Abstract

Increasing the population density of urban areas is a key policy strategy to sustainably manage growth, but many residents often view higher density living as an undesirable long-term housing option. Thus, this research explores the predictors of residential satisfaction in inner urban higher-density (IUHD) environments, surveying 636 IUHD residents in Brisbane, Australia about the importance of dwelling, neighbours and neighbourhood. Relationships with immediate neighbours did not predict residential satisfaction, but features of the neighbourhood and dwelling were critical, specifically satisfaction with dwelling position, design and facilities, and social contacts (family and friends) in the neighbourhood. Identifying the factors that influence residential satisfaction in IUHD will assist with both planning and design, helping ensure a lower resident turnover rate and greater uptake of high density living.

Keywords: Brisbane, Australia; compact city; perceptions of dwelling, neighbours and neighbourhood; satisfaction with high density; sustainable development

Increasing the density of urban areas is a key policy strategy for accommodating population growth, enhancing community liveability and addressing sustainability concerns through minimising automobile reliance (Howley, 2009). Yet, whilst policy-makers typically embrace this sustainable growth management strategy (variously termed new urbanism, smart growth, compact city, transit orientated developments), in some countries the degree to which the wider community will accept inner-urban higher density (IUHD) living is questionable. In Australia, for example, the suburban detached house with a garden on a 'quarter acre block' remains an entrenched cultural icon; approximately half of the population lives in the combined middle and outer suburbs of metropolitan areas, with higher density often viewed as a temporary and unappealing housing option for families (Randolph, 2006; Troy, 1996). The current policy driven change, from traditional low density suburban to higher-density living, represents a significant redirection in Australia's urban environment and successfully making this transition will require a significant change in community perceptions, beliefs and judgments about IUHD living (Randolph, 2006). Thus, as a first step towards addressing and mitigating prevailing community concerns about policies of urban consolidation, this research explores resident's experience and satisfaction with IUHD living using inner urban Brisbane in Australia as a case study.

Sustainable urban planning in Australia

By world standards, Australia's traditional urban form and structure is low density detached housing, highly suburbanized and automobile-dependent (Forster, 2006). Yet, with policymakers viewing increased density as the key strategy for managing urban growth and associated issues such as urban sprawl, transport congestion, water and energy infrastructure demands, climate change and socially isolated communities, like other developed countries, Australia's urban form is changing significantly. In the last decade, the central city and inner suburbs of Australian capital

cities have been transformed through new medium and high rise residential developments (Forster, 2006); critically, unlike the United States and United Kingdom, Australia's inner city gentrification and development has typically made these IUHD localities (close to work and recreational amenities) extremely desirable places to live (Randolf & Freestone, 2008). However, as Randolf (2006) points out, the majority of residents in these higher density dwellings are child-free (either pre or post-children), an undesirable trend that is creating "urban spatial segregation based on lifestyle or life stage that is new for Australian cities" (p485). Moreover, if high-density does not appeal to Australian families (70% of the population; Australian Bureau of Statistics [ABS], 2001), the long-term success of contemporary sustainable growth management policies, such as new urbanism and compact city, is questionable.

Statistically, the number of people living in high-rise housing dwellings (defined as four or more storeys) has doubled in Australia, from one to two percent of the population in the two decades from 1981 to 2001 (ABS, 2004). The highest percentage increase in higher density was experienced in the capital of sub-tropical Queensland, Brisbane (146%), where an additional 64,100 multi-unit dwellings were built (ABS, 2004). With a population of 1.8 million, Brisbane is the fastest growing metropolitan region in Australia (over 2,000 new residents every week) and the second-fastest growing city in the western world (Brisbane City Council [BCC], 2006). Thus, as with some other major developed cities, state and local governments in Brisbane are actively pursuing policies of urban consolidation and higher density around transport nodes, explaining that: "we must think differently about the way we live, in particular how we use our natural resources and land for new, affordable housing development to accommodate the quarter of a million new residents predicted to arrive here during the next 20 years" (p20, BCC, 2006).

