Residential intensification refers to the house alterations ranging from adding dwelling units within existing buildings, to constructing new infill dwellings on vacant lots. In a conceptual model, societal shifts in economic, demographic, social and governmental forces are hypothesized as being behind property-owners’ intensification of their homes. A survey measured the past and the planned levels of house alterations of 151 owner-occupiers and absentee landlords in Windsor, and 202 in Owen Sound. Up to one-quarter of these respondents intensified their homes in older urban neighborhoods in the two cities. The statistically significant variables in a logit regression suggest that the intensifiers were motivated for economic reasons, whereas the non-intensifiers were attached to their home’s extra space, and their neighborhood’s social characteristics.

INTRODUCTION

Residential intensification refers to the house alterations ranging from adding a dwelling unit within an existing building, to constructing multiple infill dwellings on a vacant lot. It is a process for expanding the housing stock upon already serviced land, and for accommodating households possibly more affordably than within new subdivisions. The most common, but the most controversial form of intensification within Canadian cities is the conversion of single-detached homes into duplexes, triplexes, and even apartment suites. These conversions are usually located in the midst of existing, predominantly single-detached home neighbourhoods. The influxes of both the higher-density rental accommodation, and the renter-households into owner-occupied neighbourhoods worry the adjacent property-owners about neighbourhood instability and declining property values.

Previous studies about residential intensification are mostly planners’ or consultants’ reports that advocate the practical methods for intensification, and try to assuage the concerns of vulnerable communities (e.g., Borooah 1993; Diamond 1992; Lewinberg Consultants 1988; Lewinberg 1993). No previous studies have attempted to assess with direct surveying, and statistical analyses, the actual reasons why owners decide to intensify their homes, or not (c.f., Beauregard 1993). This study measures two samples’ levels of residential intensification for creating new dwellings by means of either basement apartments, interior structural modifications, or exterior additions. A conceptual model flowcharts the economic, demographic, social and governmental forces in society that are impinging on property-owners to produce this intensified housing. These forces are operationalised into motivating and inhibiting variables that are hypothesised to influence the individual
owner's decision to intensify. The hypotheses are tested for 353 owners of property in the older-urban neighbourhoods of two Canadian cities, Windsor and Owen Sound, Ontario.

**HISTORY OF THE CONCEPT OF RESIDENTIAL INTENSIFICATION**

In history, residential intensification has been observed as a process, on the one hand, to rejuvenate aging neighborhoods, and on the other hand, to postpone the abandonment of homes in the absence of any other renewal processes (Birch 1971; Hoover and Vernon 1959). Long ago during the 19th Century, Engels (1962) observed the residential intensification in older urban homes towards the end of their life cycle. He documented the number of basement-level apartments, and the humidity, rats, bugs, overcrowding, and sewerage leaks within them. Much later, Hutt (1933) judged that working-class housing conditions in London, U.K., had actually worsened during the early 20th Century. Similarly in Paris, France, the doubling-up of entire families in tiny apartments, as well as the inhabitation of attic and basement-ceiling apartments augmented the inadequate housing supply, when landlords did not provide working-class housing (Harvey 1985; Shapiro 1985). In the United States, Burgess (1925, 1929) located intensification within a zone of transition where large, older homes were subdivided into smaller apartments and rooming houses. Zorbaugh (1929, p.69) described a typical rooming-house as "never built for the purpose; it is always an adaptation of a former residence, a residence which has seen better days." In contrast to these earliest studies, Firey (1947, p.99) observed intensification occurring outside of the deteriorating zones adjacent to central business districts:

"Sometimes young couples of good family—but for the time being, living on a shoe-string, will rent moderately priced apartments in converted Beacon Hill houses. Thus without too great expense to themselves, they are able to live in a socially acceptable neighbourhood and thereby symbolize their class position."

**THEORY OF FACTORS BEHIND INTENSIFICATION**

The theory in this study is that four interrelated shifts in the economic, demographic, social and governmental forces in western society are intersecting to produce various combinations of reinvestment or disinvestment processes in neighbourhoods (Bourne 1992; Knox 1993). A conceptual model in Figures 1 and 2 focusses on the intersections producing the three levels of residential intensification from basement apartments (Level 1), through interior structural modifications (Level 2), to exterior additions (Level 3) in older-urban neighbourhoods. Alternative intersections will produce the other processes of private housing renewal, such as rehabilitation or incumbent upgrading (Bunting and Phipps 1988; Millward 1988); or gentrification (de-intensification) or redevelopment (Beauregard 1990; Hamnett 1991 1992; Ley 1986; Smith 1992).

