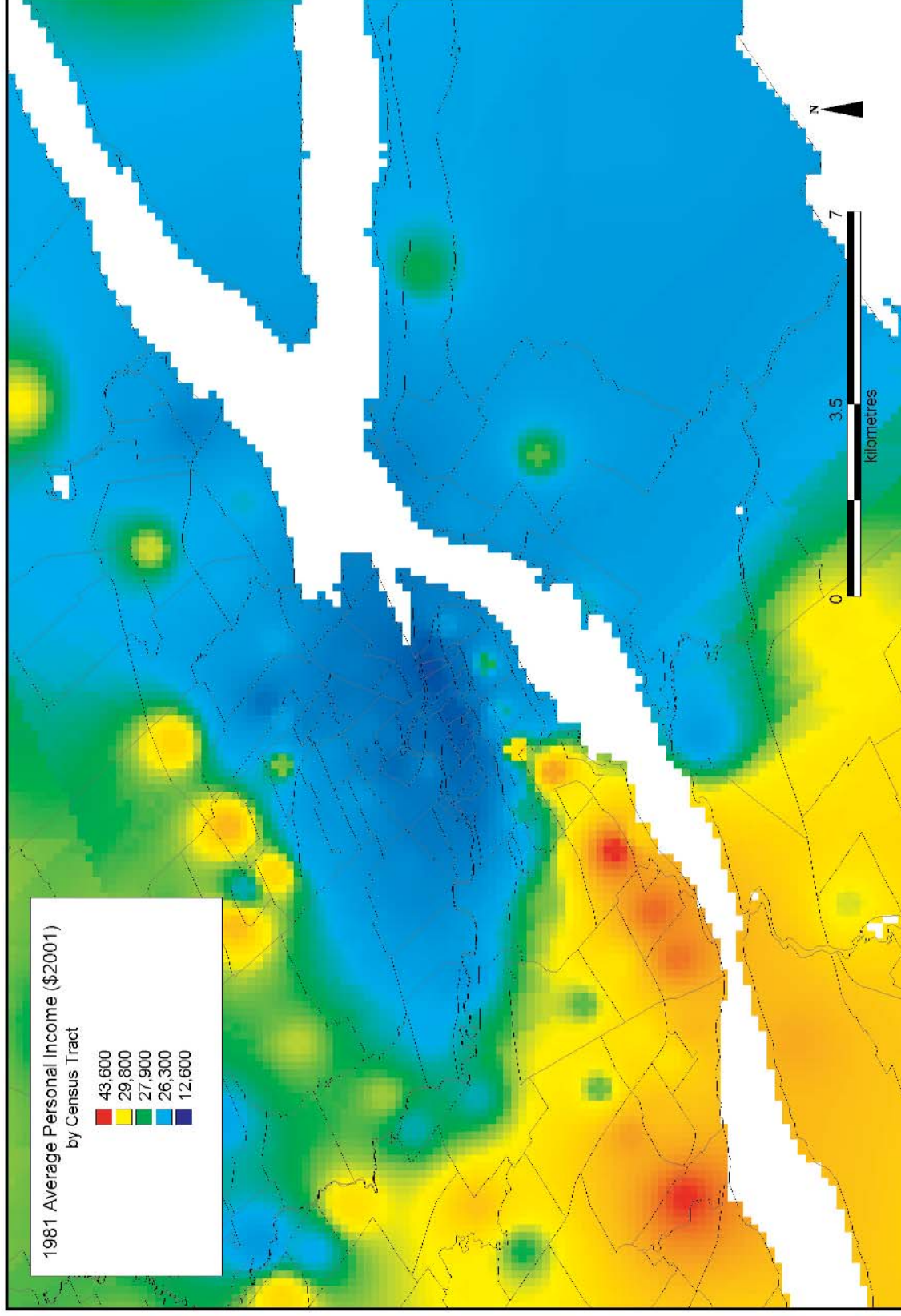
Map 3. Age of Dwellings, Halifax Census Metropolitan Area



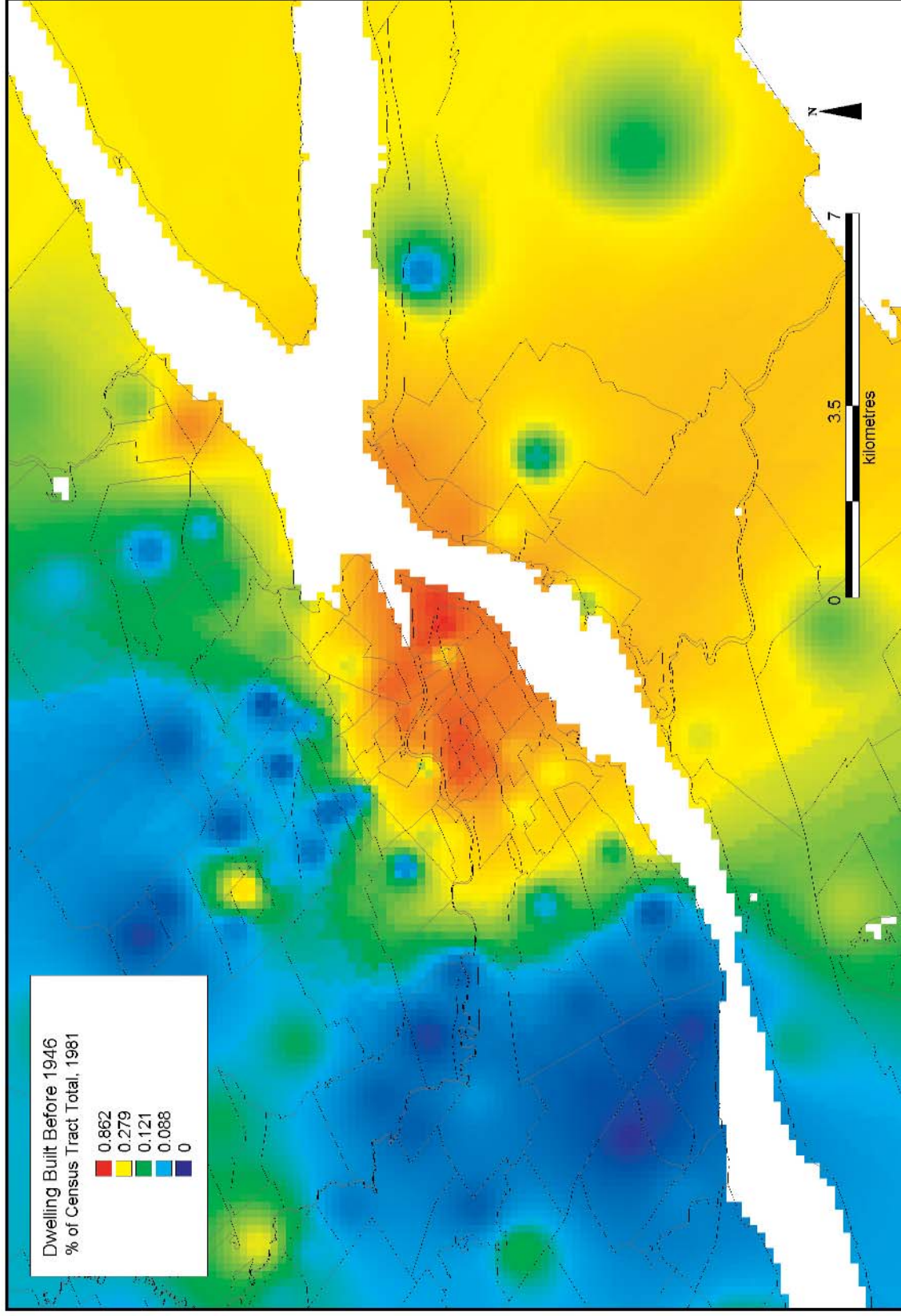
Map 4. Distribution of Selected Census Tracts, Halifax Census Metropolitan Area



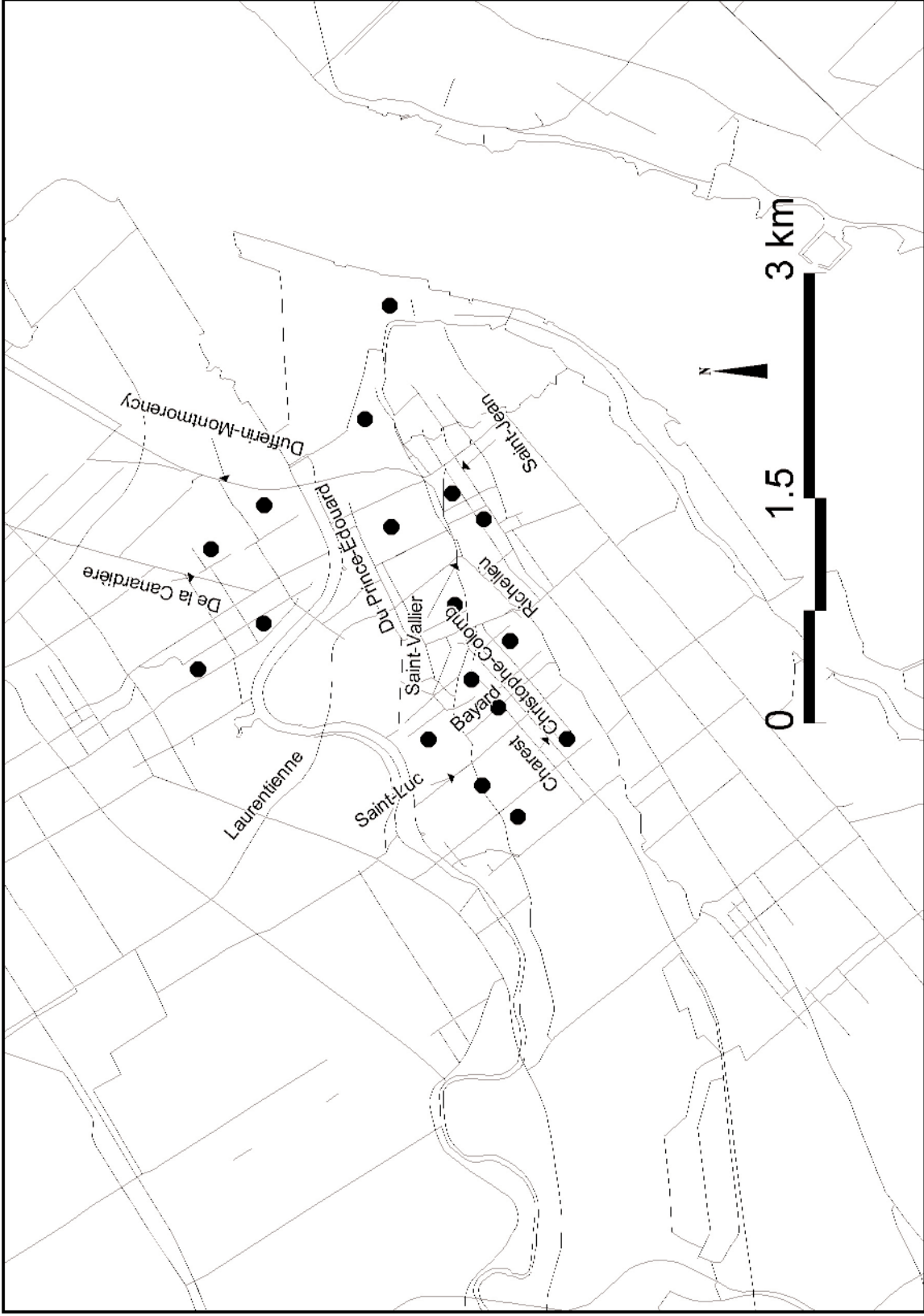
Map 5. Factor Scores, Quebec City Census Metropolitan Area



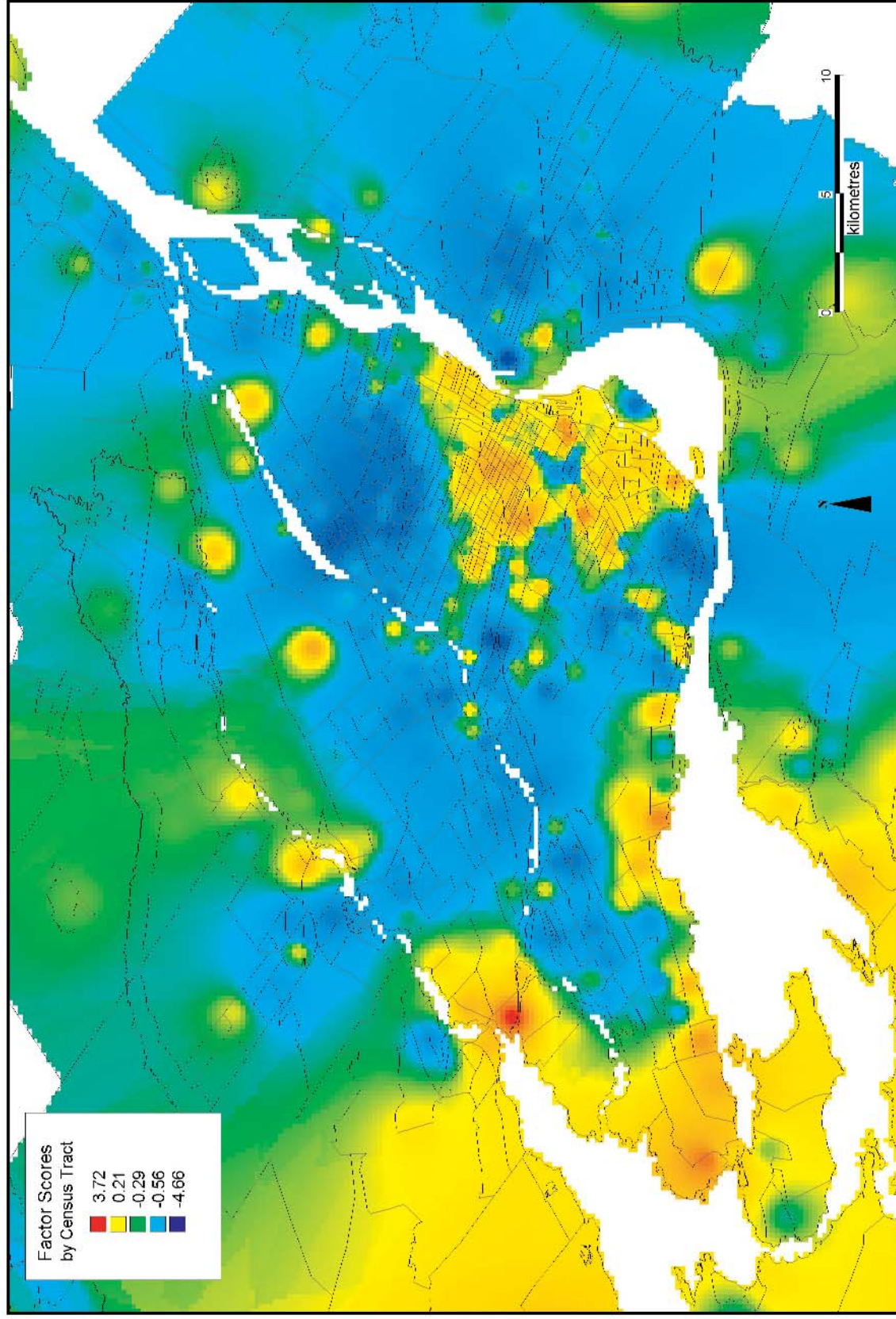
Map 6. 1981 Income Distribution, Quebec City Census Metropolitan Area



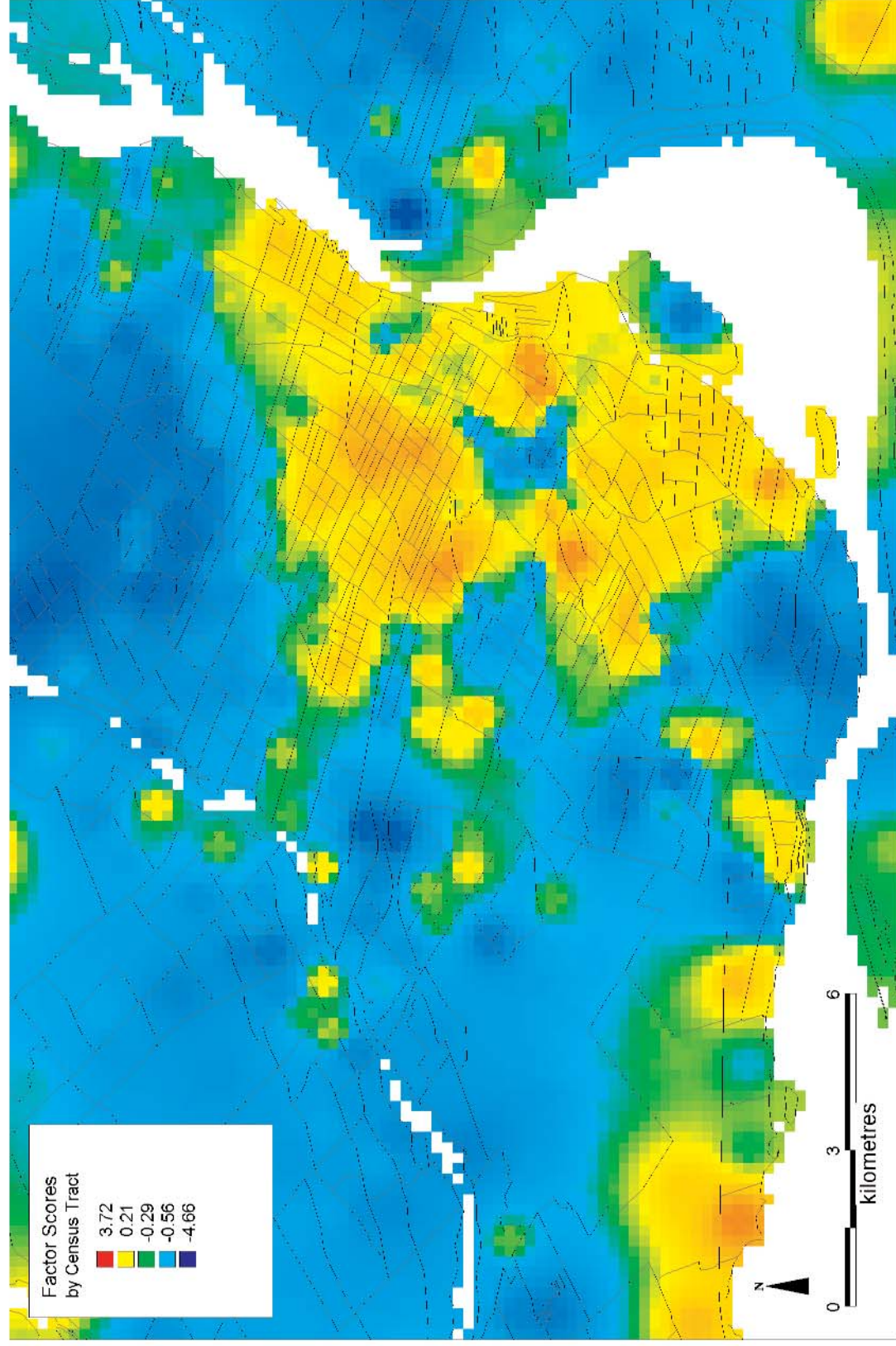
Map 7. Age of Dwellings, Quebec City Census Metropolitan Area



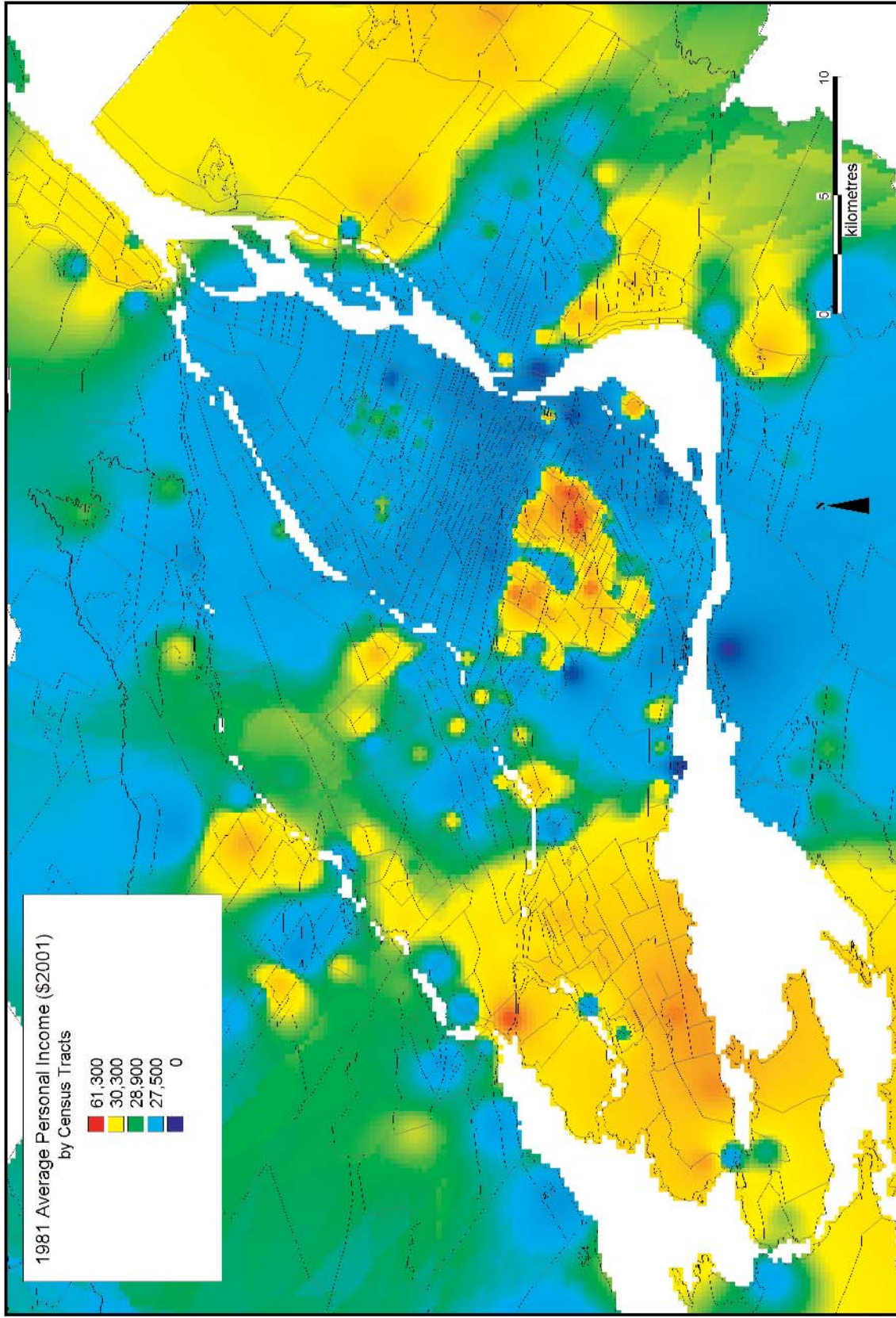
Map 8. Selected Census Tracts, Quebec City Metropolitan Area