Unfortunately, many residents have significant reservations about the policy of densification, with residents actively opposing plans for five-storey developments within ten kilometres of the Brisbane central business district, arguing that they would fundamentally change the character and visual impact of old heritage suburbs and add pressure to already congested roads and public transport (BCC, 2007; Fraser & Gaynor, 2010). As elsewhere in the world, for IUHD living to be a viable mainstream housing alternative, it will need to be acceptable to a wider range of people – and convincing residents to accept and consider swapping their detached house in the suburbs for an IUHD dwelling will require urban planners and designers to demonstrate that living in higher-density is an appropriate and positive experience for all life stages (McEldowney, Ryley, Scott & Smyth, 2005; Randolph, 2006).

Understanding residential satisfaction for IUHD residents

Whilst a vast body of literature has explored residential satisfaction and quality of life issues in low density suburban communities (e.g. McCrea, Stimson, & Western, 2005), to date, very few studies have explicitly explored the predictors of residential satisfaction for IUHD residents (Gifford, 2007). Residential satisfaction is a complex, multi-dimensional concept that is conceptualised in many different ways but is generally analysed by assessing satisfaction with *dwelling* (i.e., internal and exterior design features, age, size, structure, functionality, aesthetic feelings; Lu, 1999; Phillips, Oi-ling, Yeh & Cheng, 2005), satisfaction with *neighbourhood* (i.e., services, facilities, attractiveness, green space, safety; Lovejoy, Handy, & Mokhtarian, 2010; Sirgy & Cornwell, 2002), and satisfaction with *neighbours* (i.e., social interactions; Adriaanse 2007; Amerigo & Aragones, 1997). Interestingly, as well as focussing predominantly on residential experience in low-density suburbia, the majority of research to date often focuses only on one of these three main dimensions of residential satisfaction (i.e., satisfaction with dwelling or neighbourhood or neighbours), with very

few studies completely and simultaneously assessing each of these domains. Indeed, Lewicka (2010) argues that researchers have primarily focussed on perceptions of and attachment to neighbourhood, with much less known about the role of dwelling.

The small body of research focussing on IUHD residents suggests that residential satisfaction may not necessarily be related to residential density per se, but to other neighbourhood factors, which may or may not be unique to dense locations, such as environmental quality, traffic and pollution, noise, lack of social cohesion and community involvement, lack of services and limited choice of residence (Howley, Scott & Redmond, 2009a; Bishop & Syme, 1995). For example, Mitrany (2005) qualitatively explored the physical and social features which contribute to neighbourhood satisfaction in two high density Jewish neighbourhoods in Israel and found that high density was rated more positively in the neighbourhood with greater transport services, facilities and open spaces within walking distance. Similarly, Kearney (2006) investigated residential satisfaction in various densities in a master-planned community in USA and found density was not a predictor of residential satisfaction but presence of shared outdoor areas was.

More recently in Ireland, Howley and colleagues (Howley, 2009; Howley et al., 2009a, 2009b) have explored the views and experiences of inner-urban Dublin residents via a survey (n=270) and four focus groups. Nearly half (43%) rated their overall quality of life in their urban area as fair or poor, with very few (5.6%) rating it as excellent. Howley et al. (2009a) found that the key determinants of neighbourhood satisfaction were general satisfaction with dwelling and specific neighbourhood features, specifically employment opportunities, perceived safety, absence of litter, and neighbours looking out for each other. From a design perspective, however, one limitation of this study was that dwelling satisfaction was assisted through a generic satisfaction question, rather than a broad evaluation of specific building features (e.g., facilities, upkeep, size, cost, design). The focus group

data highlighted how the existing inadequate infrastructure (e.g., limited open space, traffic congestion, lack of services and facilities) could not cope with the influx of residents, leading Howley et al. to emphasise that increased density needs to occur in tandem with enhancing the liveability of IUHD neighbourhoods. At the same time, however, it is important to note that the ultimate residential preference of most of these residents is lower density locations (Howley, 2009).