**Economic Forces**

A hypothesis expressed in Figure 1 is that some property-owners will decide to intensify their homes in response to economic societal forces. First, inflating land costs, urban-servicing charges, and mortgage interest rates during the 1980s have inflated the prices of new and used single-detached housing (Rudell and Neagius 1984). The short-run prices of these preferred homes for owner-occupation may be beyond the
incomes and house-wealth of lower- and middle-income households, unless they supplement their finances by intensifying (Harris and Pratt 1993). Similarly, down the housing market, many lower-income households aspiring to home-ownership may move into, or remain in, inner-city neighbourhoods ripe for intensification, owing to a shortage of affordable housing elsewhere (Moore and Rosenberg 1993; Moore Milroy 1991). Second, owners wanting to intensify will require financing from private or government sources. Intensification will not take hold unless financial institutions acknowledge a neighbourhood as potentially profitable for investment (Badcock and Browett 1992; Wilson 1991). However, third, some household- and professional-developers may exploit the appearance of a rent gap to buy relatively cheap housing for intensification (Feagin 1987; Harvey 1978; King 1989). Many large older inner-city homes become devalorized and are priced below their potential value, and intensification as a form of rehabilitation may recapitalize this value.

The operational hypothesis is that a kth property-owner intensifying in response to these economic forces will state his or her reasons as being from among

"I derived a source of income" ($X_{k_1}$);

"I increased my standard of living" ($X_{k_2}$);

"I improved the home’s resale value" ($X_{k_3}$);
or "I helped to pay off the mortgage" ($X_{ka}$).

Conversely, an owner may decide against intensifying for economic reasons because

"I cannot afford to alter the home" ($X_{k13}$);

"my property taxes might be raised" ($X_{k14}$);

"I do not want to take out a loan to intensify" ($X_{k15}$);

or "the home is worth more as it is now" ($X_{k19}$).

Relatedly, a decision for intensification may have a coerced, economic motivation if

"my home is affordable relative to other areas" ($Z_{k1}$),

or "I can't afford to move elsewhere" ($Z_{k2}$).

Alternatively, a voluntary attachment to the location may inhibit intensification if

"I am near to downtown" ($Z_{k3}$),

or to "place of employment or other major services" ($Z_{k4}$).

Last, the owner-household's income ($V_{k1}$)

and tenure ($V_{ka}$)

may be underlying budget and housing-class constraints on any housing decision.

**Demographic Forces**

A joint economic and demographic hypothesis in Figure 1 is that some property-owners will be intensifying in response to the changing occupational structure and spatial division of labour in western societies during the 1980s. More and more people are employed in tertiary- and quaternary-sector jobs that are located in the downtowns of cities (Law and Wolch 1993; Ley 1991). Some of them may live (in)voluntarily in the inner city to be near to work (Rose and Villeneuve 1993). A second demographic change is that these new, and sometimes non-traditional households may not only have fewer members than in the past, but they are also more likely to be headed by either a single parent, or two working adults, who have limited time for domestic labour (Bondi 1991; Rose and Villeneuve 1993). Alternatively, they may be young, or aging adults living alone (Miron 1993). In short, these households may demand not only centrally-located, but also smaller housing units, which either they or absentee owners supply through residential intensification.

A $k^{th}$ property owner who intensifies owing to these economic and demographic changes will be motivated because

"I obtained companionship from tenants or boarders" ($X_{ka3}$);

"I increased my personal security" ($X_{ka4}$);

"I have additional space for the family" ($X_{ka5}$);

or "I have better used surplus space in the home" ($X_{ka6}$).

His or her valuation of surplus space within the dwelling may also be influenced either positively, or negatively, by

the presence, or absence, of children in the household at their stage in the family life cycle ($V_{ka7}$).
or the change in household/family composition since moving in ($V_{k6}$).

In general, he or she will be less likely to intensify if

"I do not want to take on a boarder" ($X_{k16}$);

"I do not want to take on a tenant" ($X_{k17}$);

or "the neighbourhood is not suited for an altered or converted dwelling" ($X_{k18}$).