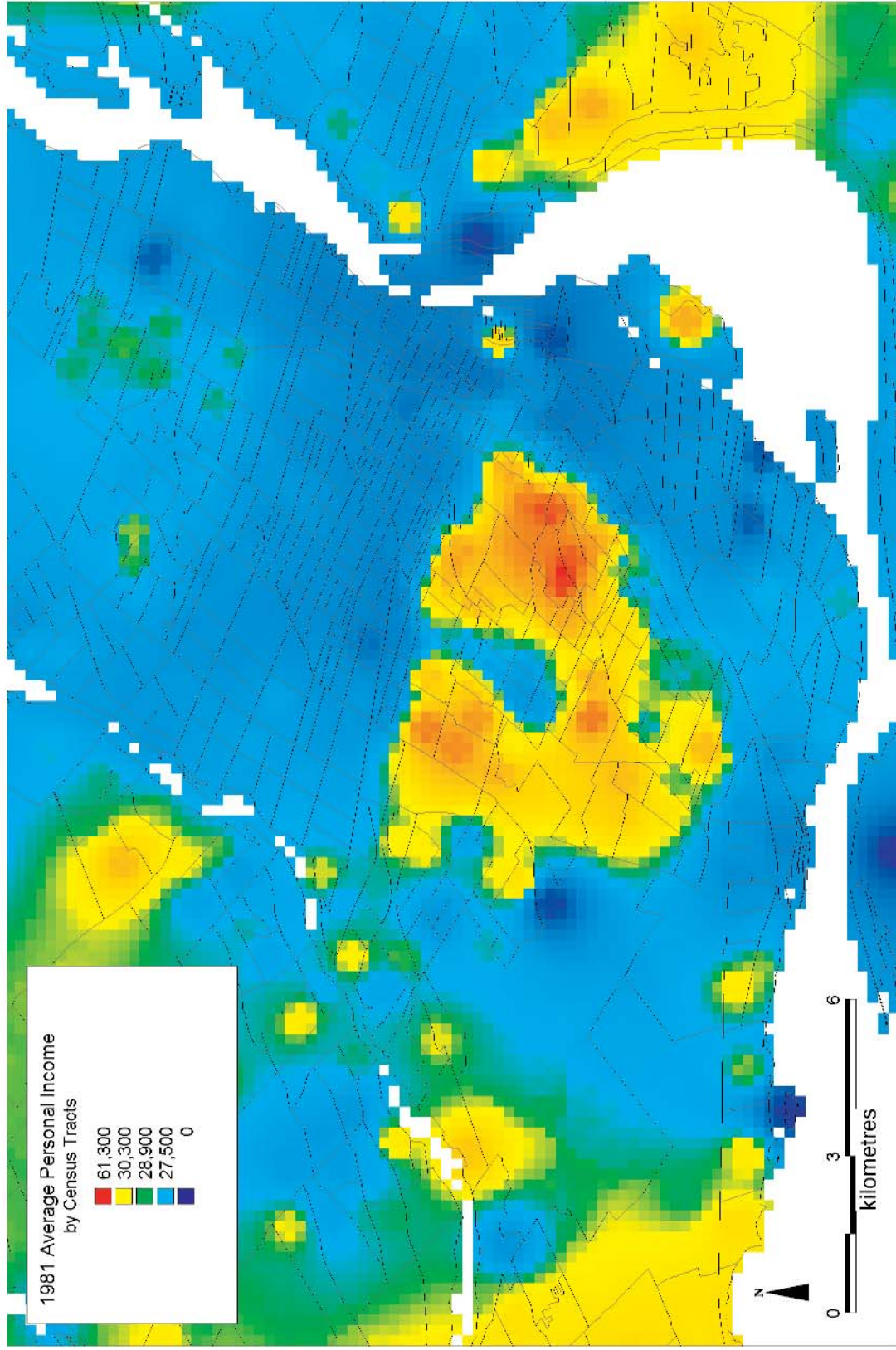
Map 9. Factor Scores, Montreal Census Metropolitan Area



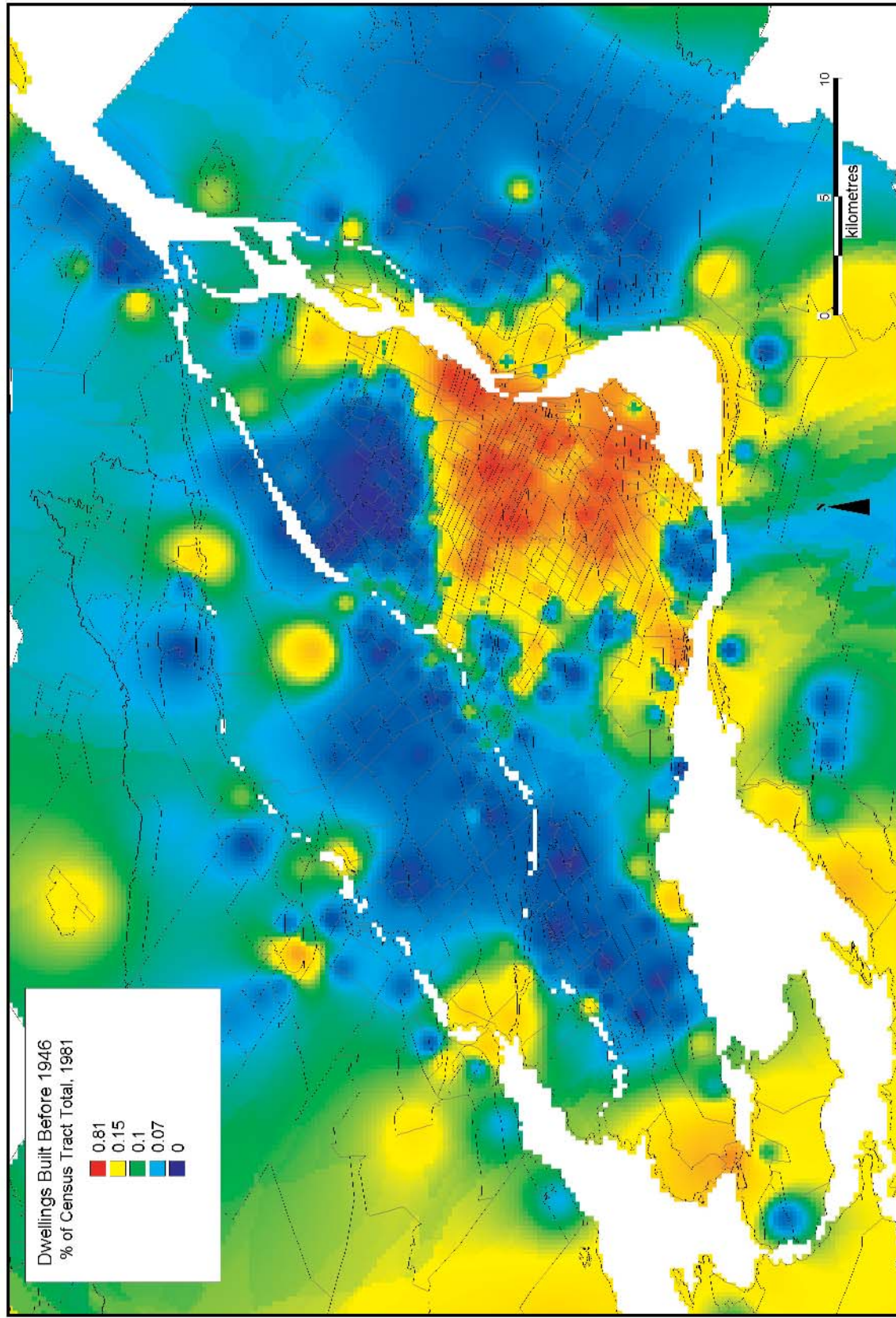
Map 10. Factor Scores, Montreal Census Metropolitan Area



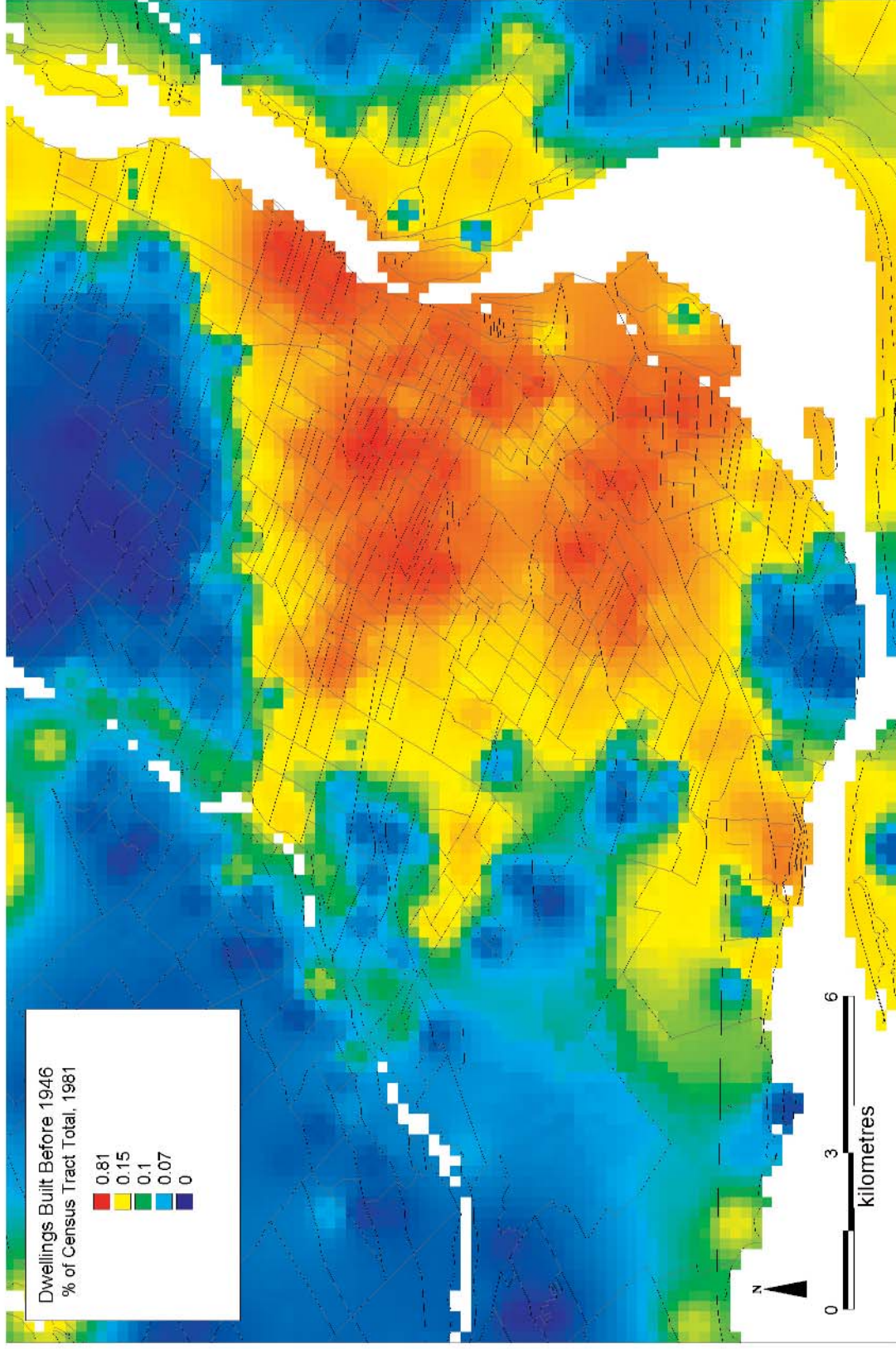
Map 11. 1981 Income Distribution, Montreal Census Metropolitan Area



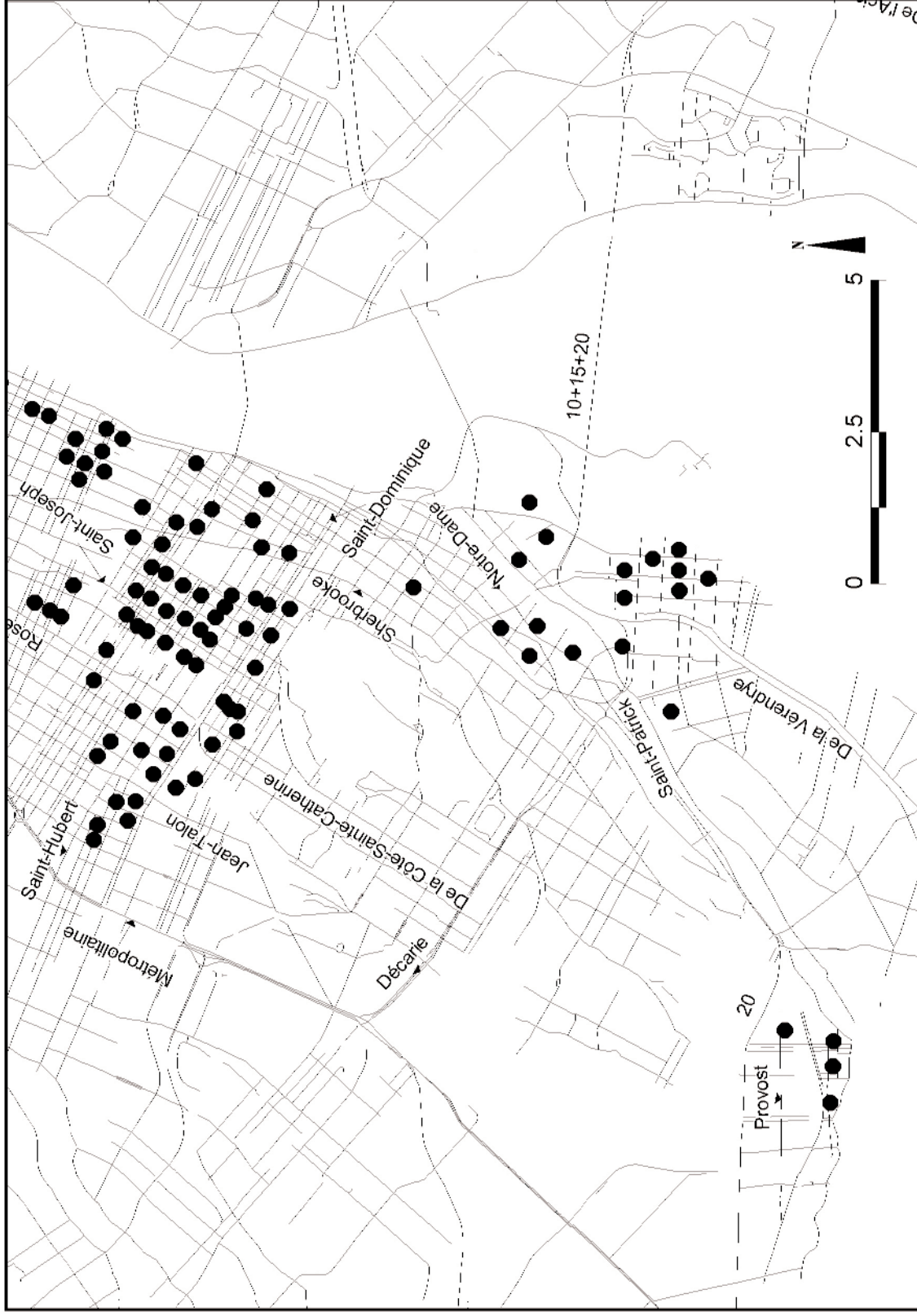
Map 12. 1981 Income Distribution, Montreal Census Metropolitan Area



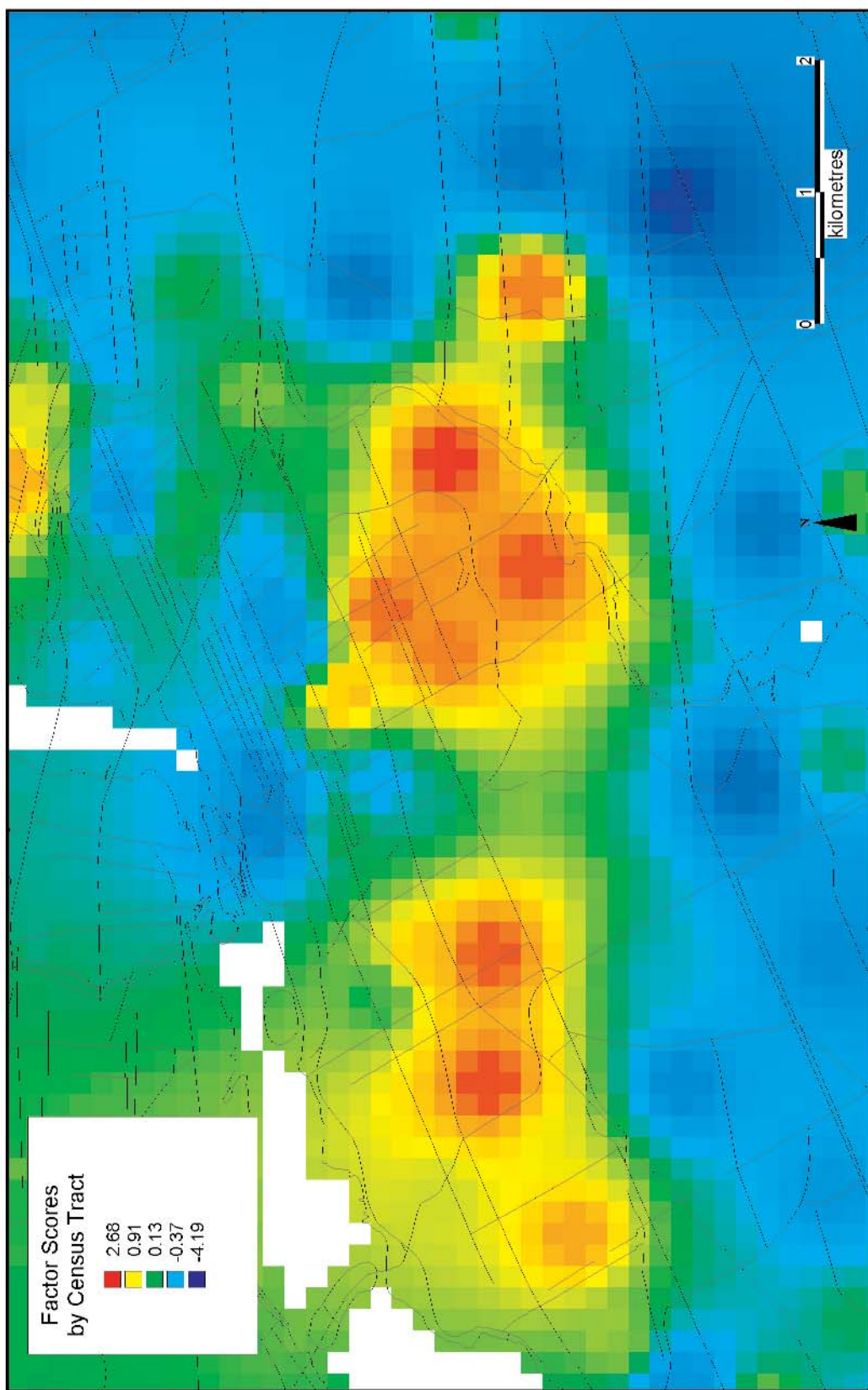
Map 13. Age of Dwellings, Montreal Census Metropolitan Area