Who lives in IUHD localities?

One of the major concerns with IUHD living is who lives there and for how long: the general current consensus is that the majority of inner-urban residents are typically young single professionals who will "follow a 'housing career' starting in the city centre and concluding in the suburbs" (p1, Allen & Blandy, 2004). Research in England, documenting the renewal and revitalisation of four case study city centres in Birmingham, Bristol, Cardiff and Swansea, confirms that this young demographic is over-represented in inner-urban living. Utilising census data, household surveys and planning data, Bromley, Tallon and Roberts (2007) profiled residents and found that city centre populations have grown and changed from 1991 to 2001; compared to surrounding areas, and the area a decade ago, new city centre populations are characterised by being male, younger adults, fewer children, higher proportion of ethnic minorities and lone person households, lower levels of car ownership and similar or higher socio-economic status, in terms of professions. Bromley et al. explain that the city centre appeals to young adults, who are short-stay (3-5years) residents attracted by the stylish city centre lifestyle, convenience for work and abundance of leisure facilities (e.g., pubs & clubs). Whilst the city centre revitalisation has clearly been successful in terms of attracting new residents, Bromley et al. sound a note of caution about how policy-led residential change could inadvertently led to gentrification as the central-city becomes socially-exclusive and demographically limited (i.e., appropriate for young people, but not for families or older residents).

However, as Allen and Blandy (2004) emphasise, inner-urban residents cannot be solely defined by their socio-demographic characteristics and the "market*s* for city centre living are many, complex, differentiated and operate according to distinct economic, social and cultural logics" (p15). In their case study of Manchester, which included interviews with key stakeholders in the residential property market and focus groups with inner urban residents, Allen and Blandy (2004) identified 'authentic' city centre dwellers (defined primarily as either 'successful agers' who have done the family thing or 'counter-culturalists', specifically the gay community attracted to the lifestyle) who buy apartments because they are committed to living there and city centre 'tourists', residing there for only a few years before moving to the suburbs. In street-intercept surveys with 525 residents of provincial cities in the United Kingdom (Nottingham, Portsmouth, and Wolverhampton), Heath (2001) focussed on identifying the facilitators and barriers to inner-city living - of the 27% who would consider inner-city living, the main attractions were proximity to employment, shopping and entertainment. Their ideal apartment would be 2-3 bedrooms, with garden/outdoor space and good access to public transport. The majority (73%) who would not consider inner-city living identified noise, too busy/pace of life, preferring alternative location and crime as the key deterrents. Similarly, Senior, Webster and Blank (2006) recently explored the residential preferences of 321 owners moving house in Cardiff, Wales. This sample strongly preferred a spacious detached house in the suburbs over higher-density inner-city apartments, a preference that was particularly pronounced for families with young children and those of retirement age. The strong reluctance expressed towards IUHD living as a viable residential option led Senior et al. to suggest that policy-makers should widen from the current focus on encouraging city centre living and consider radically redeveloping suburbs to be more sustainable in terms of encouraging greater density, shared space and public transport nodes.

Given the limited research on residential satisfaction in IUHD locations, this Australian research focuses on understanding and identifying the specific elements of dwelling, neighbourhood and neighbours that contribute to satisfaction in high-density environments, using inner urban Brisbane as a case study. The findings will help inform an interdisciplinary understanding of the key factors underpinning IUHD residential satisfaction and assist decision-makers as they implement urban consolidation initiatives.

Methodology

Research Design

As Figure 1 illustrates, six inner urban higher density (IUHD) precincts located within six kilometers of the Central Business District of Brisbane, the capital city of Queensland, Australia were selected. While it would be unrealistic to propose that inner-city Brisbane represents a completely 'consolidated' environment, as a case study area it is a good example of a 'transitional' urban environment where high-density residential accommodation is becoming an increasingly common feature of the urban landscape (Queensland Government, 2009). These inner-city suburbs are typified by increasing urban densification and services, with easily accessible local shops, public parks, public transport infrastructure (bus, train and ferry) and purpose-built cycle/pedestrian paths. All high-density complexes were identified within each precinct and a proportionate sampling technique was applied to select one third of the units within each complex. Overall, 2311 randomly selected residents received the 22 page questionnaire, with a total of 636 returned (28% response rate).