**Social Forces**

A social hypothesis in Figure 2 is that people's consumption of commodities, including their housing, is increasingly symbolizing their identity and distinction (Harris and Pratt 1993; Knox 1993; Phipps and Cimer 1994). On the one hand, their housing consumption fulfills psychological needs, ranging from the self-actualisation of a lifestyle, to the distinction from other classes or groups of people (Bourdieu 1984; Caulfield 1989; Shields 1992). On the other hand, producers are exploiting new styles to promote consumption in niche submarkets, and to speed their turnover time for investment (Harvey 1989; Madigan, Munro and Smith 1990). First, if these upwardly-socially-mobile 'new' owners value the home no longer solely for shelter, but also for financial investment, they may capitalize any surplus

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**Figure 2:** Social and Governmental Forces Behind Residential Intensification

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living space perhaps by its conversion into a new dwelling unit (Glennie and Thrift 1992). Second, and similarly, they may desire a social identity and/or a lifestyle from being a landlord of a rental property. Last, political conflicts surround the housing decisions of these new cohorts of property-owners including smaller families with dual-income earners, and non-traditional households. They are struggling politically to create commodified neighborhoods for themselves (Ley 1991; Mills 1993), while other established community members may resist any proposed intensification, and associated rezoning, in an effort to preserve the stability of neighbourhoods (Ley and Mills 1993).

Operationally, a property owner is hypothesized to have intensified for social reasons if he or she states that

"I improved the appearance of the home" ($X_{k3}$);

"I have gone along with neighbours also doing this work" ($X_{k13}$);

or "I had the handy skills to do such work" ($X_{k11}$).

Six social inhibitions against intensification of the house are

"the home's size, layout or age is not suited for it" ($X_{k20}$);

"I do not have time to alter the dwelling" ($X_{k21}$);

"I will be moving or selling in the near future" ($X_{k22}$);

"my neighbours are not altering their dwellings" ($X_{k23}$);

"I prefer the home as it appears now" ($X_{k24}$); or "I value the extra space in the home" ($X_{k25}$).

Three additional, social inhibitions owing to social attachments to the neighborhood are

"my family is comfortable here" ($Z_{k6}$);

"my friends or family are near by" ($Z_{k7}$);

or "I like my neighbors" ($Z_{k8}$).

Last, the social standing within the community is measured by the university education of the adults ($V_{k3}$), and the length of residence at the current address ($V_{k5}$).

**Governmental Forces**

Government policies and planning may intendedly, or unintendedly, motivate or inhibit owners' decisions about residential intensification (Smith and Moore 1993). For example, in Ontario, the provincial government initiated a series of policies from its document, *Land Use Planning for Housing*, that have culminated in Bill 120 to permit home-owners by-right to add a basement or an attic rental unit (Province of Ontario 1989a, 1989b). These provincial actions guide municipal policy formulation towards providing, for example, building advisory services, and streamlined rezonings for increased density (e.g., City of Windsor 1990a, 1990b). Alternatively, if government funding for municipal infrastructure improvements is retrenched, the resulting traffic congestion may stimulate residential intensification especially in major cities where individuals relocate within the inner city to avoid long-distance commuting. As neither Windsor nor Owen Sound experience major traffic congestion, the operational govern-
mental hypothesis is that property-owners will be motivated to intensify if

"the neighbourhood’s zoning allows for conversion" \( X_{k12} \),

and they will be inhibited otherwise \( X_{k26} \).

Last, each owner’s location in either Windsor or Owen Sound is represented with a dummy variable \( V_{k7} \).

**Functional Model**

In summary, the factors producing a decision to intensify a home are thus hypothesized to be derived from the foregoing economic, demographic, social and governmental forces. Conversely, an owner may decide against intensification as a response to different intersections among the same economic, demographic, social and governmental forces. His or her decision will also be influenced by the economic and social reasons for remaining at the current location, \{ \( Z_{k1} \) \}, and the situational variables, \{ \( V_{k7} \) \}. These hypotheses are formalized in the following functional model:

\[
P(Y_{ki}) = b_{k0} + \sum_{1}^{26} b_{ki} X_{ki} + \sum_{1}^{8} b_{ki} Z_{ki} + \sum_{1}^{7} V_{ki}.
\]  

(1)