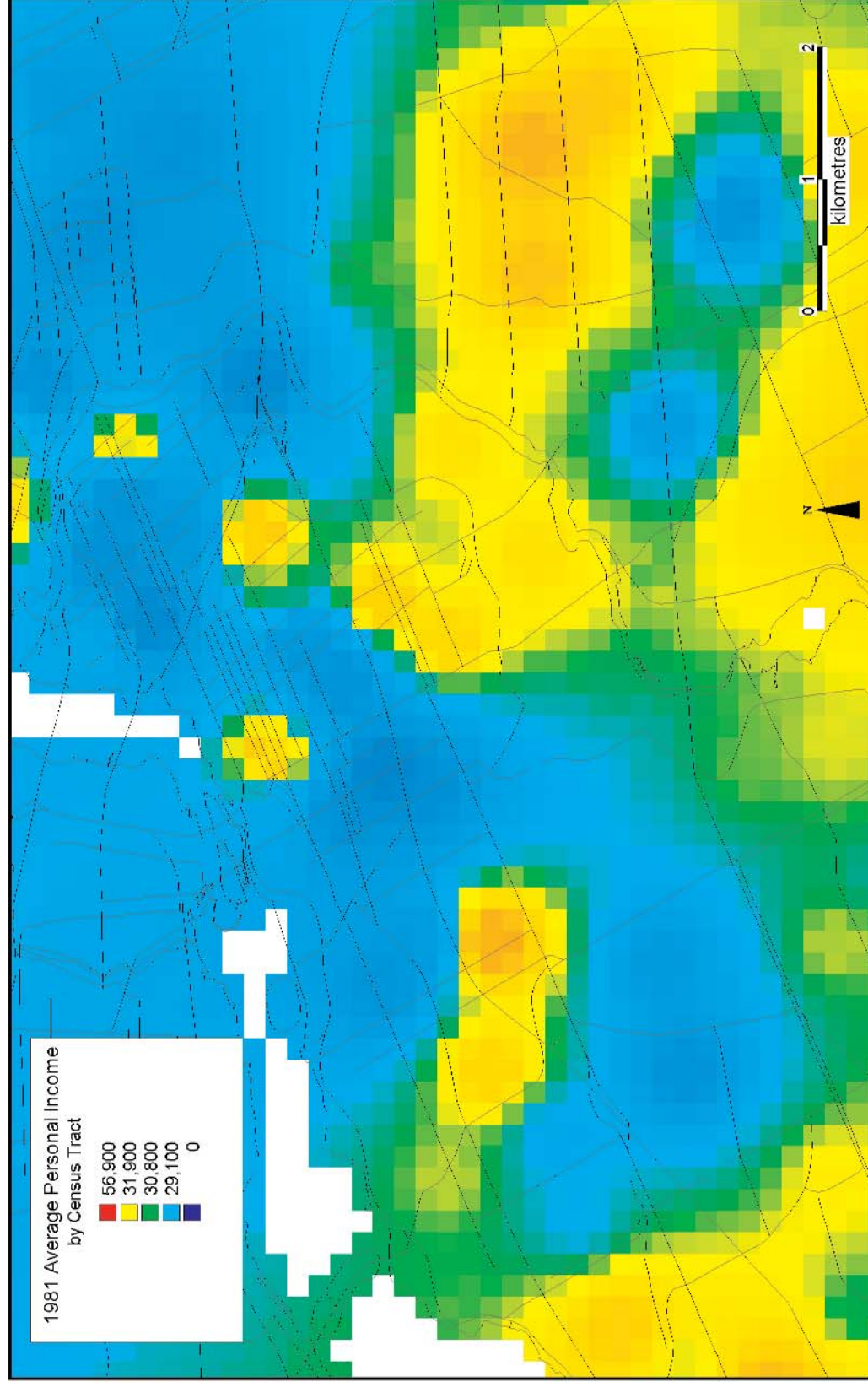
Map 14. Age of Dwellings, Montreal Census Metropolitan Area



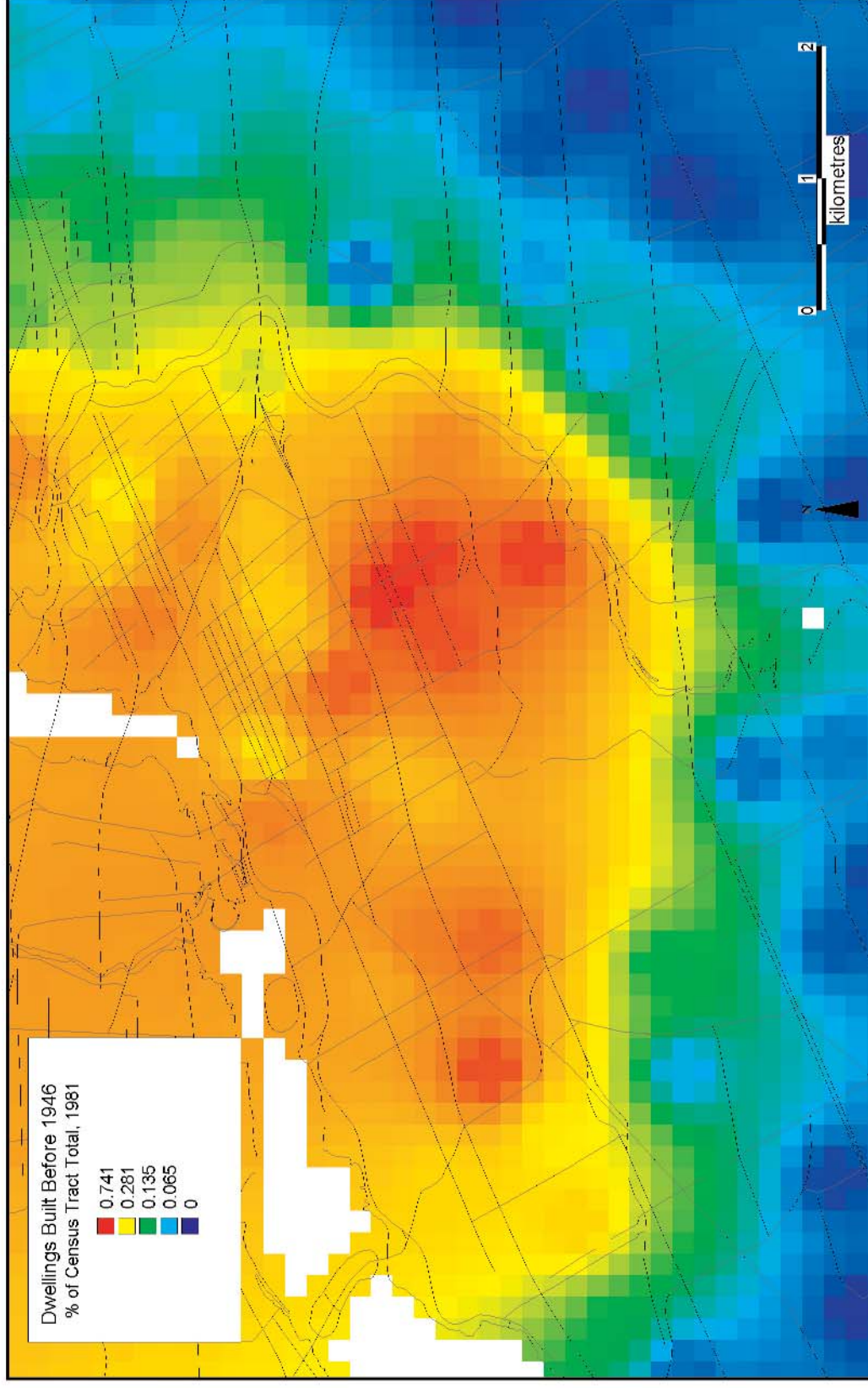
Map 15. Selected Census, Montreal Census Metropolitan Area



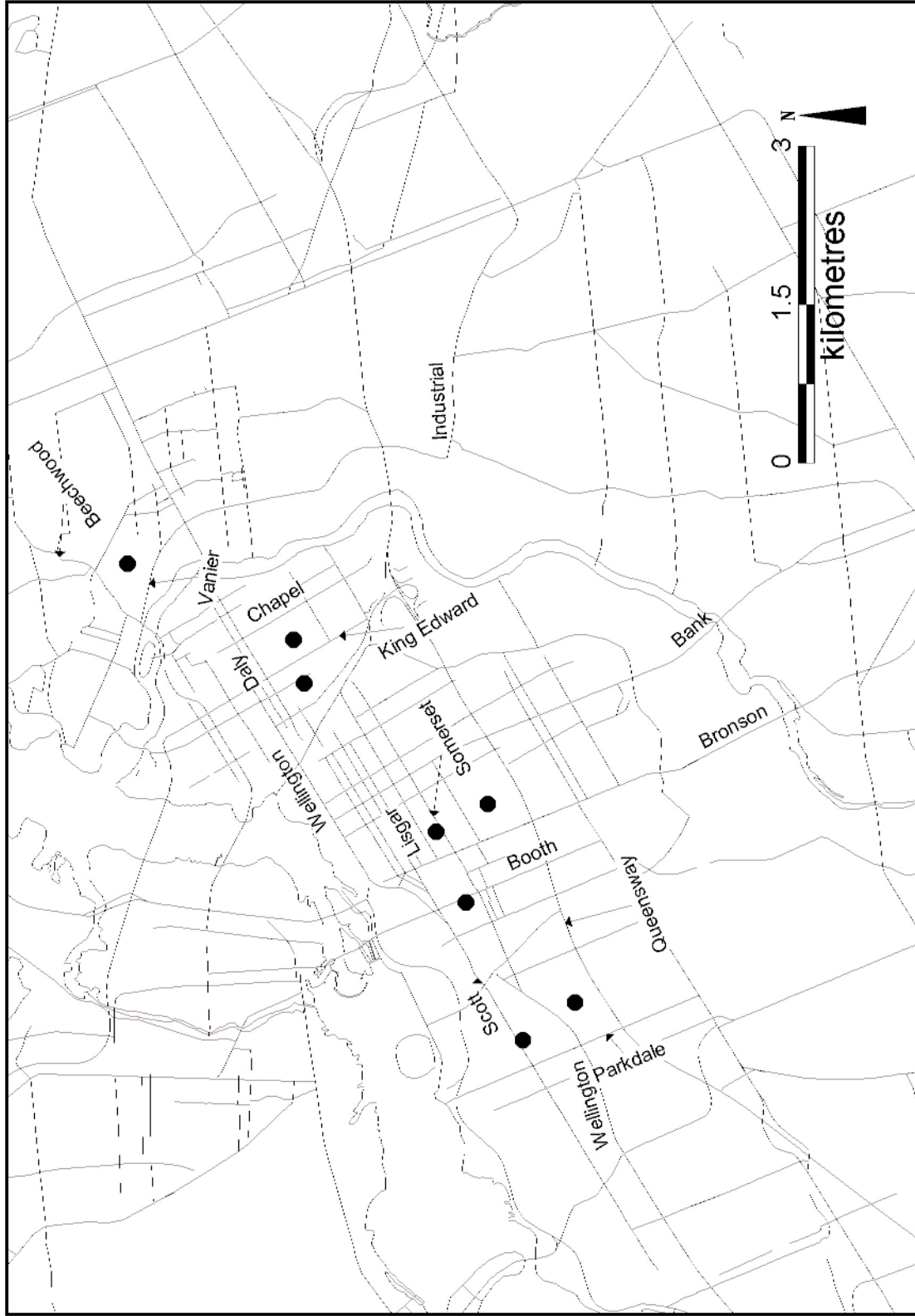
Map 16. Factor Scores, Ottawa Census Metropolitan Area



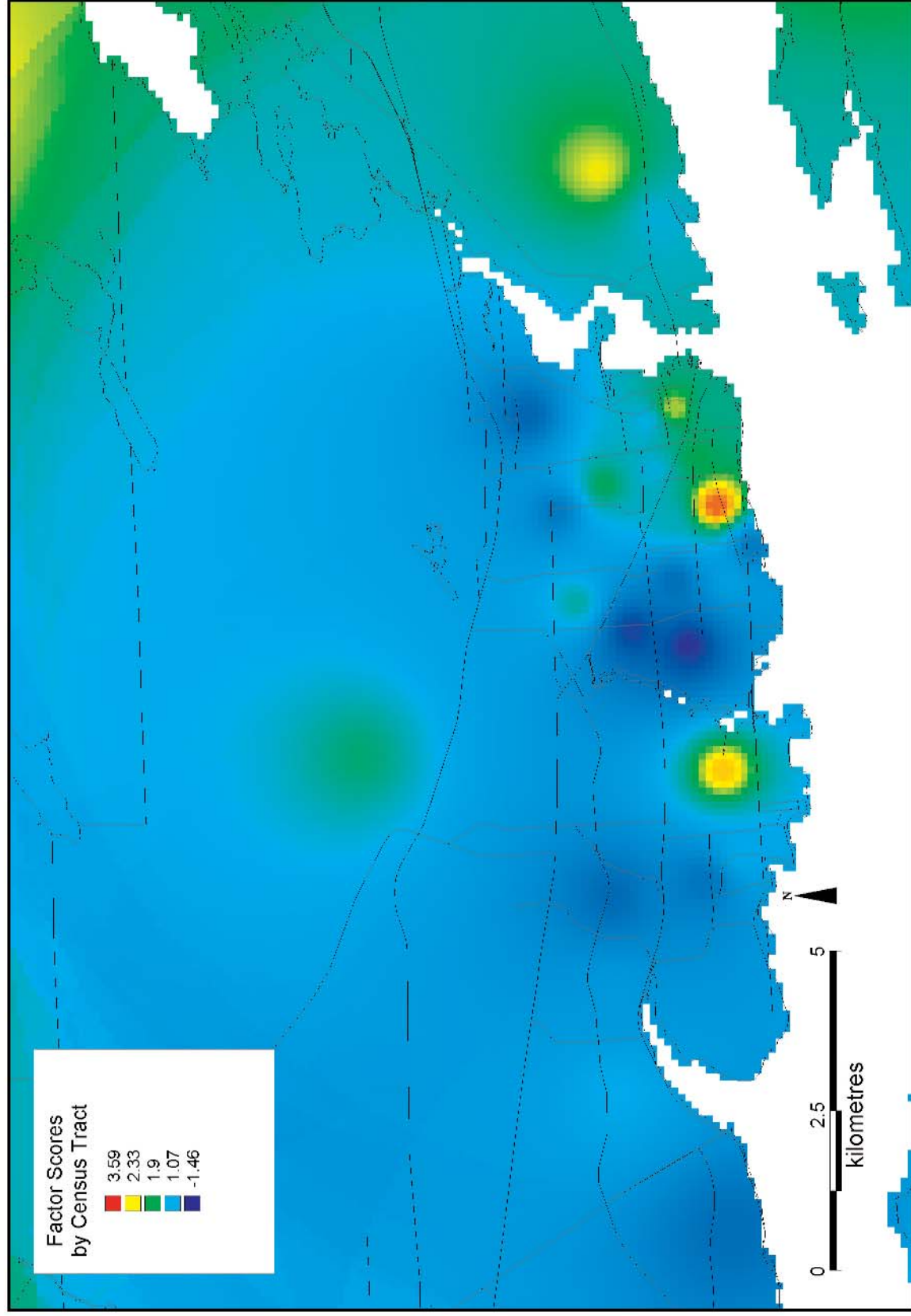
Map 17. 1981 Income Distribution, Ottawa Census Metropolitan Area



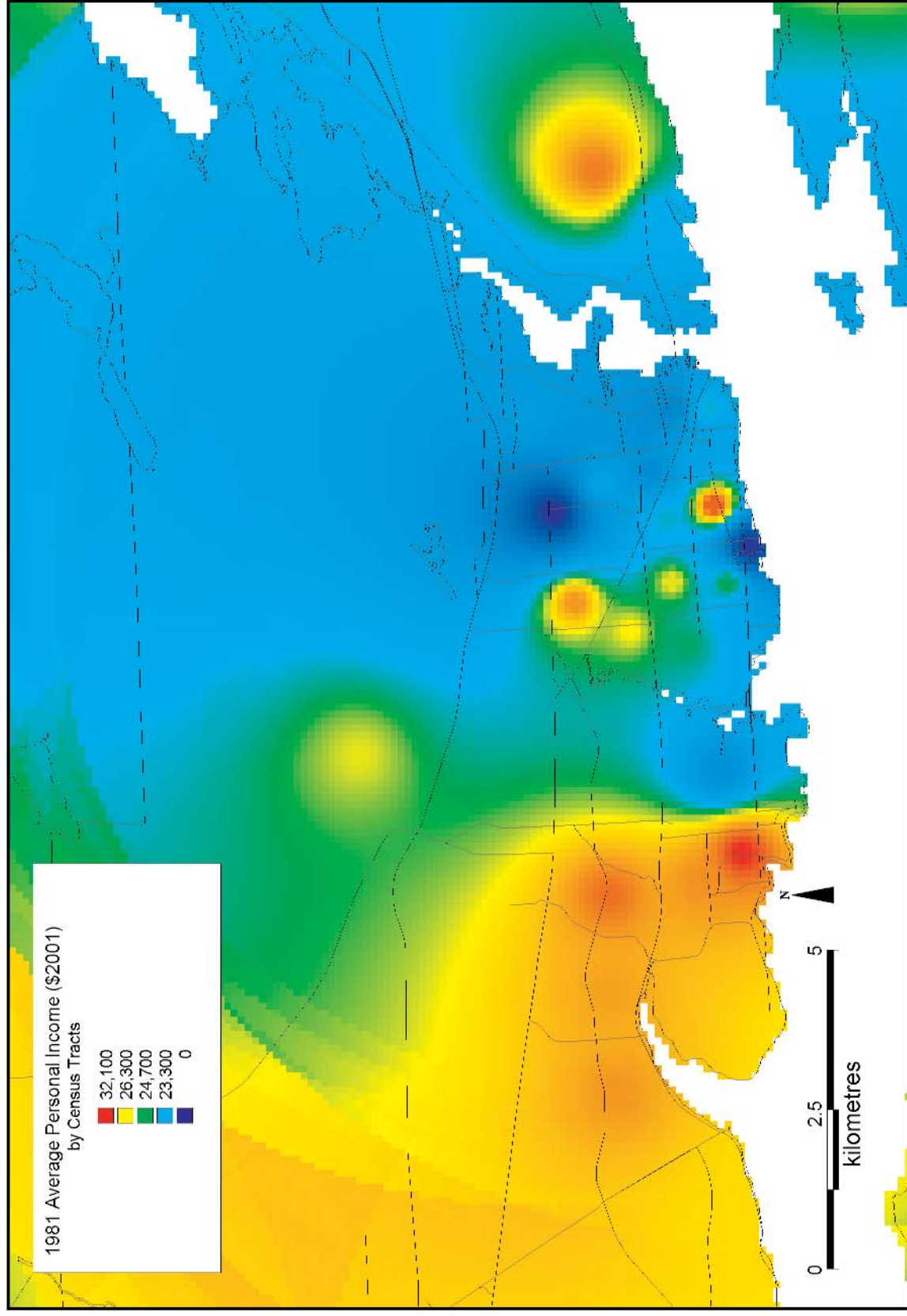
Map 18. Age of Dwellings, Ottawa Census Metropolitan Area



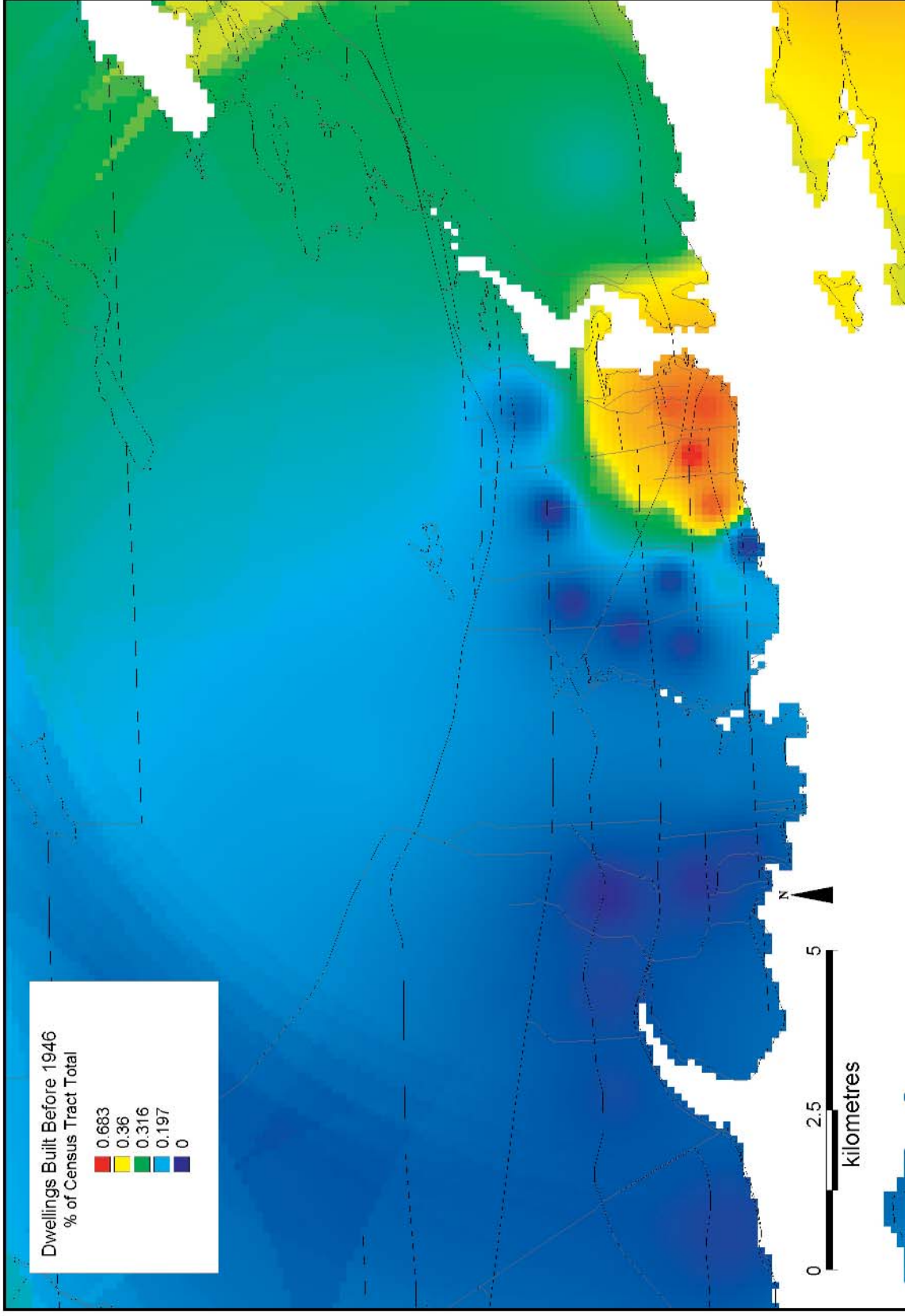
Map 19. Selected Census Tracts, Ottawa Census Metropolitan Area