[INSERT FIGURE 1 ABOUT HERE]

Participants

Table 1 illustrates the key socio-demographic characteristics of survey respondents, compared to Australian Bureau of Statistics (ABS) 2006 Census data (the socio-demographic data for each suburb/statistical local area was extracted and combined). The majority were female (60%) and aged between 25 and 59 years old (71%), with a fifth aged 60 years and older. Half were married (35%) or living in a de facto relationship (17%), with a third single (31%). Household size ranged from one to six people, with most households consisting of two people (54%) or one person (31%); only 7% of households comprised children under 18 years old. This differs slightly from the census data, which suggests there are slightly more men and younger residents (ages 18-24 years). Almost half (41%) had a combined household annual income over $80,000 (27% over $120,000) and had tertiary educational qualifications (32% bachelor degree; 21% postgraduate degree). Most reported occupations as professionals (39%) or managers/administrators (24%), with few retired (15%) or studying (6%).

There was a varied ownership mix of units, with under a half renting (44%) and half either owning (27%) or paying off a mortgage (28%). Length of residency ranged from one month to 39 years, with an average of 3 years and 5 months. A third (35%) had lived in their neighbourhood for over 5 years, while one quarter (25%) had lived there for less than a year. On average, they intended to remain in their present accommodation for an additional 4 years and 10 months. In terms of unit characteristics, the majority (68%) lived between the first and third floors and most (69%) would like to remain on the same level (25% would prefer to be higher). The average unit comprised of two bedrooms, two bathrooms, one kitchen, one private laundry, one living room, one car park and

two outdoor spaces (balconies etc). If they had to relocate within the next five years, most residents would consider apartments (52%) and detached houses (42%), with a third considering a townhouse (33%) or unit (33%). Residents lived on a range of floor levels, ranging from below ground (n=1) to the 19th floor (n=1), although the majority (68%) lived between the first and third floor. Most (69%) wanted to remain on the same level they were currently on, although a quarter (25%) would prefer to be higher.

[INSERT TABLE 1 ABOUT HERE]

Measures

Participants answered approximately 140 open and closed questions about the positive and negative social, environmental and economic impacts they experience as residents of inner-urban high-density dwellings, including satisfaction with current dwelling, neighbourhood and neighbours; impacts including noise, odours, pollution and smoking; quality of life and social capital; recycling, water and energy use and travel and vehicle use. Participants also provided standard demographic information including age, gender, education, income, marital status and household details. This article focuses on a subset of that data, specifically the extent to which satisfaction with dwelling, neighbourhood and neighbours predicted residential satisfaction (regret to move).

Residential Satisfaction (regret to move)

The key dependent variable, residential satisfaction, was defined as the extent to which residents would regret moving if they had to (5-point Likert scale, anchored at 1 'not at all' and 5 'very much').

Satisfaction with Dwelling

Overall satisfaction with dwelling was measured by asking respondents to indicate how satisfied they were with their dwelling. As dwelling satisfaction was found to be associated with residential satisfaction (regret to move), specific attributes associated with dwelling satisfaction were further analysed. Based on standard items in past studies (e.g., van Poll, 1997), Table 2 illustrates the 34 individual items categorised within nine general domains– facilities, upkeep, size, cost, design, surrounding, location, climate and environmental management –- that measured specific attributes associated with dwelling satisfaction. All items were measured on a 5-point Likert scale, anchored at 'not at all satisfied' to 'extremely satisfied'.