Where owner \( k \)'s probability of past intensification in the current \( i \)th home = \( P(Y_{ki}) \);

the importance for the \{ \( j = 1-4 \) & \( 13-15 \) \} economic factors,

and the \{ \( j = 1-5 \) \} economic constraints:

\[
\sum_{1}^{4} b_{ki} X_{ki} + \sum_{13}^{15} b_{ki} X_{ki} + \sum_{1}^{5} b_{ki} Z_{ki};
\]

the importance for the \{ \( j = 5-8 \) & \( 16-18 \) \} demographic factors:

\[
\sum_{5}^{8} b_{ki} X_{ki} + \sum_{16}^{18} b_{ki} X_{ki};
\]

the importance for the \{ \( j = 9-11 \) & \( 19-25 \) \} social factors,

and the \{ \( j = 6-8 \) \} social constraints:

\[
\sum_{1}^{9} b_{ki} X_{ki} + \sum_{19}^{25} b_{ki} X_{ki} + \sum_{6}^{8} b_{ki} Z_{ki};
\]

the importance for the \{ \( j = 12 \) & \( 26 \) \} governmental factors:

\[
b_{k12} X_{k12} + b_{k26} X_{k26};
\]

and the \{ \( j = 1-7 \) \} controlling situational variables = \( \sum_{i}^{7} V_{ki} \).

As shown in the sections below, a step-wise logit regression is used to calibrate the coefficients for the statistically significant variables in equation (1) with survey data from the Windsor and Owen Sound respondents.

**METHODOLOGY**

**The Survey**

A hand-delivered/mail-back survey measured the past house alterations either creating one or more new dwelling units, or dismantling them during the period of residency, and the alterations planned during the next two years. A respondent checked a box(es) to indicate whether, since purchasing or moving in, he or she had 'performed interior renovations to create an additional dwelling unit(s)'; 'constructed an addition to either the side or the top of the dwelling to create an additional unit(s)'; 'added a basement apartment(s)'; 'constructed a new or separate dwelling(s) on either a vacant lot or the current lot'; 'taken in boarder(s)'; or 'torn out walls to eliminate a dwelling unit(s)' The boxes were repeated for the planned alterations.

The importances for 12 motivating and 14 inhibiting factors behind their house alterations were measured on continuous 14cm
line-scales with labels from 0, 'not important,' through 25, 'slightly important,' 50, 'important,' 75, 'very important,' to 100, 'extremely important.' Similar importance line-scales measured the eight reasons for remaining living at the current location. Last, the household's seven situational variables were indicated by checking boxes, or writing in numbers for: the family or household income during the previous twelve months; the members in age groups; the highest levels of education for the adults; the tenure and the length of residence at the current address; and the original and the current composition of people in the dwelling.

The Study Areas

The survey was carried out in the older-urban neighborhoods in two study areas, Windsor and Owen Sound, Ontario. Windsor is medium sized, with a city population of 193,000 during 1991—a 2% decline since 1986. It is located in southern Ontario, approximately four hours drive from Toronto, and outside of Ontario's 'golden horseshoe' of relatively high economic growth and house prices. Its average price for a privately-owned house was approximately $128,000 during 1991, according to the Census of Canada. Even so, 34% of renters were paying more than 30% of their household incomes in gross rent, and 11% of owners, more than 30% in payments; 12% of households were classified as low income. Even though it has experienced relatively low rental vacancy rates since the mid-1980s, the City Council during the spring of 1991 rejected a planning proposal which would have given "owners of large, older homes in Windsor's core area...the automatic right to subdivide their homes" (Van der Doelen 1991). Consequently, property-owners still obtain the approval of the city council for residential intensification proposals, except where legally permitted by existing zoning.

In rejecting the proposal, city councillors cited a fear that:

The automatic right to convert a home to a duplex, triplex or a rooming house would be too dangerous to the quality of life in some neighbourhoods" (Van der Doelen 1991).

In Windsor, a population of 70 dwelling units, each legally intensified through the City of Windsor's development approval process during 1989 and 1990, was compiled. Records from the Home Planning Advisory Service, the Planning Advisory Committee, and building permits were utilized to identify them. Forty-two of the 70 dwelling units had absentee landlords. An attempt was made to contact, and to interview each of these identified property-owners. In addition, at least three neighbours of each of these legally-intensified units were randomly surveyed. The survey was also carried out in a targeted older-urban residential neighborhood having permissive zoning, the Glen-garry neighbourhood. Seventy-five randomly selected households responded to the survey during the spring 1991, yielding a total of 151 Windsor respondents when combined with the 76 legal intensifiers and their neighbours responding during the fall 1991.