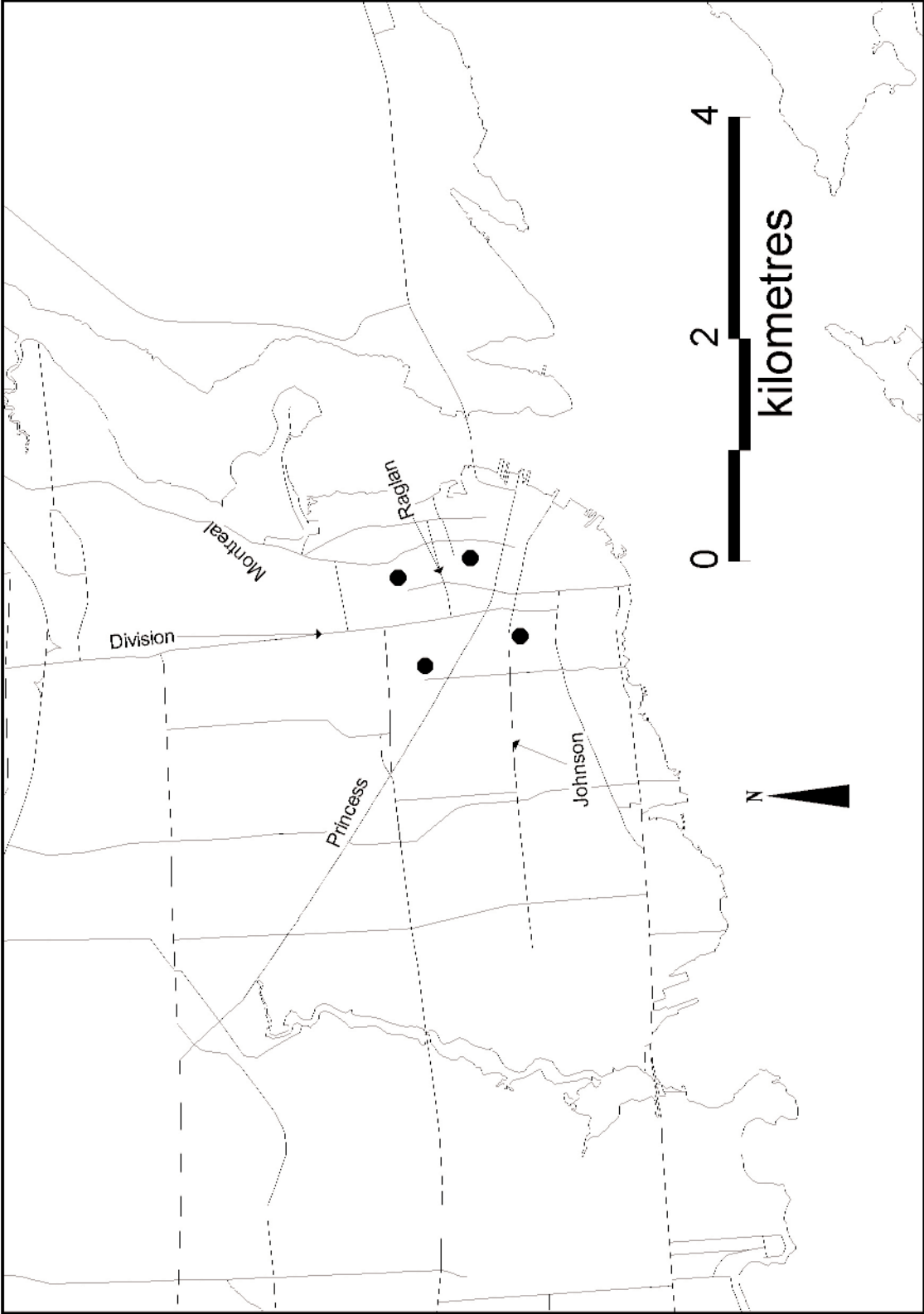
Map 20. Factor Scores, Kingston Census Metropolitan Area



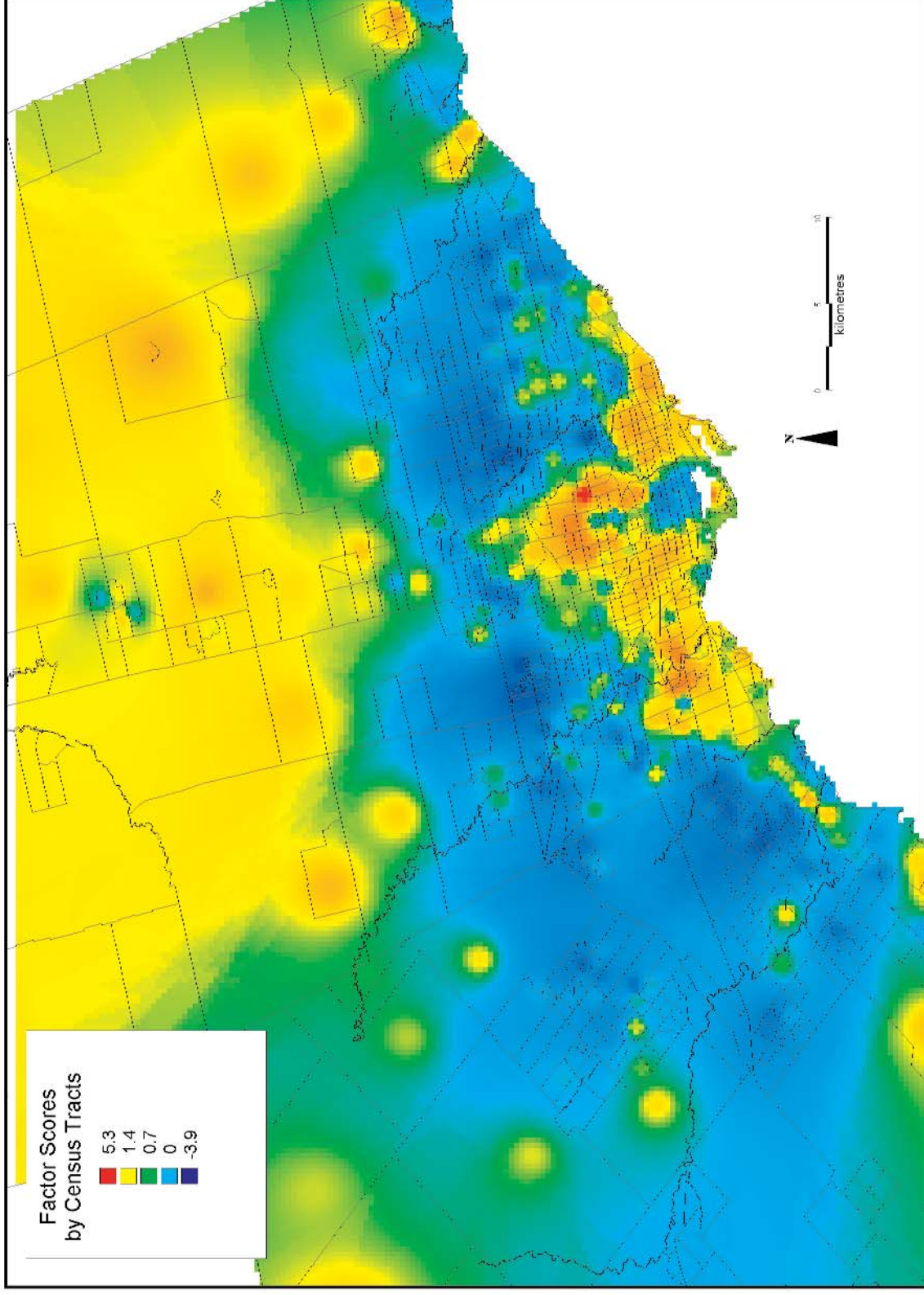
Map 21. 1981 Income Distribution, Kingston Census Metropolitan Area



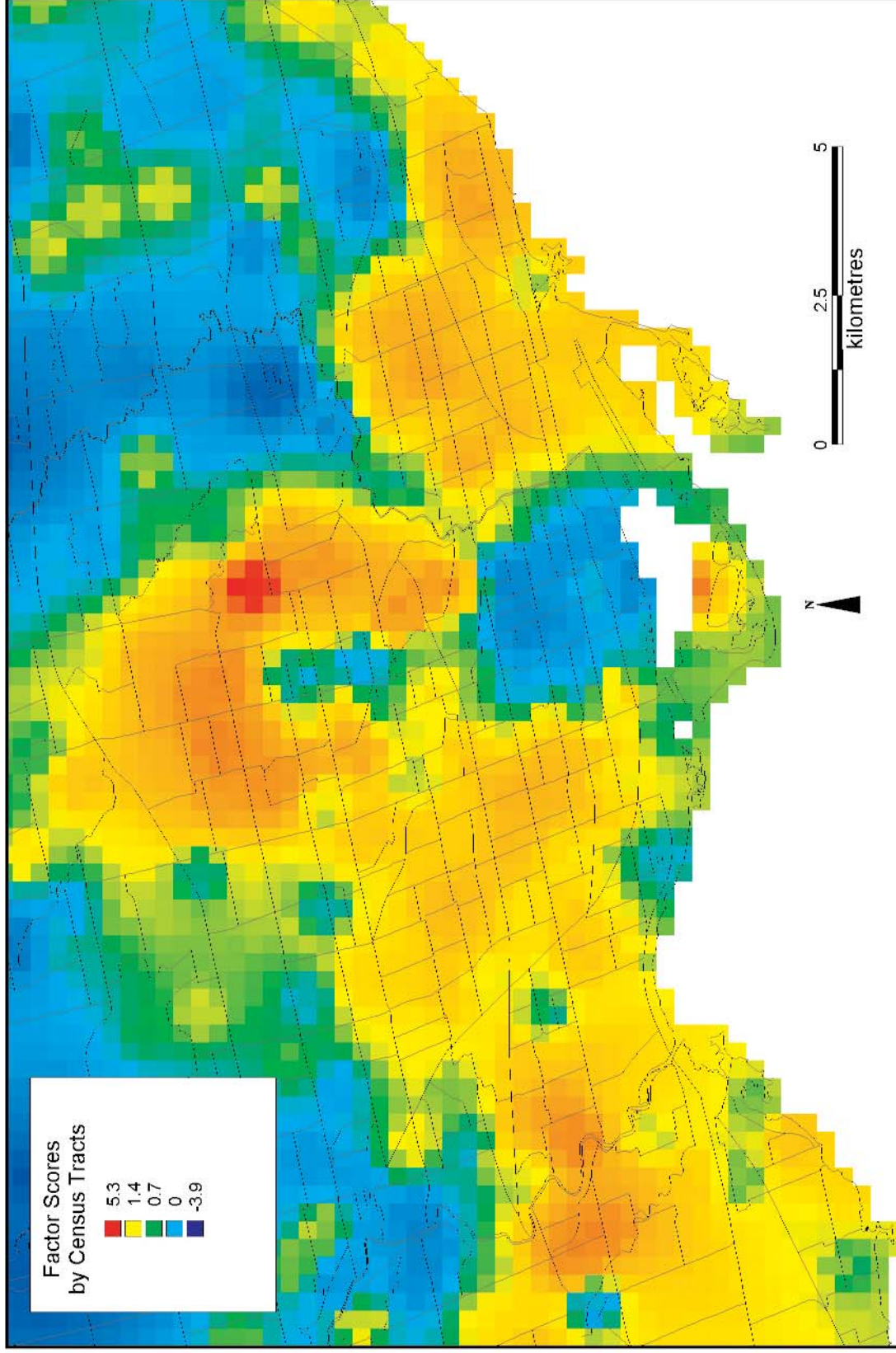
Map 22. Age of Dwellings, Kingston Census Metropolitan Area



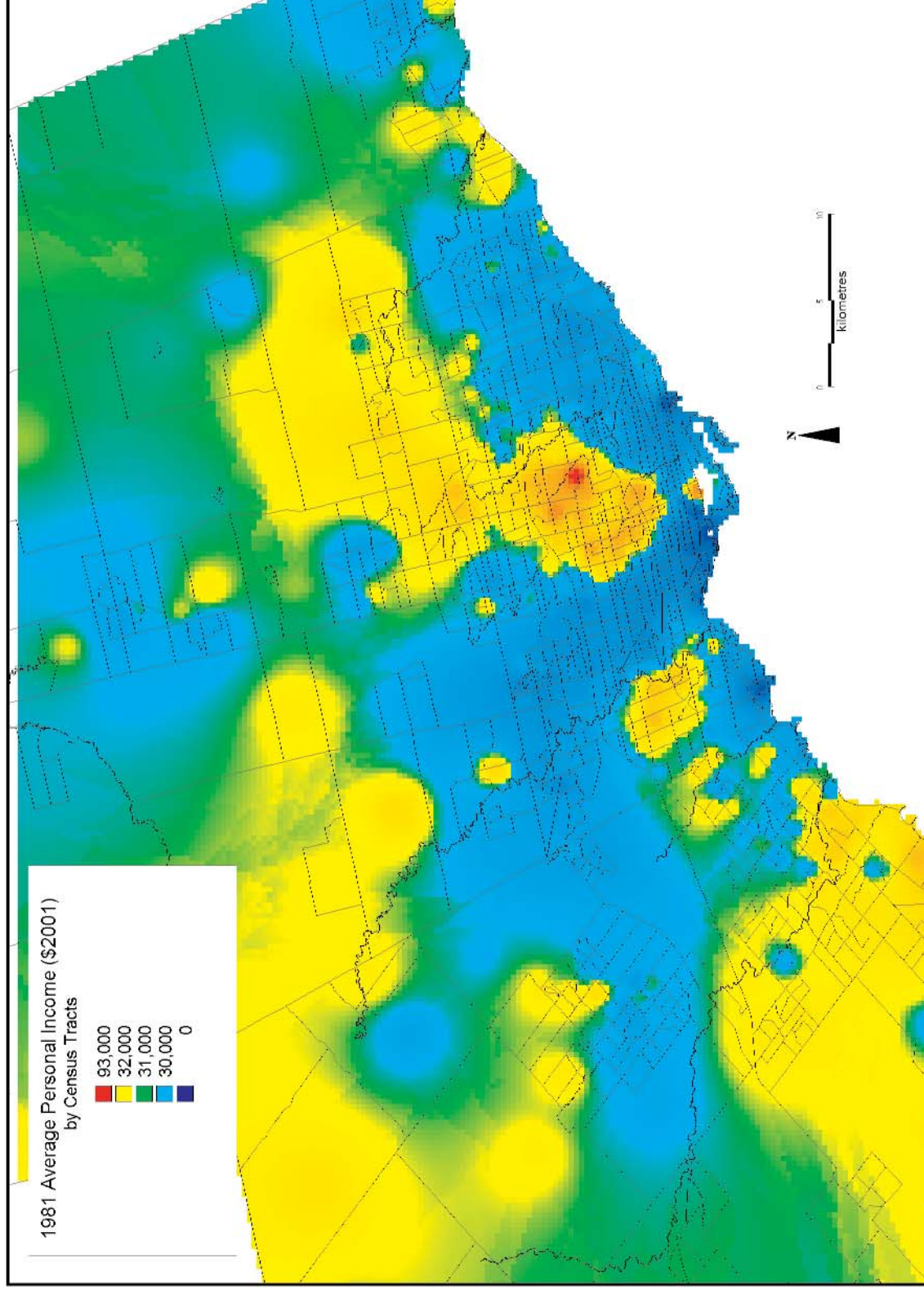
Map 23. Selected Census Tracts, Kingston Census Metropolitan Area



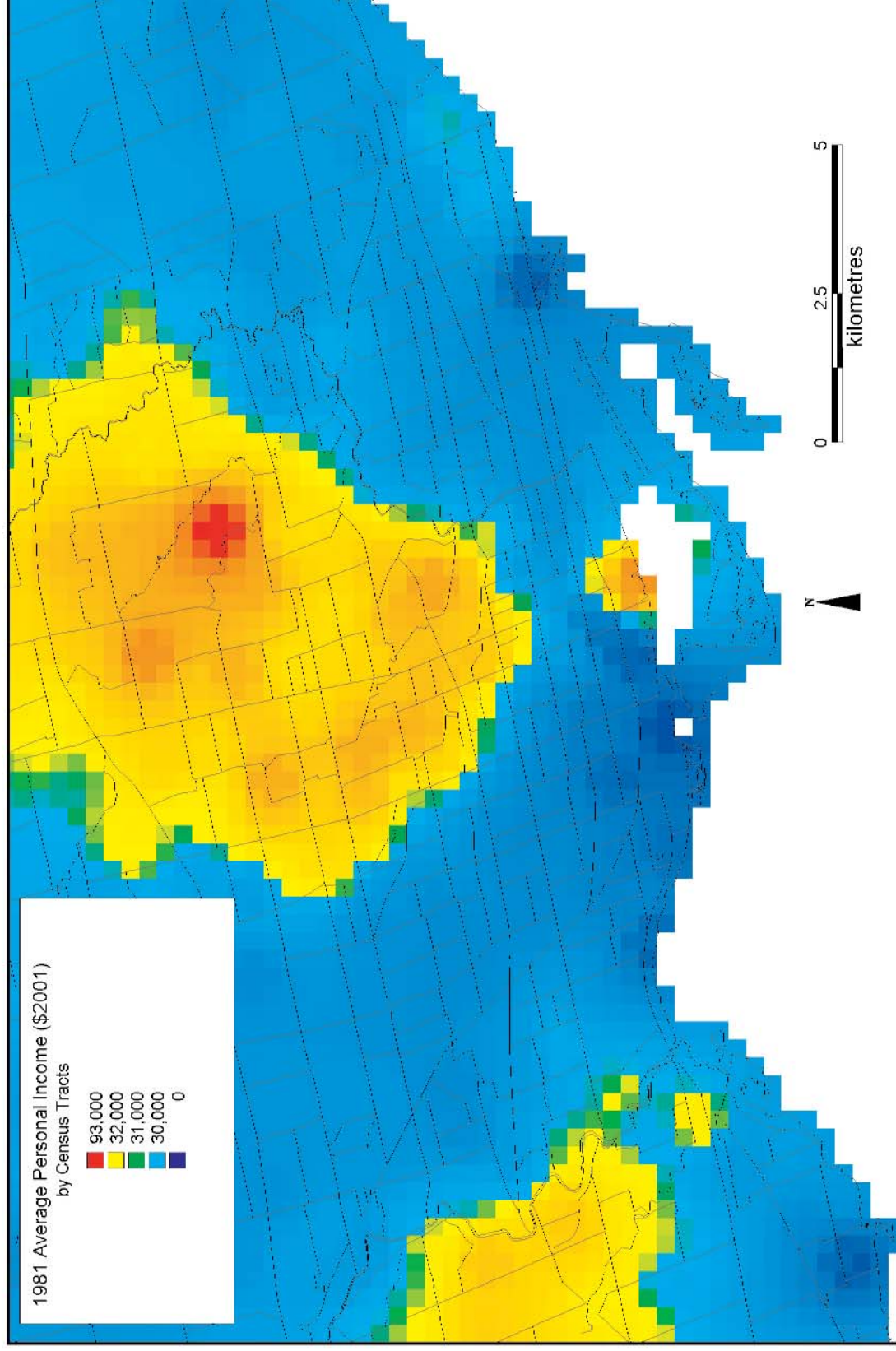
Map 24. Factor Scores, Toronto Census Metropolitan Area