[INSERT TABLE 2 ABOUT HERE]

Satisfaction with Neighbourhood

Overall neighbourhood satisfaction was measured by asking respondents to indicate how satisfied they were with their neighbourhood. As neighbourhood satisfaction was found to be associated with residential satisfaction (regret to move), specific attributes associated with neighbourhood satisfaction were further analysed. Table 3 summarises the 66 individual items which measured specific attributes associated with neighbourhood satisfaction in seven general domains – noise, odours, pollution, safety risks, growth concerns, neighbourhood attributes and neighbourhood facilities. All items were measured on a 5-point Likert scale, anchored at 'not at all satisfied' to 'extremely satisfied'.

[INSERT TABLE 3 ABOUT HERE]

Satisfaction with Neighbours

Overall neighbour satisfaction was measured by asking respondents to indicate how satisfied they were with their neighbours. As this was found not to be a significant predictor of residential satisfaction, the specific attributes associated with this variable (e.g., asking a neighbour for help, visiting a neighbour in the past week) were not analysed.

Data Analysis

Using Statistical Programme for Social Sciences (SPSS), ordinal regression with complementary log-log link function was utilised to explore the relationship between the ordinal dependant variable, overall residential satisfaction, and the multiple explanatory variables (satisfaction with dwelling, neighbourhood and neighbours). A two-step procedure was utilised. First, as preliminary analysis indicated that only two explanatory variables (overall satisfaction with dwelling and overall satisfaction with neighbourhood) were significant predictors of residential satisfaction, the non-significant explanatory variable (overall satisfaction with neighbours) was removed. Second, to clarify what specific attributes of dwelling and neighbourhood were most useful in predicting overall residential satisfaction, the 34 specific '*satisfaction with dwelling*' variables and 66 specific '*satisfaction with neighbourhood*' variables were analysed. A backward elimination was applied in the ordinal regression modelling to reveal the significant attributes, with non-significant variables deleted from the model. The coefficients of the model (b) and Wald statistics, with their corresponding significance levels, are reported below. For the purpose of this analysis, only results with a p value less than 0.01 are considered significant.

Results

As Figure 2 illustrates, residential satisfaction was predicted by satisfaction with the dwelling (b=0.29, Wald $\chi 2$=14.8, p=0.000) and with neighbourhood satisfaction (b=0.24, Wald $\chi 2$=11.6,

p=0.001), but satisfaction with neighbours was not a significant predictor (b=0.05, Wald χ^2=0.62, p=0.43). As neighbour satisfaction was not significant in terms of residential satisfaction, no regression with specific attributes was conducted for this variable. The variation in residential satisfaction explained by the model is 29% of variance for satisfaction with dwelling and 24% of variance for neighbourhood satisfaction. The specific attributes that contribute to satisfaction with dwelling and neighbourhood are described below. Socio-demographic characteristics were included, but age (b =0.11, Wald χ^2=42.8, p=0.000) was the only significant predictor of residential satisfaction: older participants were the most satisfied with their current accommodation. No socio-demographic characteristics were significantly related to satisfaction with dwelling or neighbourhood.

[INSERT FIGURE 2 ABOUT HERE]

Satisfaction with Dwelling

As Table 4 illustrates, satisfaction with dwelling was significantly related to position of the dwelling in the complex, facilities in the dwelling, communal facilities, design/layout of the dwelling and spacious living/size of rooms. The most important attributes relating to dwelling satisfaction were satisfaction with dwelling position (b=0.51), design/layout (b=0.36) and facilities (sanitation, heating) in the dwelling (b=0.35).

(INSERT TABLE 4 ABOUT HERE)

Satisfaction with Neighbourhood

As Table 5 illustrates, neighbourhood satisfaction was significantly associated with reduced noise from emergency service vehicles and reduced odour from traffic, as well as satisfaction with walks, illumination at night and parking. Residents who were more satisfied with social contacts (family

and friends) in their neighbourhood and less concerned with encountering strange and unfamiliar faces were also more satisfied with their neighbourhood. Social contacts (b=0.24), not being concerned by encountering strange or unfamiliar faces (b=-0.25) and satisfaction with walks were the most important attributes relating to neighbourhood satisfaction.