For comparative purposes to counter-balance the partial non-random surveying in Windsor, the same survey was randomly carried out in Owen Sound during the fall 1991. Even though Owen Sound has a smaller population than Windsor, 30,286 in the 1991 census, and similar percentages were spending more than 30% of their household incomes on housing, its higher average house price, $153,028, possibly reflects its location, less than two hours drive from downtown Toronto. Owen Sound has recently experienced a relative influx of
<table>
<thead>
<tr>
<th>Variable</th>
<th>WINDSOR</th>
<th>OWEN SOUND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household with family income less than $45,000 (%)</td>
<td>76</td>
<td>80</td>
</tr>
<tr>
<td>Household with adults aged 25 to 50 years (%)</td>
<td>78</td>
<td>60</td>
</tr>
<tr>
<td>Home was a single-detached house when purchased/moved in (%)</td>
<td>67</td>
<td>65</td>
</tr>
<tr>
<td>Length of current residence/ownership 5 years or less (%)</td>
<td>57</td>
<td>37</td>
</tr>
<tr>
<td>Household with children aged 18 years or less at home (%)</td>
<td>50</td>
<td>41</td>
</tr>
<tr>
<td>At least one adult with university education (%)</td>
<td>38</td>
<td>32</td>
</tr>
<tr>
<td>Number of Respondents</td>
<td>151</td>
<td>202</td>
</tr>
</tbody>
</table>

Table 1: Respondents’ Situational Variables

young urban professionals into the city, possibly trying to avoid the congestion and expense of life in Metropolitan Toronto. The city’s core has many older, large Victorian and Edwardian brick homes ideally suited to duplexing and triplexing. This, combined with the spillover effect of Toronto development capital, has primed Owen Sound’s older-urban neighborhoods for reinvestment processes including intensification. Areas of the inner city where intensification might be occurring were identified through consultation with municipal officials, and owners within them were randomly sampled (City of Owen Sound 1990). A total of 202 Owen Sound residents responded to the survey.

Analysis

A logit transformation of the model in Equation 1 was run step-wise on the pooled data set for the 353 respondents in the four subsamples. The dependent variable was the binary level of past intensification, as defined below. The independent variables for the motivating and inhibiting factors in equation (1), which were measured in the survey, were operationally re-grouped into their more general economic, demographic, social and governmental components. The maximum sub-variable score from the survey for each respondent served as the composite score in the model. For example, a variable summarised as $X_{k1,2,3,4}$ is a composite of four economic motivating factors for respondent k, and operationally it had his or her maximum score from either $X_{k1}$, $X_{k2}$, $X_{k3}$ or $X_{k4}$. In addition in the operational model, dummy variables for the seven situational variables, and for absentee as opposed to resident owners, were used to test for idiosyncracies between the subsamples. Notwithstanding the different surveying processes between the two cities, the respondents were quite similar in their situational variables (Table 1). The majority in both subsamples were home-owners earning less than $45,000 during the previous 12 months; with adults between 25 and 50 years old, but with more elderly in Owen Sound; who did not have a university education; and who originally moved into a single-detached home. Around one-half had children living at home, and had lived at their current address for five years or less. As shown below, their location in Windsor or Owen Sound did not statistically affect their
<table>
<thead>
<tr>
<th>Level of House Alteration</th>
<th>WINDSOR Past</th>
<th>Future</th>
<th>OWEN SOUND Past</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1 Intensification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Add a basement apartment (%)</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Level 2 Intensification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform interior renovations to create an additional unit(s) (%)</td>
<td>22</td>
<td>5</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td><strong>Level 3 Intensification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construct an addition to the side of the dwelling to create an additional dwelling unit(s) (%)</td>
<td>3</td>
<td>2</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Construct an addition to the top of the dwelling to create an additional dwelling unit(s)</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td><strong>Level 4 Intensification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construct a new dwelling on a vacant lot (%)</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Construct a separate dwelling on the lot (%)</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Take in a boarder(s) (%)</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Tear out walls or doors to eliminate a dwelling unit(s) (%)</td>
<td>5</td>
<td>3</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td><strong>Number of Respondents</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past Intensifiers at Levels 1, 2 and 3 (%)</td>
<td>151</td>
<td>202</td>
<td>26</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 2: Respondents’ Past and Future House Alterations

level of past intensification. Therefore, the calibrated logit regression constructs a motivational and situational profile of the past intensifiers versus the non-intensifiers in both older-urban Windsor and Owen Sound.