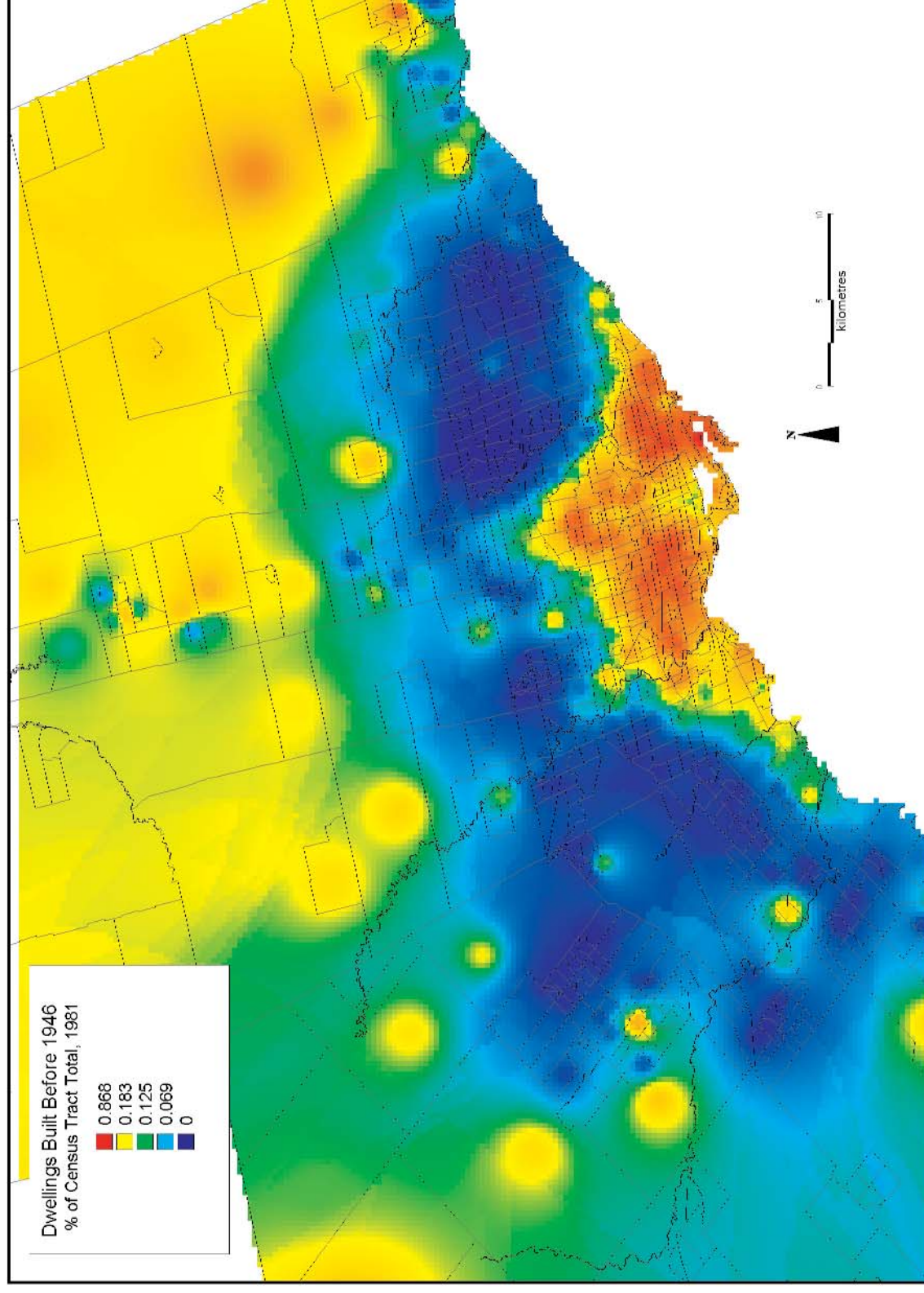
Map 25. Factor Scores, Toronto Census Metropolitan Area



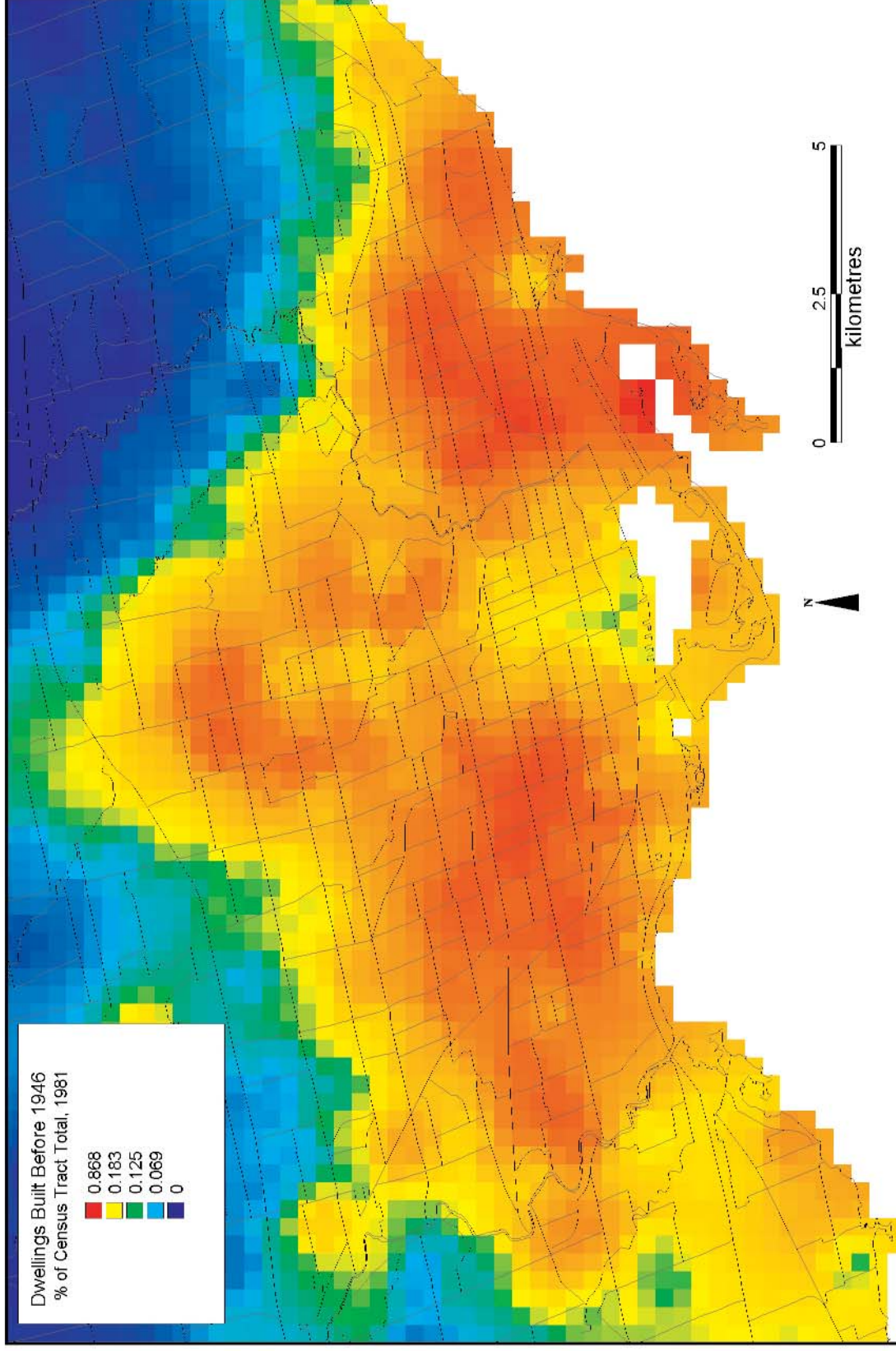
Map 26. 1981 Income Distribution, Toronto Census Metropolitan Area



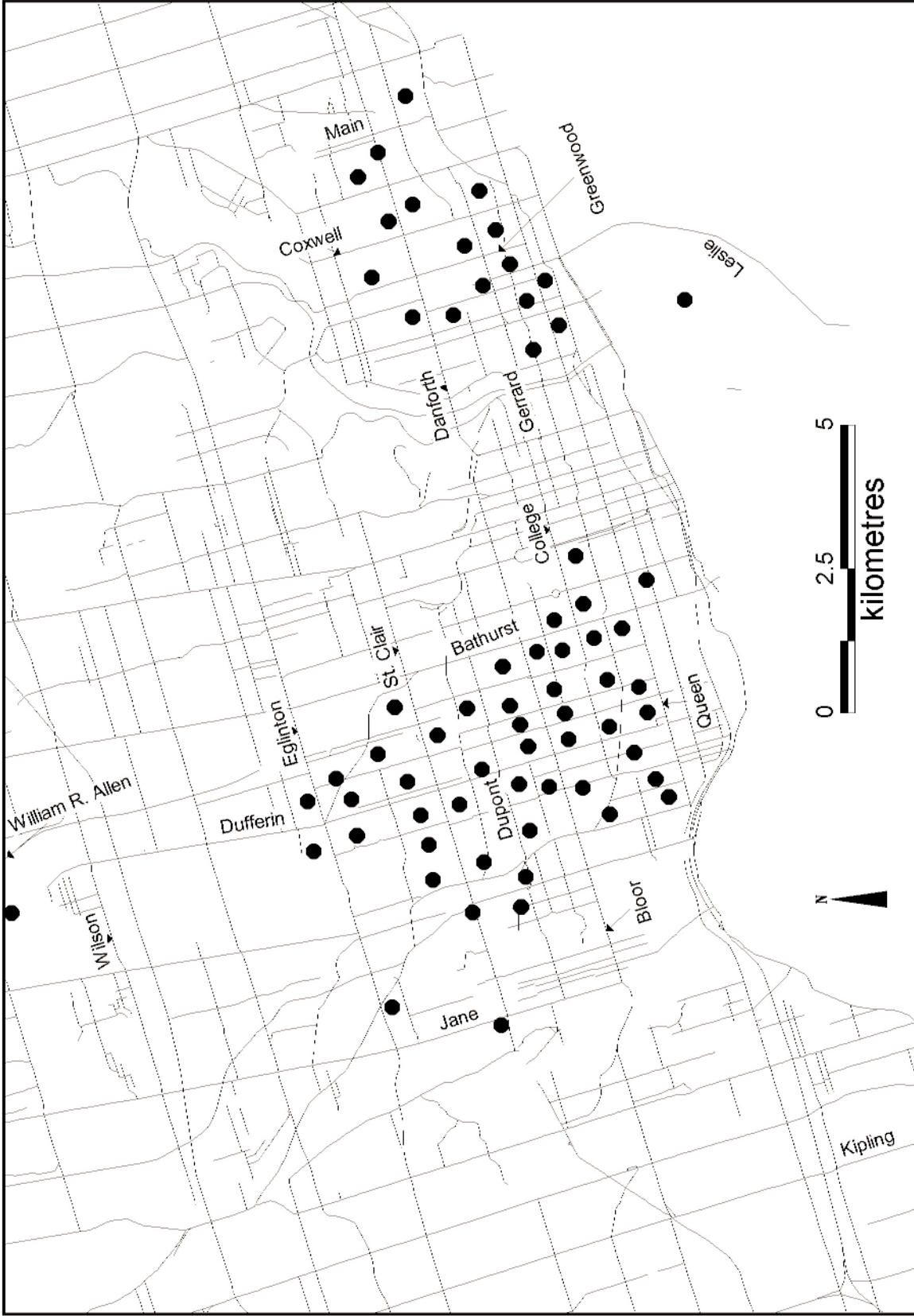
Map 27. 1981 Income Distribution, Toronto Census Metropolitan Area



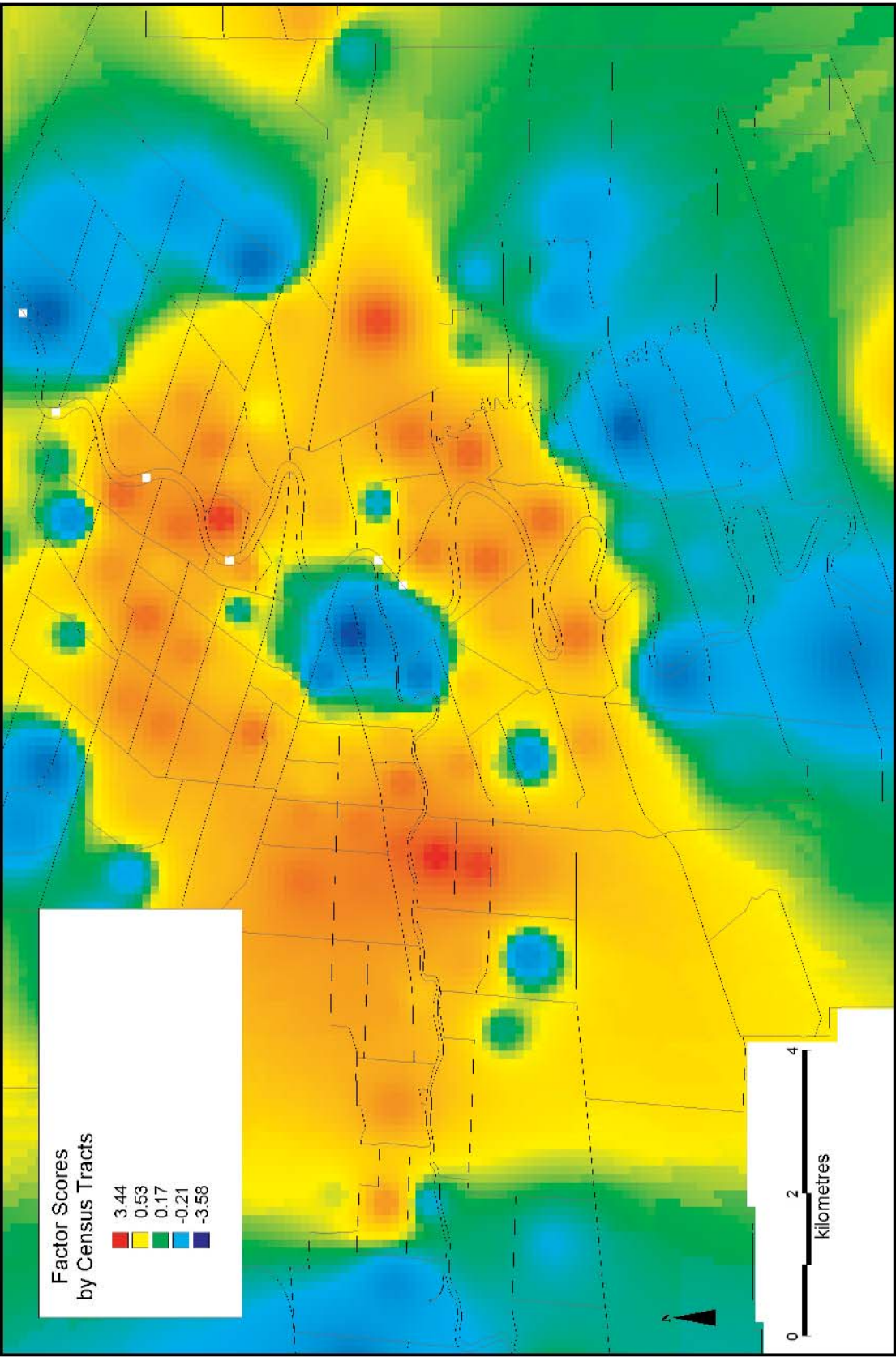
Map 28. Age of Dwellings, Toronto Census Metropolitan Area



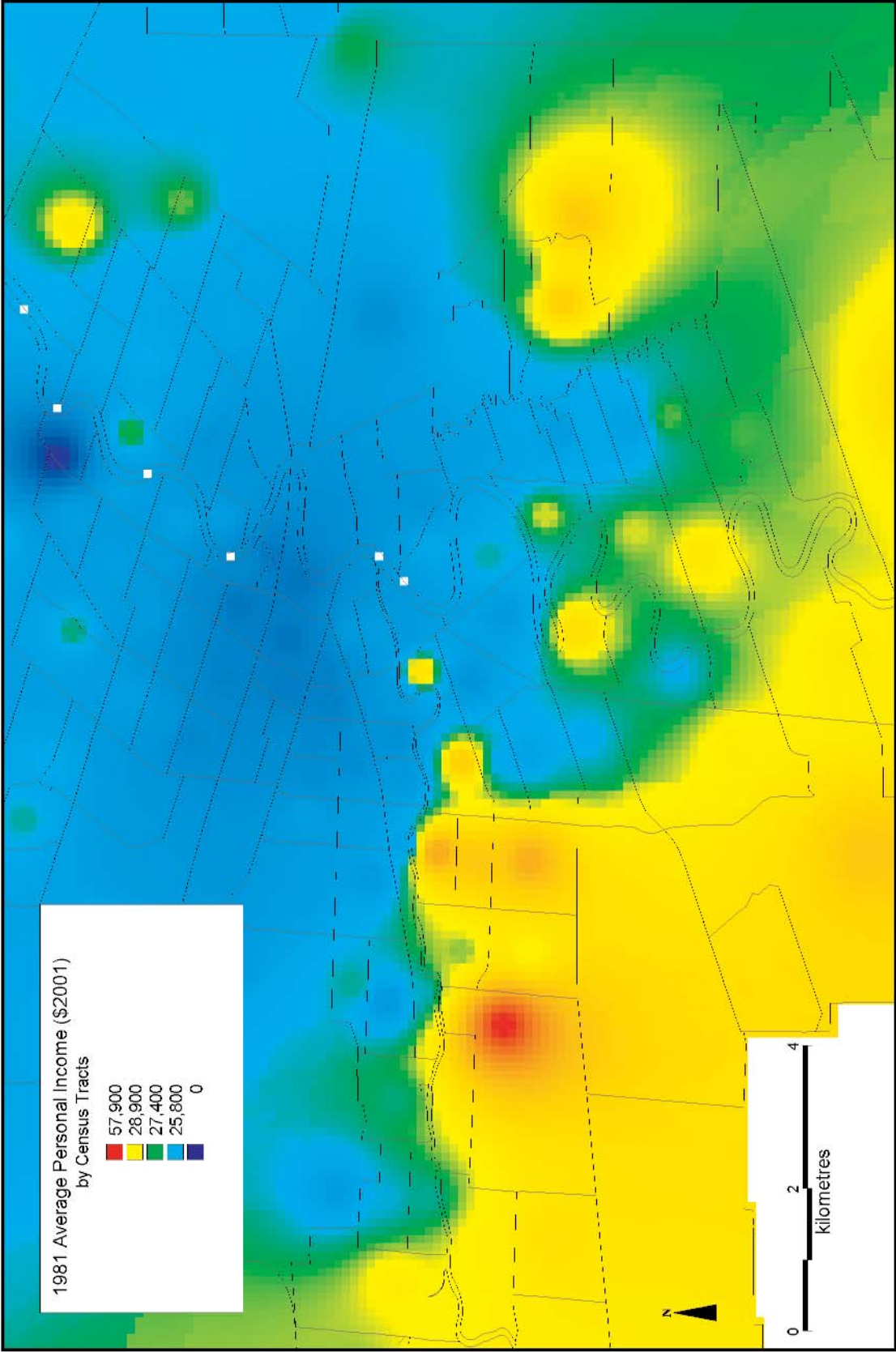
Map 29. Age of Dwellings, Toronto Census Metropolitan Area



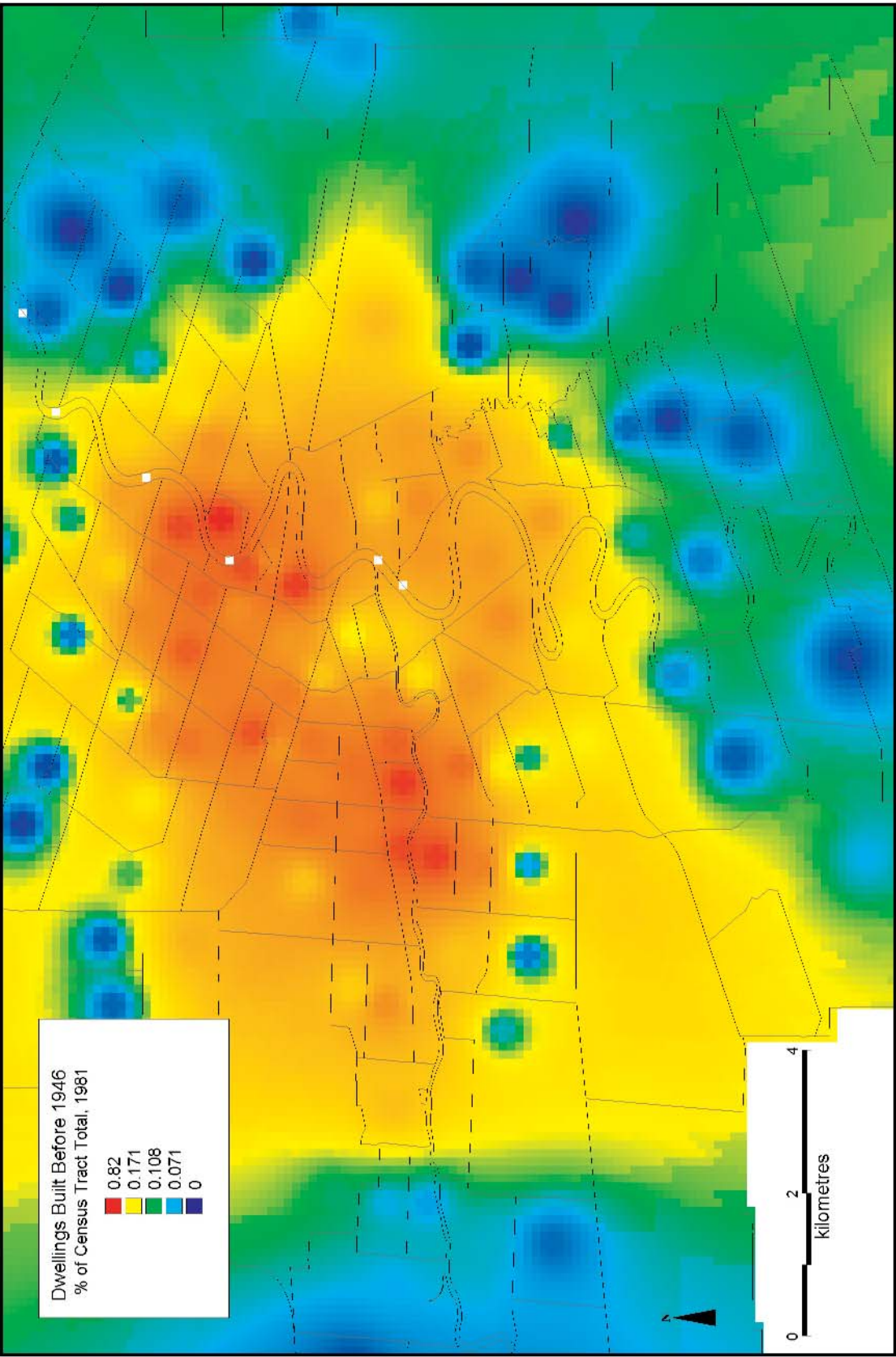
Map 30. Selected Census Tracts, Toronto Census Metropolitan Area