RESULTS

Table 2 displays the percentages of respondents who performed, or planned to perform the various levels of intensification in Windsor and Owen Sound. Many more intensifiers in both subsamples altered their homes with interior renovations that were possibly invisible from outside. Twenty-two percent had performed Level 2 interior renovations to create an additional unit in Windsor, and 16% in Owen Sound; and 4% in Windsor, and 2% in Owen Sound had added a Level 1 basement apartment. At Level 3, 5% reported adding a top addition to create an additional unit in Windsor, versus 3% in Owen Sound; only 3% added a side addition for a new unit in Windsor, whereas 7% had done this in Owen Sound. Respondents were classified as past intensifiers for the logit regression if they had performed any one of these three levels of intensification. After accounting for an individual’s multiple alterations, 26% of Windsor respondents were classified as past intensifiers, and 21% from Owen Sound. In order to minimise the interpretational problems with multiple alterations, a respondent was not classified as an intensifier if solely a boarder was taken in: 10% had taken in a boarder in Windsor, versus 6% in Owen Sound. Incidentally, in

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<table>
<thead>
<tr>
<th>Component and Variable Identifier</th>
<th>Mean¹</th>
<th>95% C.I.²</th>
<th>Coeff³</th>
<th>Std.Err.⁴</th>
<th>r²</th>
<th>α⁸</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Constant</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Economic Motivating: X₁, 2, 3, 4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Score of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(X₁) I derived a source of income from alterations</td>
<td>0.24</td>
<td>+/- .04</td>
<td>3.06</td>
<td>0.49</td>
<td>.31</td>
<td>.00</td>
</tr>
<tr>
<td>(X₂) I have increased my standard of living</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(X₃) I improved the home’s resale value</td>
<td></td>
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</tr>
<tr>
<td>(X₄) I helped pay off the mortgage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.00 = ‘unimportant’, 0.50 = ‘important’, 1.00 = ‘extremely important’)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Economic Inhibiting: X₁₃, 1₄, 1₅, 1₆</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Score of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(X₁₃) I cannot afford to alter my home</td>
<td>0.32</td>
<td>+/- .04</td>
<td>-1.78</td>
<td>0.88</td>
<td>- .07</td>
<td>.04</td>
</tr>
<tr>
<td>(X₁₄) My property taxes might be raised owing to my alterations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(X₁₅) I do not want to take out a loan to alter my house</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(X₁₆) I think my home is worth more as it is now</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.00...0.50...1.00)</td>
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</tr>
<tr>
<td><strong>Social Inhibiting: X₂₀, 2₄, 2₅</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Maximum Score of:</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(X₂₀) Home’s size, layout or age is not suited for it</td>
<td>0.44</td>
<td>+/- .05</td>
<td>-2.04</td>
<td>0.77</td>
<td>- .11</td>
<td>.01</td>
</tr>
<tr>
<td>(X₂₄) Like my home as it appears now</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(X₂₅) Value extra space inside my home</td>
<td></td>
<td></td>
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<tr>
<td>(0.00...0.50...1.00)</td>
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<tr>
<td><strong>Demographic Motivating: X₅₆</strong></td>
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<tr>
<td>Maximum Score of:</td>
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<td></td>
</tr>
<tr>
<td>(X₅) I obtained companionship from tenants</td>
<td>0.08</td>
<td>+/- .03</td>
<td>2.36</td>
<td>0.75</td>
<td>.14</td>
<td>.01</td>
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<tr>
<td>(X₆) I increased my personal security</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>(0.00...0.50...1.00)</td>
<td></td>
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<tr>
<td><strong>Locational Inhibiting: Z₁₂</strong></td>
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<tr>
<td>Maximum Score of:</td>
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<td></td>
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<tr>
<td>(Z₁) My home is affordable relative to other areas</td>
<td>0.60</td>
<td>+/- .04</td>
<td>1.82</td>
<td>0.60</td>
<td>.14</td>
<td>.01</td>
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<tr>
<td>(Z₂) I can’t afford to move anywhere else</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(0.00...0.50...1.00)</td>
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<tr>
<td><strong>Locational Inhibiting: Z₆, 7, ₈</strong></td>
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<tr>
<td>Maximum Score of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Z₆) My family is comfortable here</td>
<td>0.77</td>
<td>+/- .04</td>
<td>-1.59</td>
<td>0.61</td>
<td>- .11</td>
<td>.01</td>
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<tr>
<td>(Z₇) Friends/family are near by</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Z₈) I like the neighbours (0.00...0.50...1.00)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
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</table>