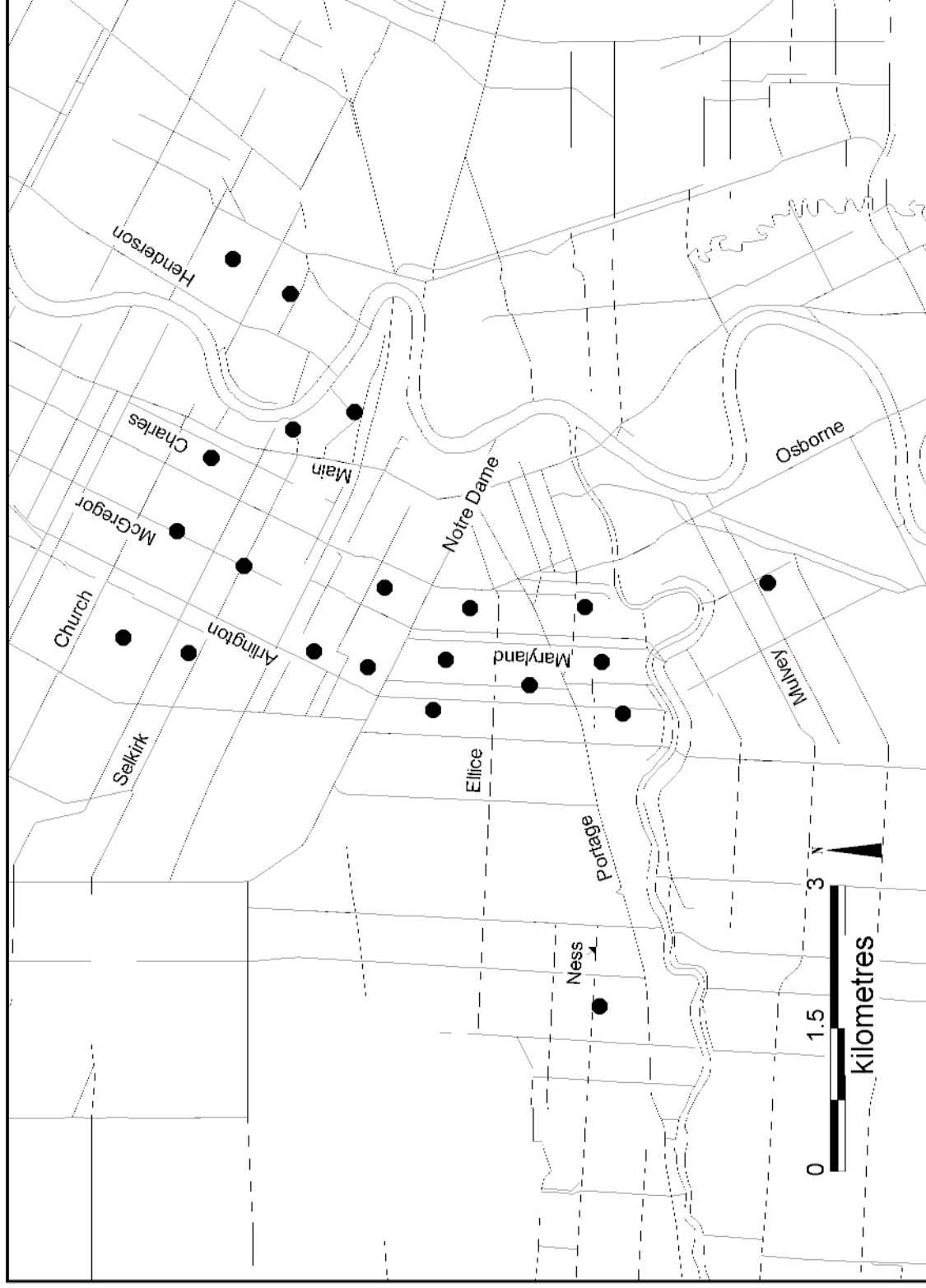
Map 31. Factor Scores, Winnipeg Census Metropolitan Area



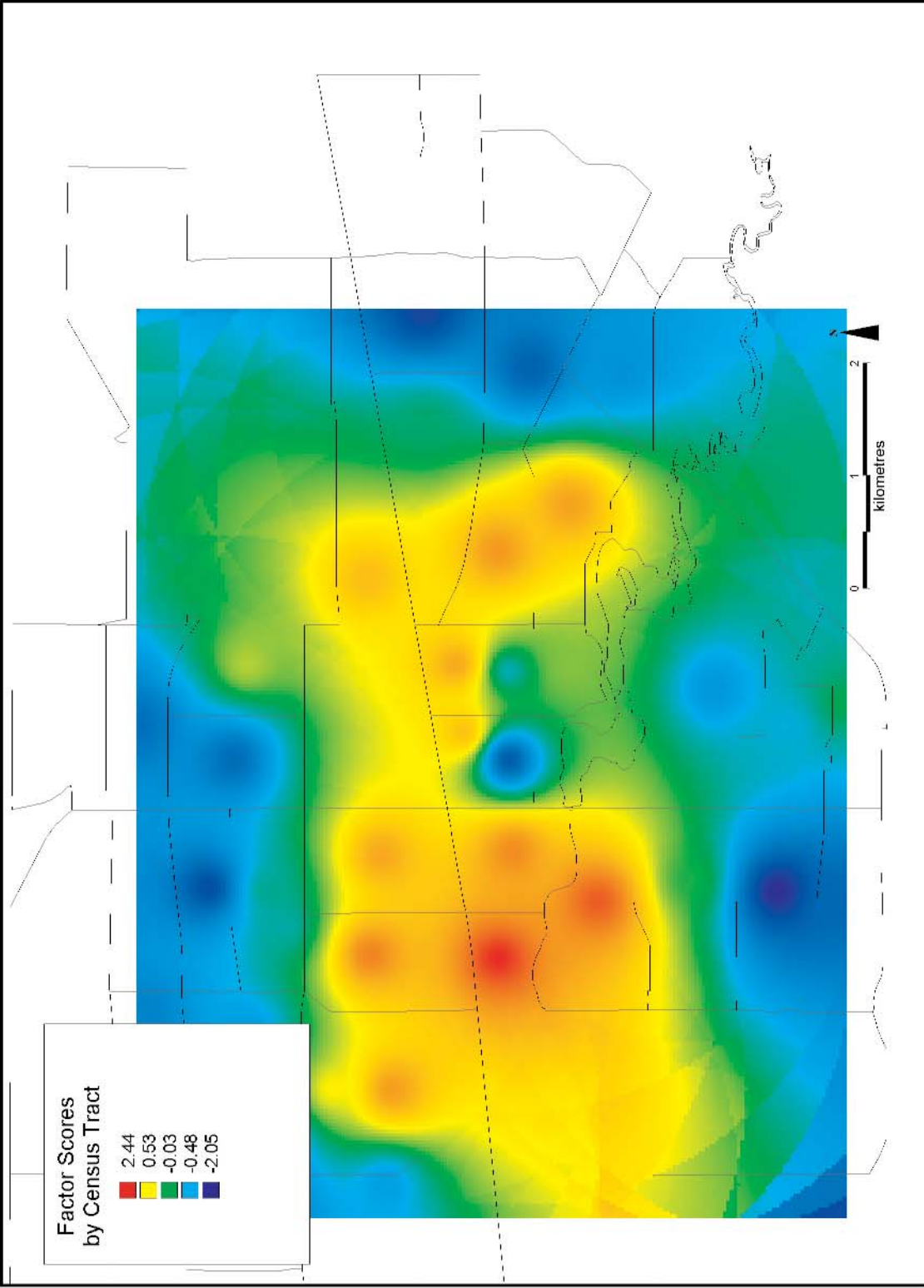
Map 32. 1981 Income Distribution, Winnipeg Census Metropolitan Area



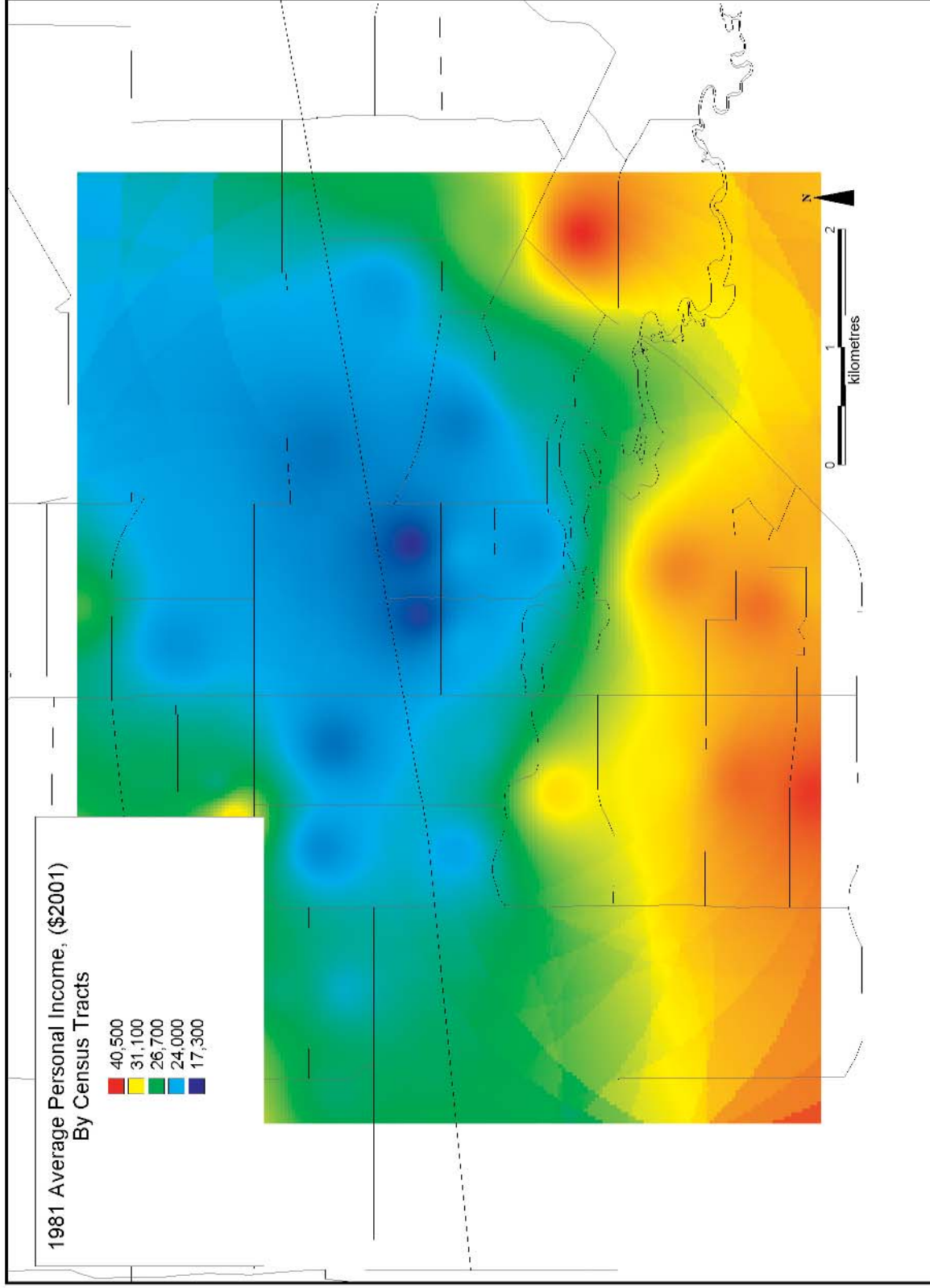
Map 33. Age of Dwellings, Winnipeg Census Metropolitan Area



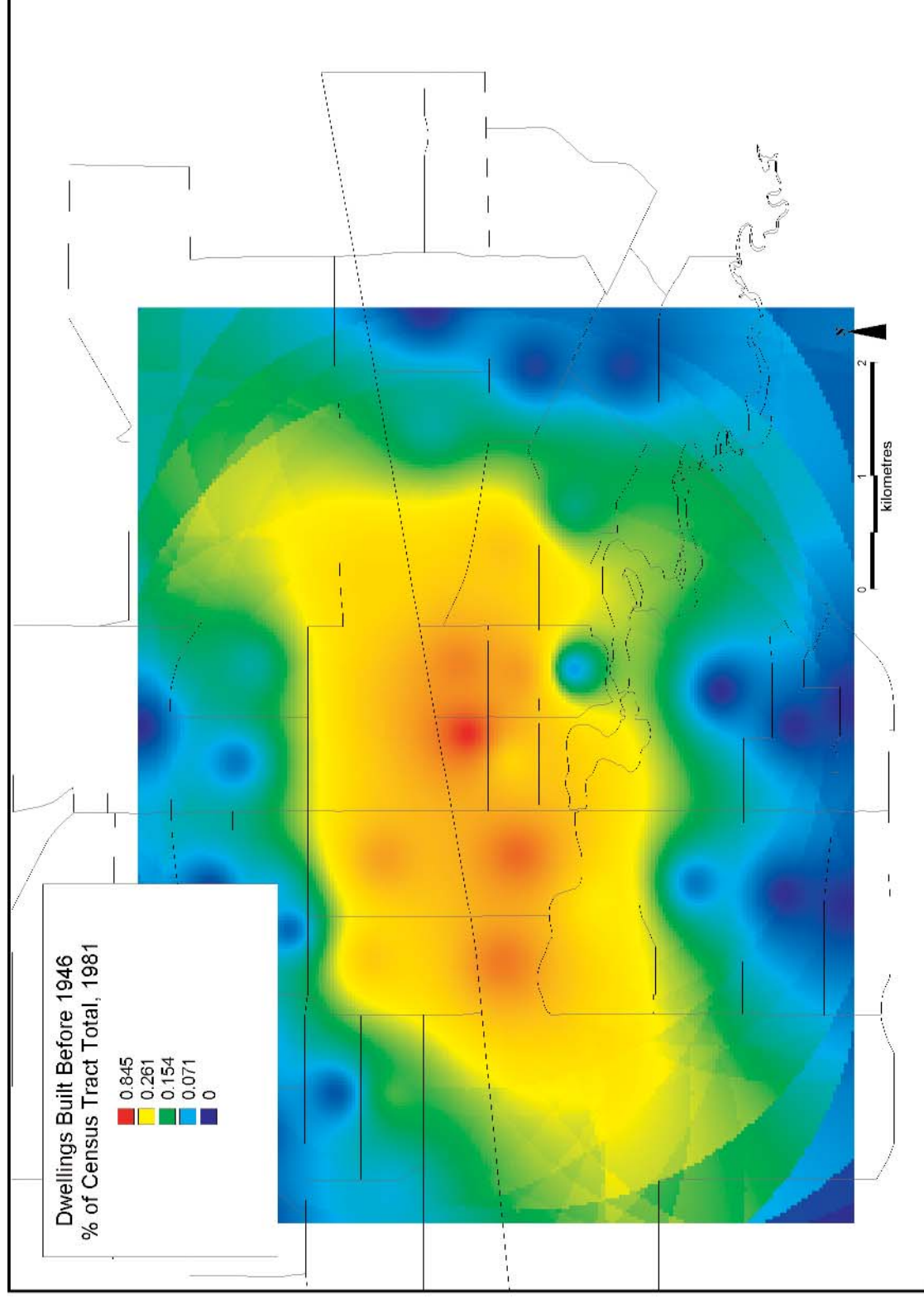
Map 34. Selected Census Tracts, Winnipeg Census Metropolitan Area



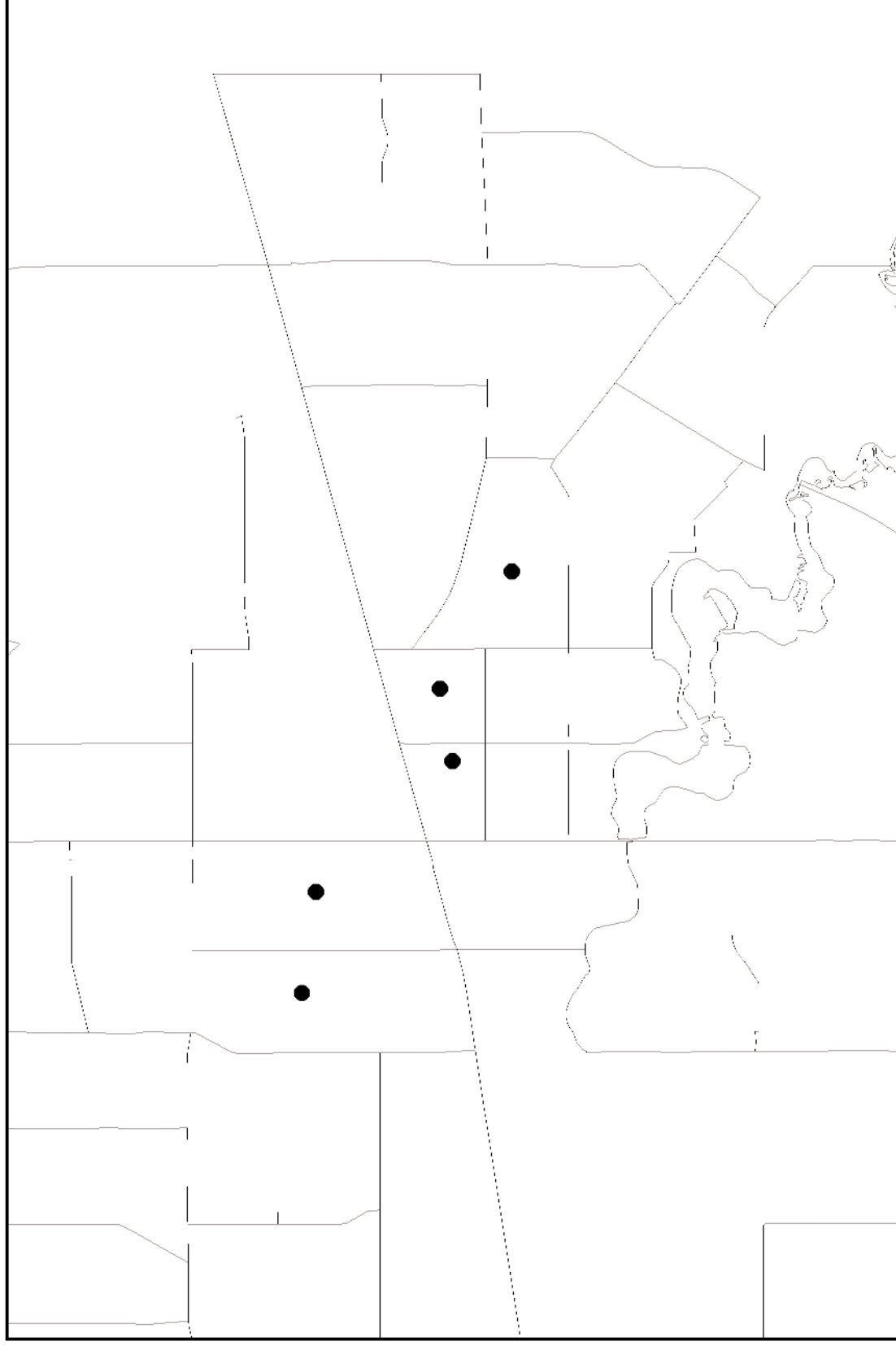
Map 35. Factor Scores, Regina Census Metropolitan Area



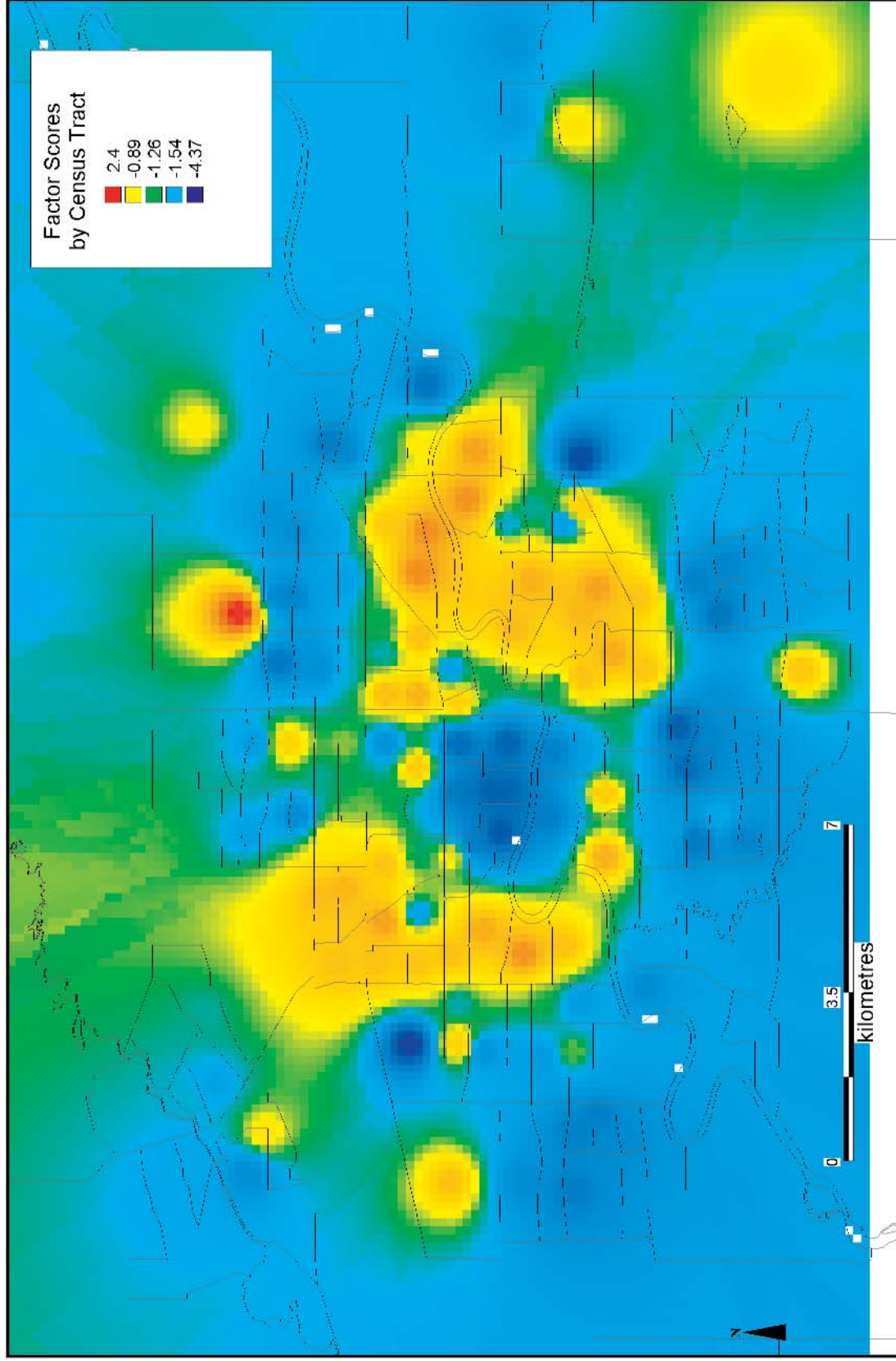
Map 36. 1981 Income Distribution, Regina Census Metropolitan Area



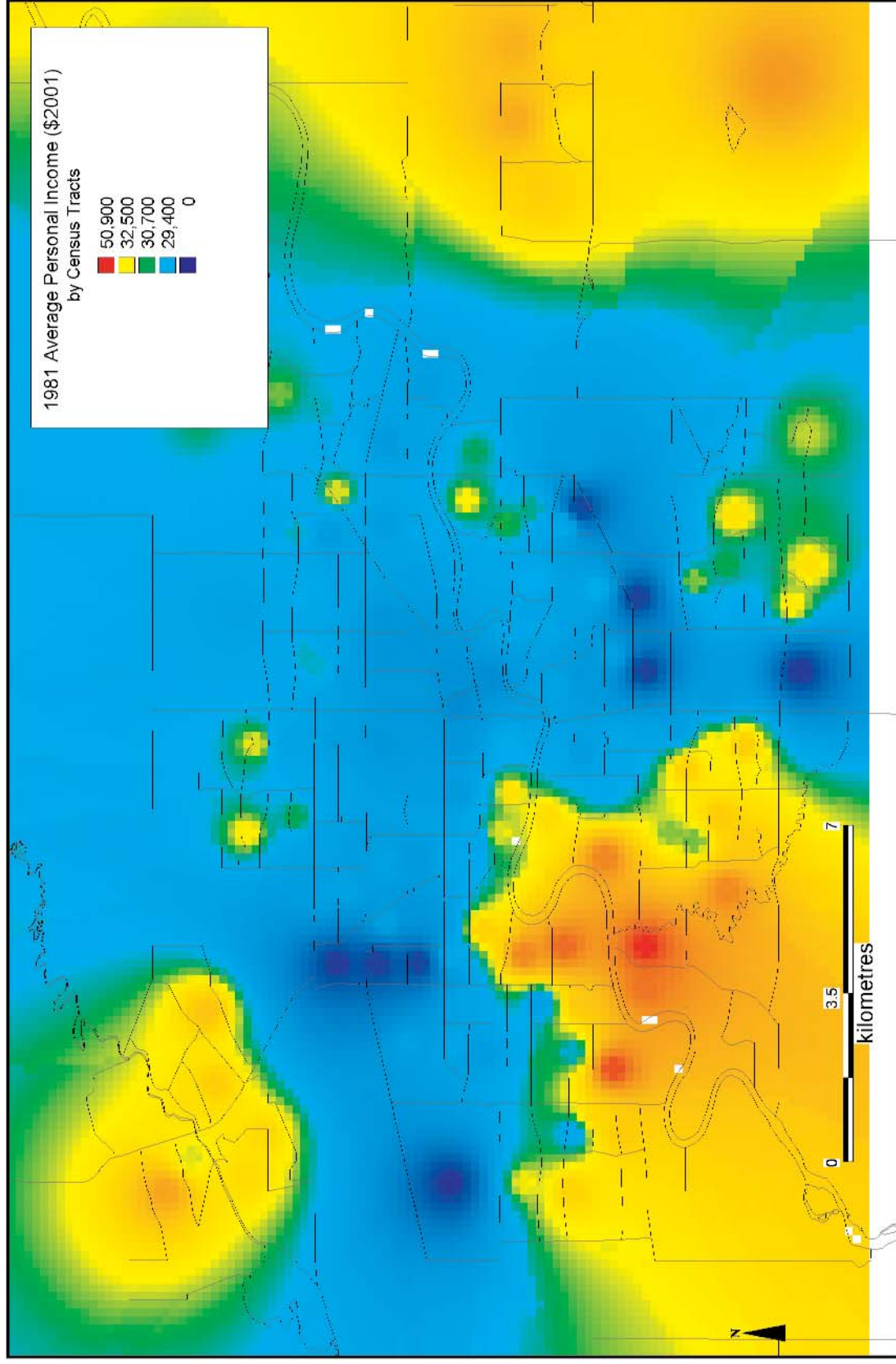
Map 37. Age of Dwellings, Regina Census Metropolitan Area



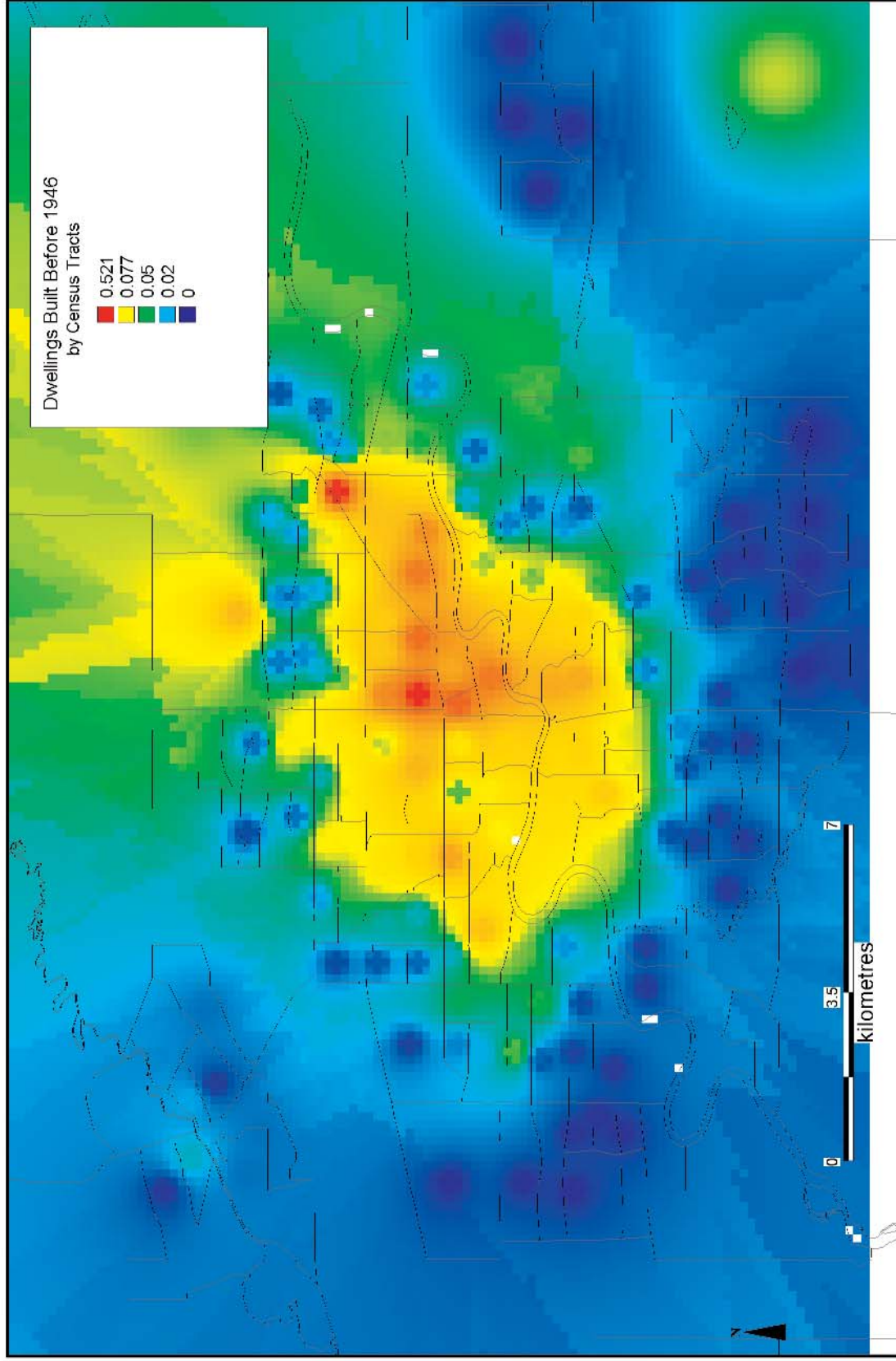
Map 38. Selected Census Tracts, Regina Census Metropolitan Area



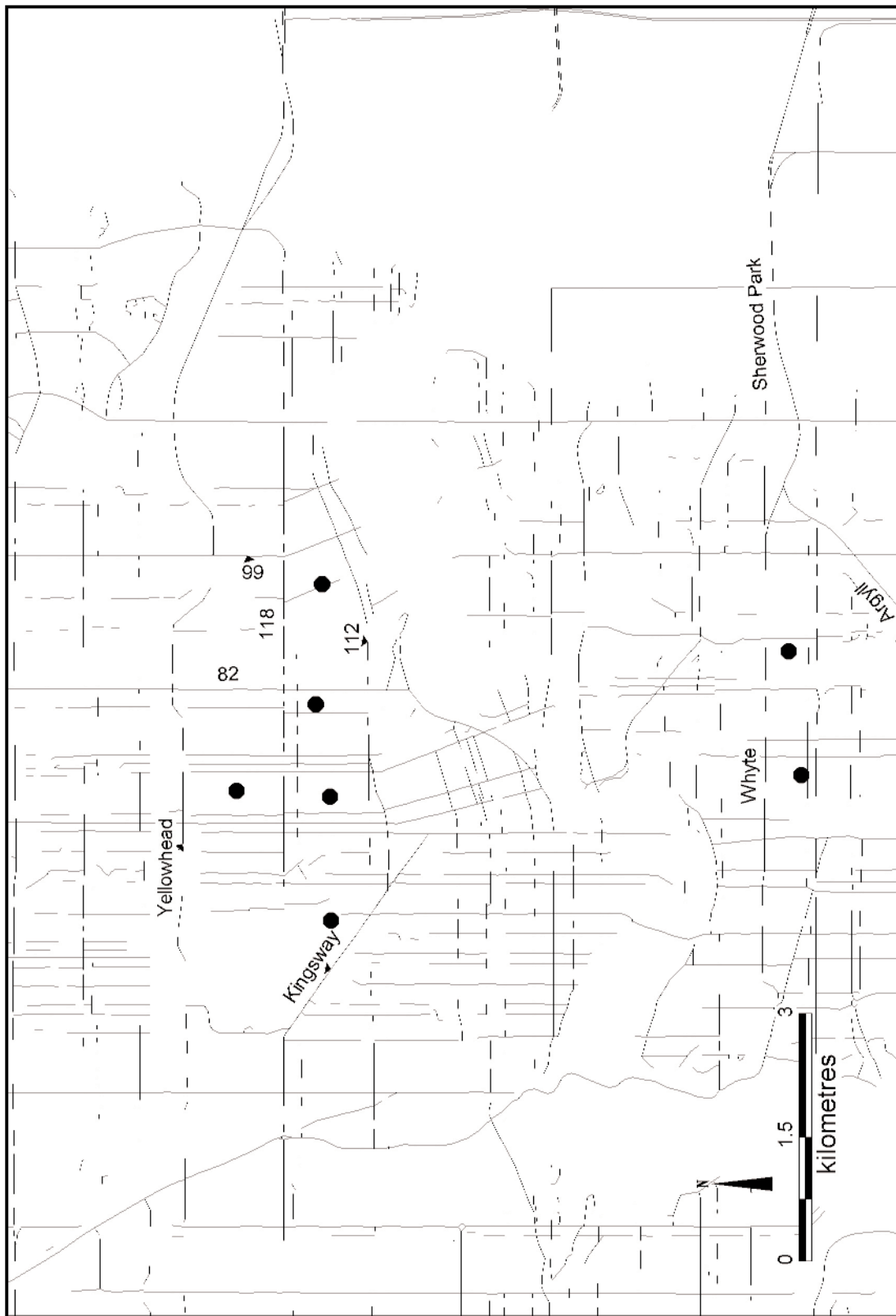
Map 39. Factor Scores, Edmonton Census Metropolitan Area



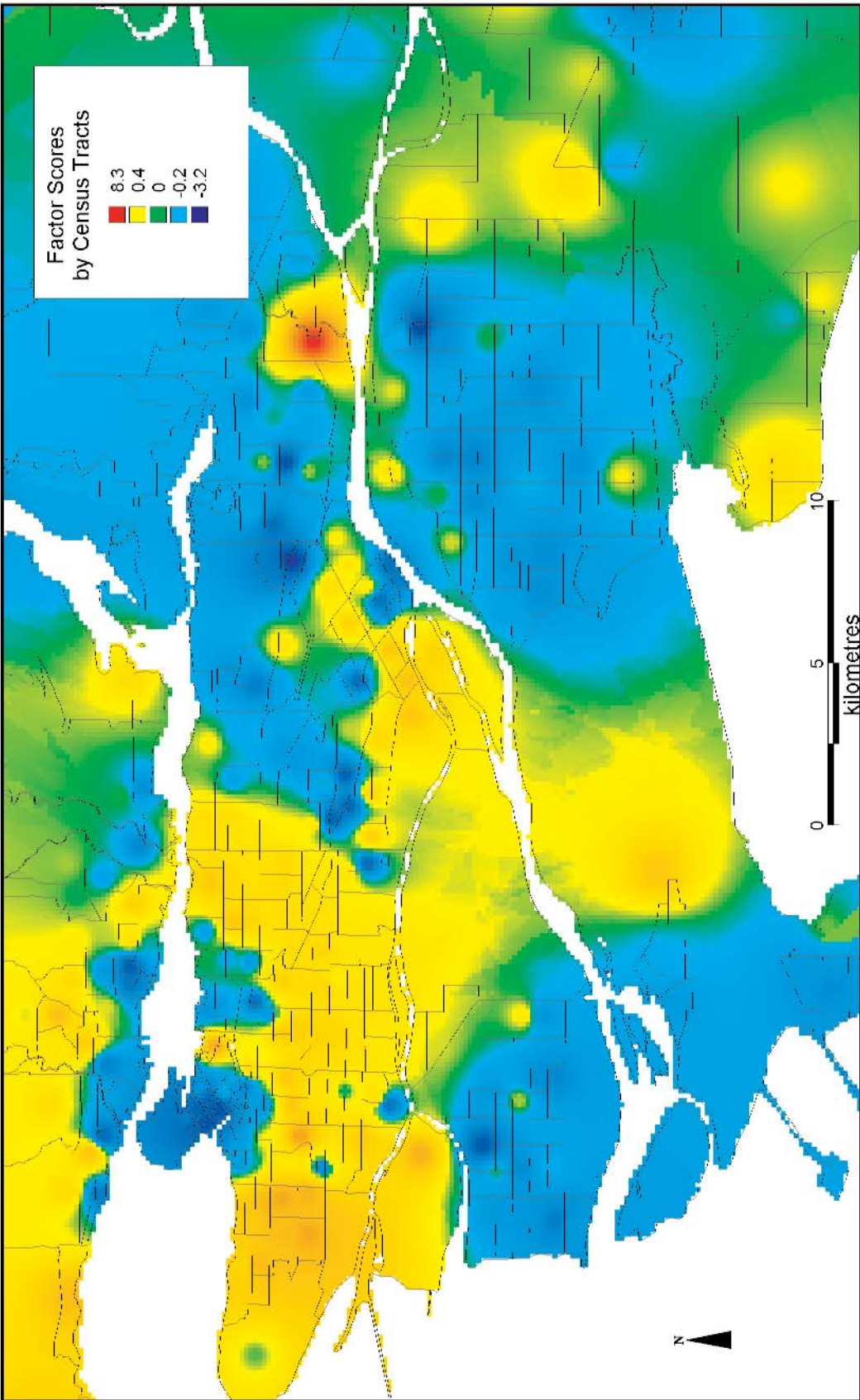
Map 40. 1981 Income Distribution, Edmonton Census Metropolitan Area



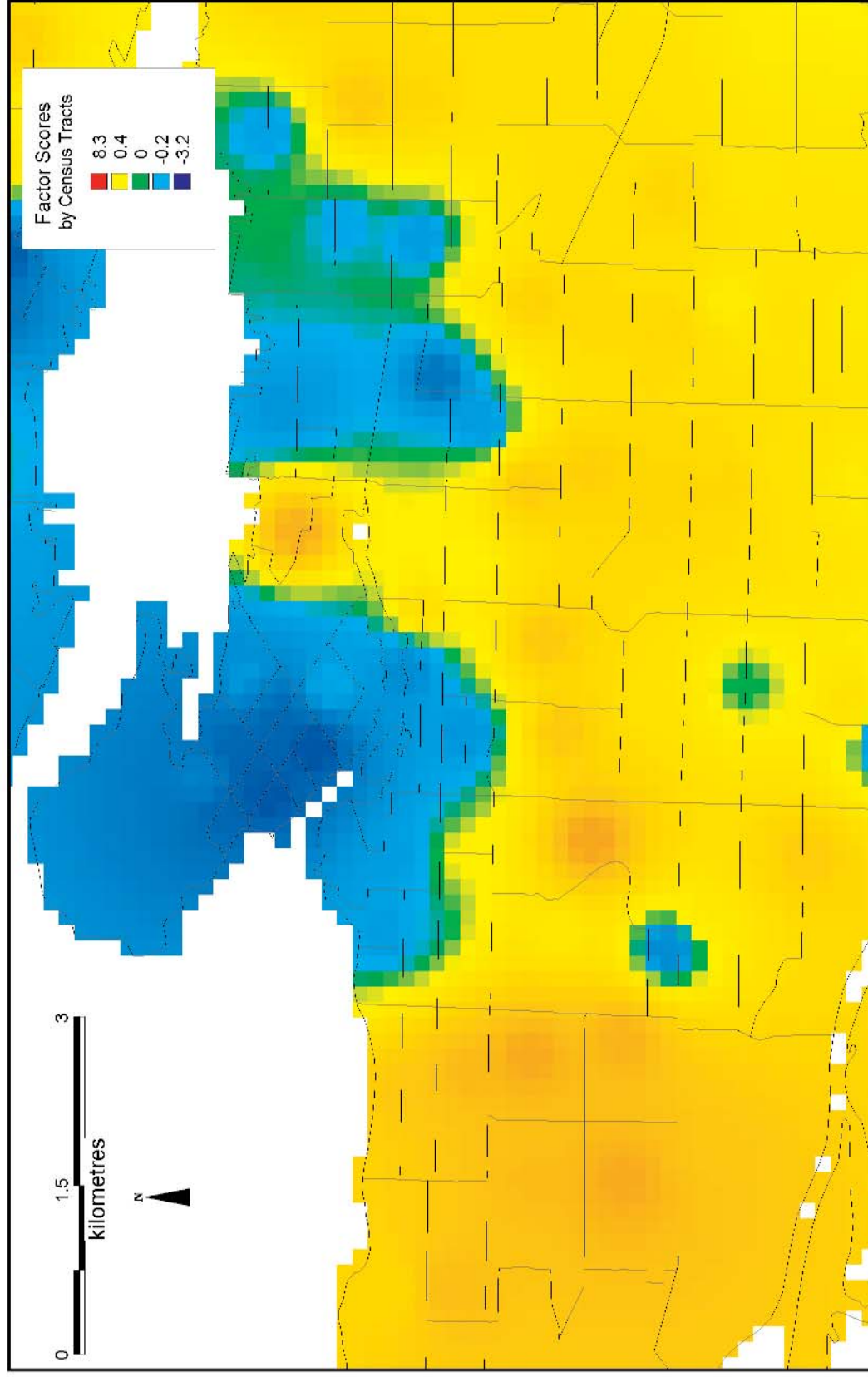
Map 41. Age of Dwellings, Edmonton Census Metropolitan Area