**Table 3:** Variables Predicting Probability of Past Intensifications

The Great Lakes Geographer Vol. 1, No. 2 (1994)
contrast with the past intensifications, older-urban Owen Sound had much more de-intensification, with 13% having torn out walls to remove a dwelling unit, versus 5% in

source of income; increased the standard of living; improved the home's resale value; or helped to pay off the home's mortgage. Conversely, the weaker partial correlation for

<table>
<thead>
<tr>
<th>Component and Variable Identifier</th>
<th>Mean</th>
<th>95% C.I.</th>
<th>Coef</th>
<th>Std.Err.</th>
<th>r²</th>
<th>α²</th>
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<td>Situational Variables:</td>
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<td></td>
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<td></td>
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<td></td>
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<td>(V.1) Household with children aged 18 years or less at home. (0=No, 1=Yes)</td>
<td>0.45</td>
<td>+/-0.05</td>
<td>1.33</td>
<td>0.42</td>
<td>.14</td>
<td>.01</td>
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<tr>
<td>(V.2) At least one adult in household with university education (0=No, 1=Yes)</td>
<td>0.35</td>
<td>+/-0.05</td>
<td>0.92</td>
<td>0.41</td>
<td>.09</td>
<td>.03</td>
</tr>
<tr>
<td>(V.3) Length of current residence/ownership 5 years or less (0=No, 1=Yes)</td>
<td>0.46</td>
<td>+/-0.05</td>
<td>-0.89</td>
<td>0.41</td>
<td>-.08</td>
<td>.04</td>
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<tr>
<td>Number of Respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>353</td>
</tr>
</tbody>
</table>

1. Mean importance score
2. 95% confidence interval
3. Regression coefficient
4. Standard error of regression coefficient
5. Partial correlation coefficient
6. Probability for statistical significance

Table 3: continued

Windsor. Also, fewer than one in seven in each study area were planning a level of house alterations during the next two years.

Table 3 displays the statistical results for the step-wise logit regression in which the binary dependent variable, level of past intensification, was regressed on the respondents' scores for four composite variables motivating or inhibiting a decision to intensify, two reasons for remaining at the current location, and three situational variables (each entered at α<0.05). The first two variables in the model, (X₁,₂,₃,₄) and (X₁₃,₁₄,₁₅,₁₉), represent the economic forces hypothesized either to motivate owners to intensify, or to inhibit them. The relatively highest, positive, partial correlation for the former, economic-motivating variable (r=-0.31; α<0.00) indicates that intensification was significantly more likely if a respondent either derived an additional the latter, economic-inhibiting variable (r=-0.07; α<0.04) means that he or she was less to have intensified if he or she could not afford to alter the home; property taxes might be raised owing to the alterations; he or she did not want to take out a loan; or the home was worth more as it is now. Intensifiers rated the first economic-motivating variable as, on average, 'very important' for their decision (x₁,₂,₃,₄ =0.70, 95% Confidence Interval +/-0.08), whereas the non-intensifiers rated the second as 'important' for not-intensiveing (x₁₃,₁₄,₁₅,₁₉ =0.40, 95% C.I. +/-0.05). The third, social-inhibiting variable in the model, (X₁₉,₂₀,₂₄,₂₅), was, on average, more 'important' for not intensifying (x₁₉,₂₀,₂₄,₂₅ = 0.56, 95% C.I. +/-0.05). Its negative partial correlation (r=-0.11; α<0.01) indicates that intensification was less likely if the home's size, layout or age was not suited for intensi-
fication; it was liked as it appeared now; or the extra space was valued in the home.