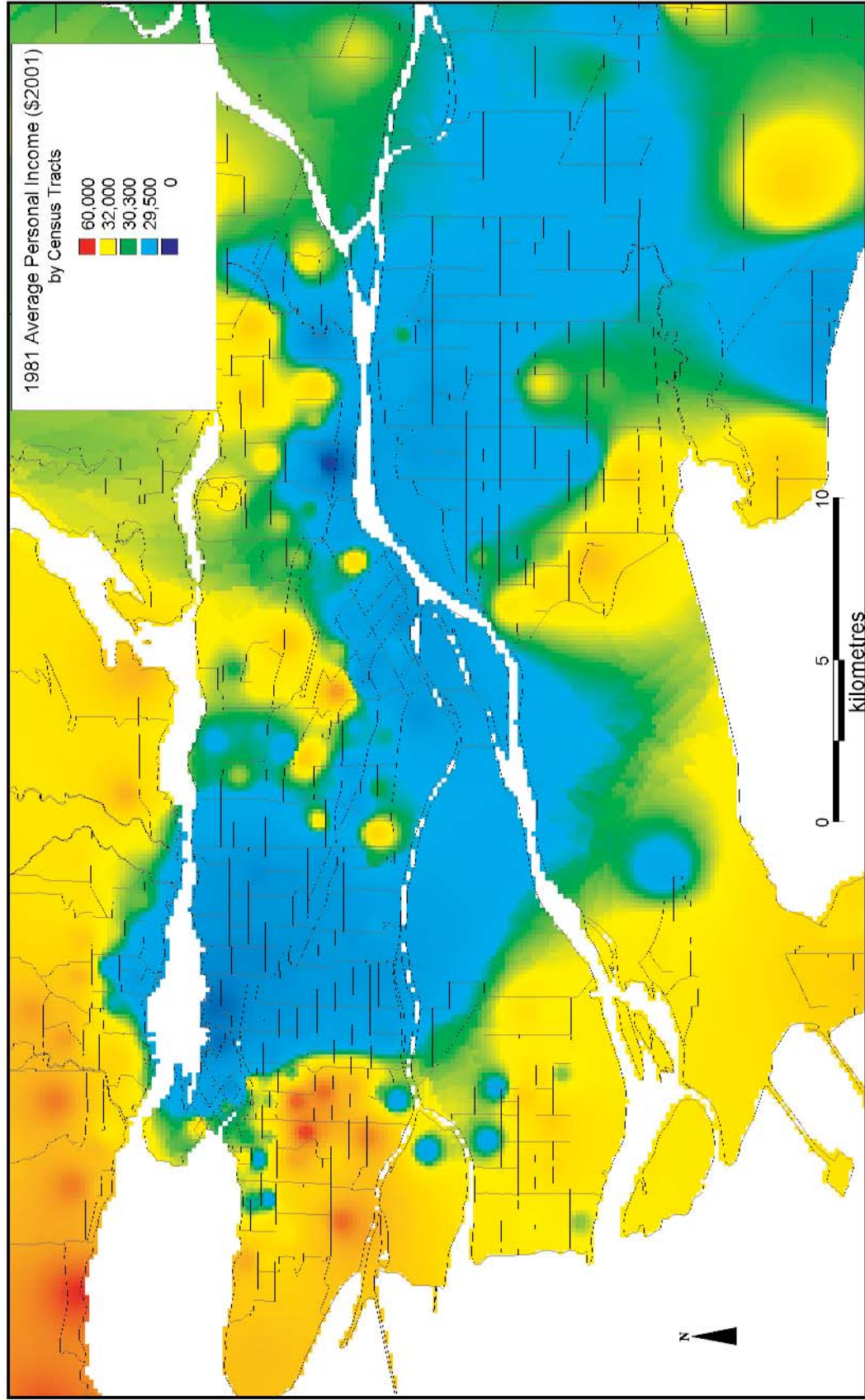
Map 42. Selected Census Tracts, Edmonton Census Metropolitan Area



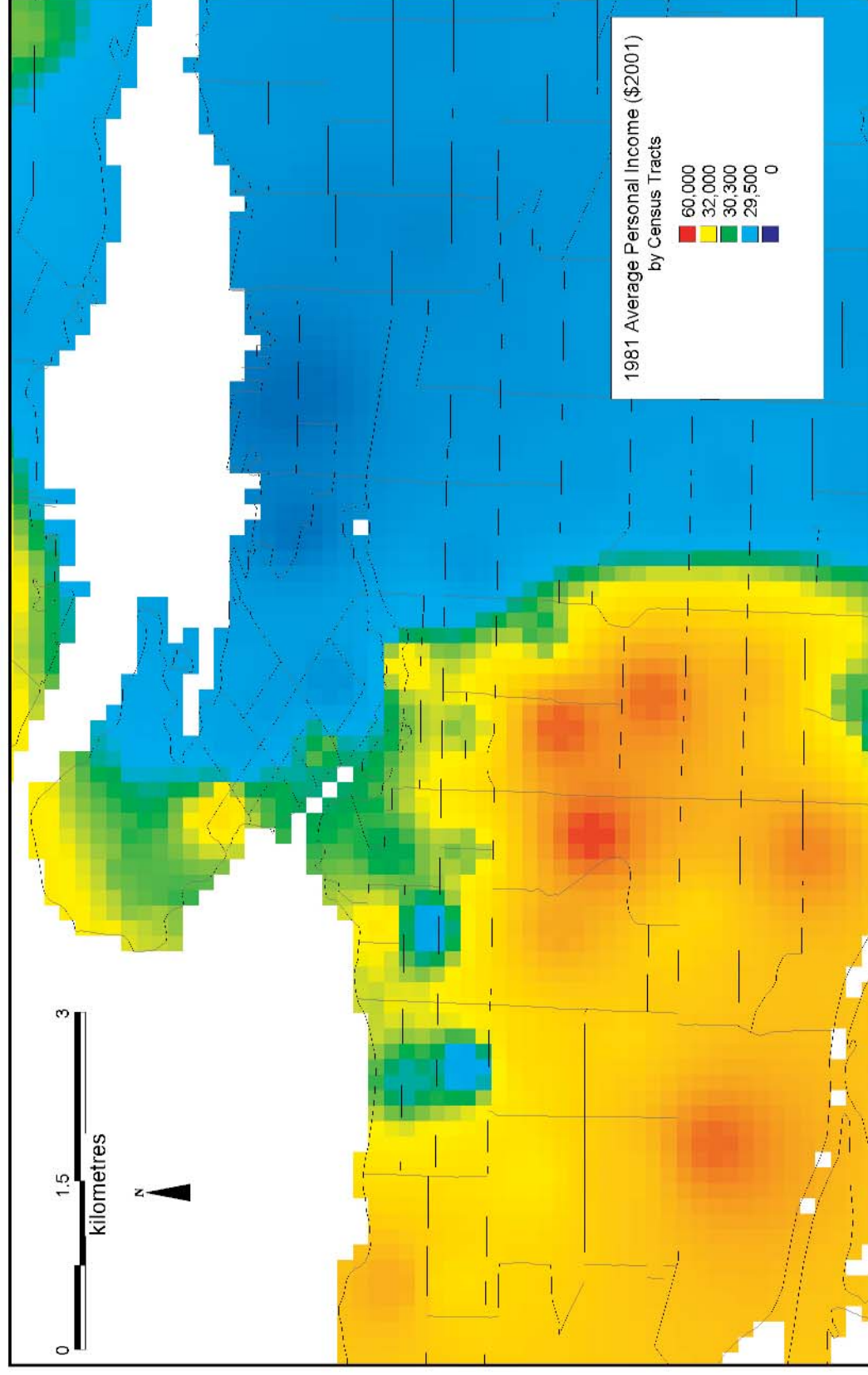
Map 43. Factor Scores, Vancouver Census Metropolitan Area



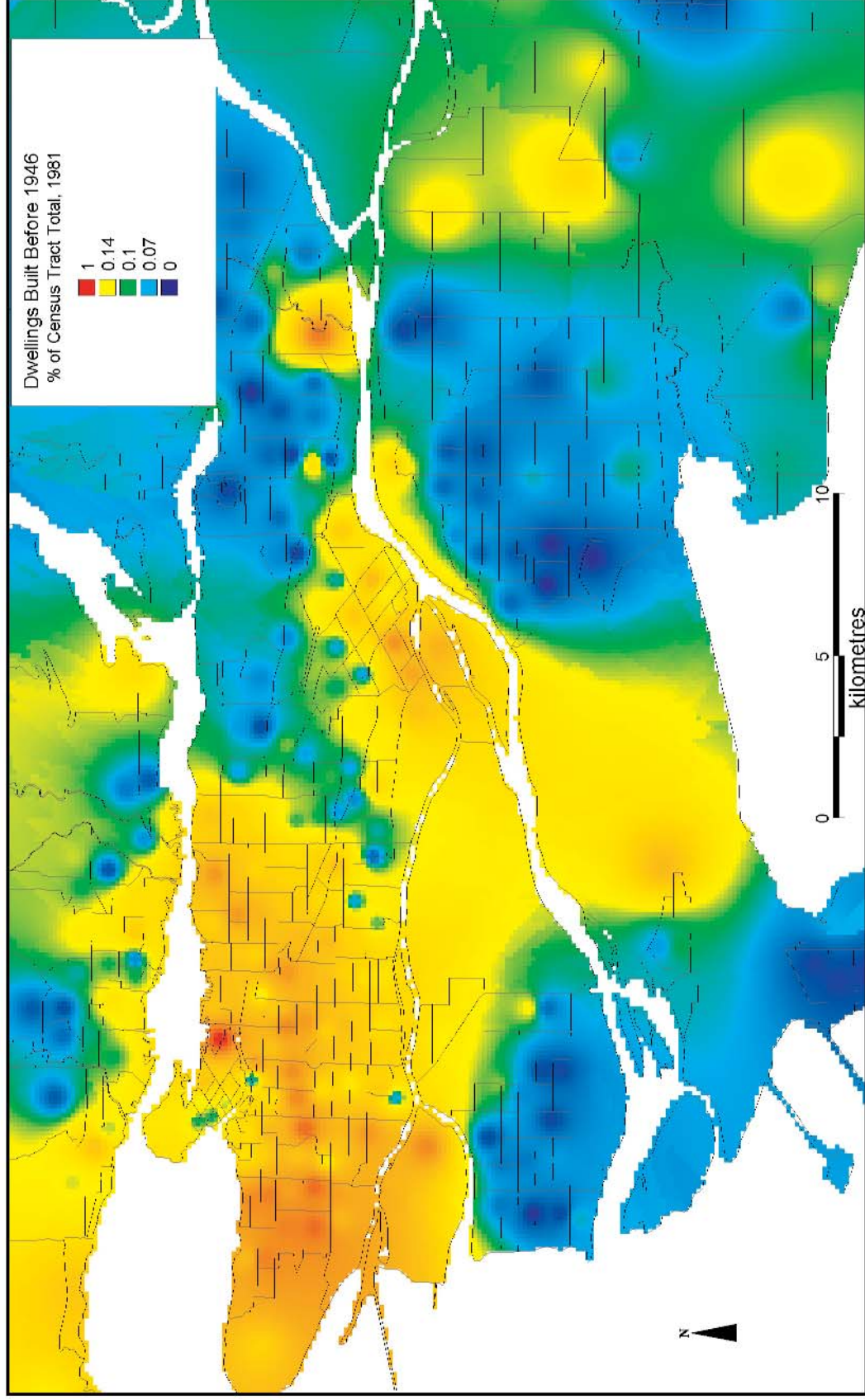
Map 44. Factor Scores, Vancouver Census Metropolitan Area



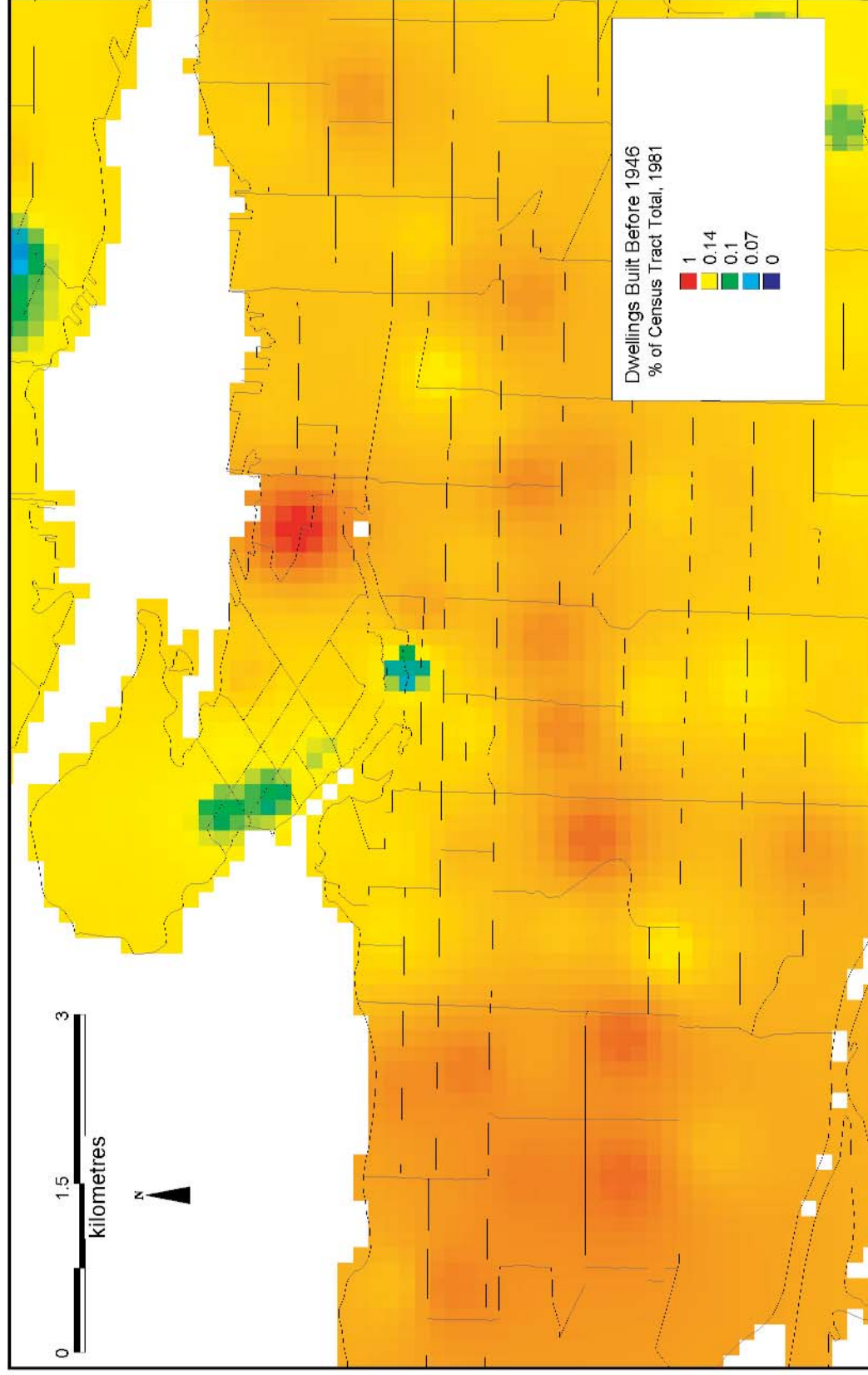
Map 45. 1981 Income Distribution, Vancouver Census Metropolitan Area



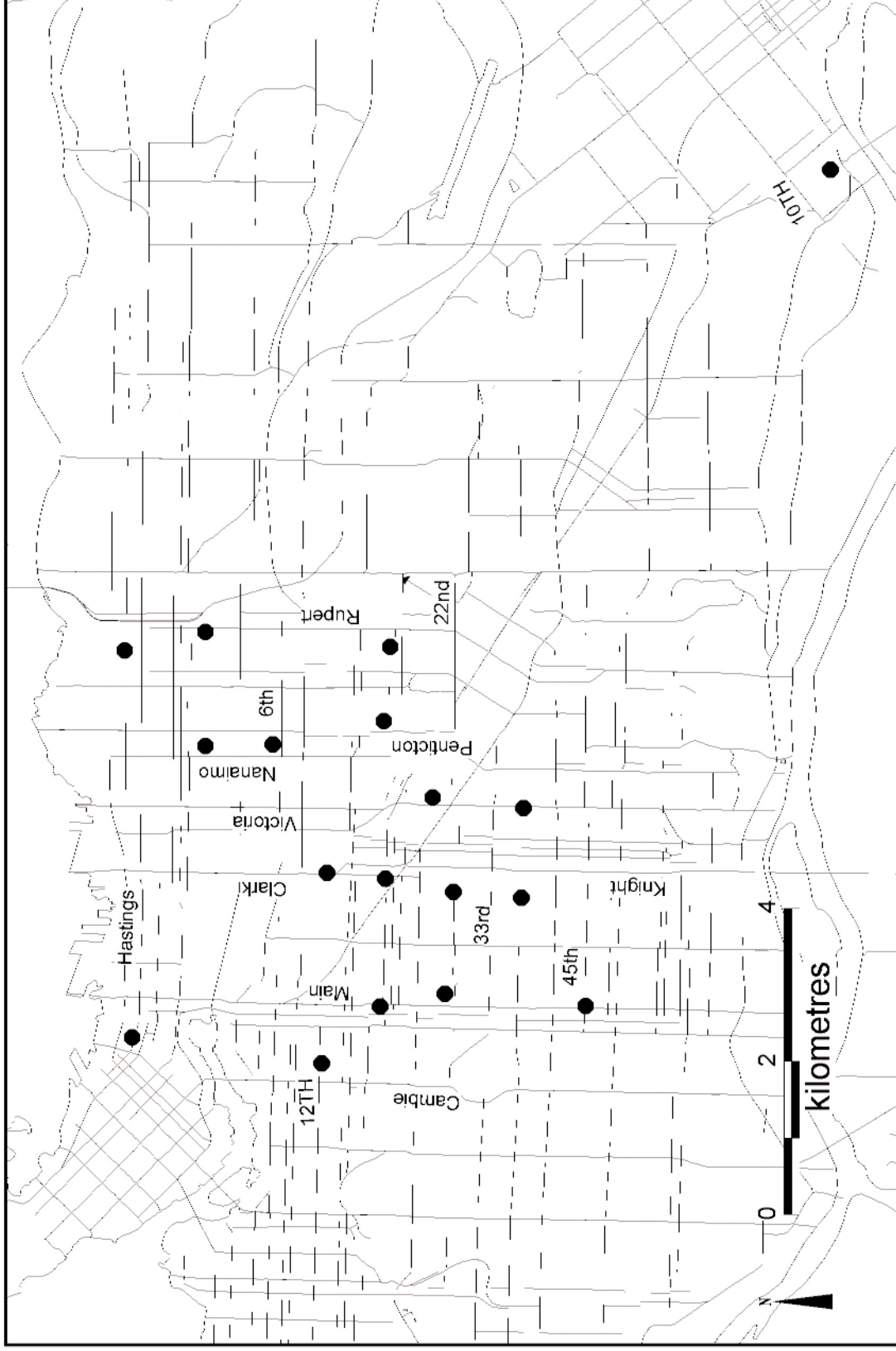
Map 46. 1981 Income Distribution, Vancouver Census Metropolitan Area



Map 47. Age of Dwellings, Vancouver Census Metropolitan Area



Map 48. Age of Dwellings, Vancouver Census Metropolitan Area



Map 49. Selected Census Tracts, Vancouver Census Metropolitan Area

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