The fourth variable, \( X_{5,8} \), represents one of the hypothesized demographic forces. Its positive partial correlation \( r=0.14; \alpha<0.01 \) indicates that those who wished to obtain companionship, or to increase their sense of personal security, were more likely to have intensified. However, even the intensifiers’ average score for this variable was only 0.27 (95% C.I. +/-0.08), indicating its ‘slight’ importance. In comparison, intensifiers and non-intensifiers rated the next two, locational-inhibiting variables, \( Z_{1,9} \) and \( Z_{6,7,9} \), as being ‘important’ to ‘very important’ reasons either for intensifying \( \bar{x}_{1,2} = 0.63, 95\% \text{ C.I.} +/-0.08; \)
\( \bar{x}_{6,7,9} = 0.67, 95\% \text{ C.I.} +/-0.08, \) or for not intensifying \( \bar{x}_{1,2} = 0.59, 95\% \text{ C.I.} +/-0.04; \)
\( \bar{x}_{6,7,9} = 0.80, 95\% \text{ C.I.} +/-0.03. \) On the one hand, he or she was more likely to have intensified if financially he or she was unable either to live, or to move elsewhere \( r=0.14; \alpha<0.01 \). On the other hand, intensification was less likely if the family was comfortable there; friends/family were nearby; or the neighbors were liked \( r=-0.11; \alpha<0.01 \). In other words, the decision either to intensify, or not to intensify, was especially influenced by the household’s perception of either coerced or voluntary attachment, respectively, to the house and neighborhood. Last, three situational variables, \( V_1 \), \( V_2 \) and \( V_3 \), entered the logistic regression with relatively weaker partial coefficients, indicating that intensifiers were more likely to have children aged 18 years or less at home \( r=0.14; \alpha<0.01 \); to have at least one adult in the household with university education \( r=0.09; \alpha<0.03 \); and to have resided longer than five years at the current address \( r=-0.08; \alpha<0.04 \). In summary, these nine independent variables correctly predicted 90% of the entire sample: 95% of non-intensifiers, and 75% of intensifiers. The model is highly statistically significant, as expressed in the Chi Square coefficient.

**DISCUSSION AND CONCLUSION**

Up to one in four property-owners have intensified their homes within the older-urban neighborhoods of Windsor and Owen Sound during the late-1980s, if one generalizes from the findings for this study’s two subsamples. Their intensifications were at Levels 1 and 2, as they added basement apartments, or performed interior renovations to create additional dwelling units; that is, probably with little alteration to the exterior appearances of their dwellings. Most intensifiers were responding to economic forces, as they primarily wished either to supplement their incomes, to profit from the alterations, or to afford their home. Moreover, their intensifications may have been out of financial necessity. Both subsamples were comprised of middle-income households, with middle-aged adults, and the situation of the intensifiers only differed from that of the non-intensifiers in the former’s likelihood of being a longer-term owner, and having a university education. Other intensifiers also gained companionship and security from tenants, possibly as a by-product. Conversely, non-intensifiers did not have these economic or demographic needs, and in particular they were more attached to their dwelling’s surplus living space, and/or their neighborhood’s social characteristics.

Even though the governmental and the social factors were not reasons for intensifying, this study’s findings suggest how intensification might accelerate as prospective, economically-motivated intensifiers respond not only to social and land-use changes, but also to planning within their neighborhoods. For example, first, municipal building advisory services may help to produce intensification by informing these educated, middle- and lower-income owners about augmenting their finances for mortgage and property tax payments. Second, municipal rezonings and land-use decisions
permitting intensification may induce other 
others to re-evaluate the relative utility of 
their intensified property within an emerg-
ing intensified submarket. Last, if their 
friends, family or neighbors move out from 
an intensifying neighborhood, more and 
more owner-occupiers may intensify in order 
to accumulate the house-wealth to move out 
themselves.

In conclusion, a selfish economics of 
property-ownership during the late-1980s 
underlies the residential intensification within 
the older-urban neighborhoods of Windsor 
and Owen Sound. In comparison with these 
study areas, residential intensification is a 
much more visible and significant phenome-
on in larger Canadian cities such as 
Toronto and Vancouver. These larger cities 
are experiencing much greater population 
and household growth, fuelling a demand for 
nearly-intensified dwelling units surpassing 
that in smaller cities. Nevertheless, this 
study has shown that property-owners in 
small- to medium-sized cities are intensifying 
their homes, and they are responding 
especially to the hypothesized economic 
societal forces. These findings about past 
intensifications were based on correlational 
analyses, and future research will employ 
depth interviews to provide detailed case 
studies about the various intensifiers, their 
specific backgrounds, and their unique 
combinations of motivations for having 
performed the alterations, or for planning 
future ones.

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