(INSERT TABLE 5 ABOUT HERE)

Discussion

With high-density dwellings being proposed as a key growth management strategy internationally and in Australia, it is important to understand factors that contribute to residential satisfaction in high-density settings. This research indicated that overall *residential satisfaction* in high-density dwellings (defined as 'regret to move') depends on satisfaction with dwelling and neighbourhood but was not influenced by satisfaction with neighbours. More specifically, by assessing multiple specific domains of dwelling and neighbourhood satisfaction, the data highlighted the precise neighbourhood characteristics and individual unit design considerations that play an important role in residential satisfaction in high-density complexes. The findings have the potential to contribute directly to the planning and design of higher density urban environments, especially in Australia and other countries where cultural values have been identified as an impediment to urban consolidation efforts. With Randolph (p488, 2006) arguing that understanding the "current composition of and trends in the higher density strata sector is crucial to ensuring that planning for higher density Australian cities avoids simplistic options and solutions", these findings will assist and inform all researchers, designers, urban planners, developers and policy-makers as they implement urban consolidation initiatives.

In our sample of high-density residents, dwelling satisfaction was the most important domain associated with residential satisfaction. Contrary to some research in more traditional low-density suburban neighbourhoods, this data suggests that residential satisfaction is somewhat insular in high-density environments with individual dwelling characteristics and facilities within the home environment considered more important than neighbourhood and neighbour characteristics. Specific attributes associated with dwelling satisfaction in this study included position of the dwelling in the complex, design/layout of the dwelling and facilities including dwelling facilities (sanitation, heating) as well as communal facilities (pool, clotheslines, laundry). Spacious living and size of rooms was also considered a significant factor, with privacy on the borderline of being a significant association. The finding that individual unit design considerations play such an important role in residential satisfaction in high-density complexes emphasises the importance of quality architectural and interior design approaches, further reiterating the point McEldowney et al. (2005) made about the need for more "positive architectural role models demonstrating that high-density does not necessarily equate to low quality in terms of housing design" (p522).

The most important factors associated with neighbourhood satisfaction were satisfaction with social contacts within the neighbourhood (family and friends) and lack of concern over encountering strangers or unfamiliar faces, factors which highlight the importance residents place on feeling that they have a supportive broader community of known or familiar social contacts. Physical features of the neighbourhood, specifically parking, satisfaction with walks and illumination at night, were important predictors of satisfaction and highlight the value residents place on accessible neighbourhoods. Finally, not hearing noise from emergency service vehicles and not being aware of odour from traffic were also predictors. Clearly, residents in higher-density dwellings valued a surrounding neighbourhood that has minimal traffic noise and odour, access to adequate facilities

(such as walks and illumination at night) and provides a platform for social contacts with family and friends. These findings are consistent with the small body of literature on IUHD residential preferences, with Howley et al. (2009a) also finding that safety and neighbours looking out for each other predicted neighbourhood satisfaction in inner-urban Dublin.

Interestingly, satisfaction with immediate neighbours did not predict residential satisfaction. This is somewhat unexpected, given that a large body of research has emphasised the value of social networks in the community for resident's health, wellbeing and happiness (e.g., Ziersch, Baum, MacDougall & Putland, 2005). In the planning and design field, the use of urban and dwelling design strategies to promote social capital and strong neighbourhood social ties has become an increasingly promoted residential outcome, although our findings suggest that residents do not seek social ties with their neighbours. In some ways, however, this reflects the realities of higher-density living; residents may consciously choose to disengage from other residents in order to maintain their privacy in a close living environment (Gifford, 2007). Interestingly, Buys, Godber, Summerville and Barnett (2007) found similar trends of suburban residents valuing privacy over social ties with immediate neighbours on Australia's Gold Coast, so it is clear that residential privacy may an important yet under-researched strong cultural value for many Australians. In the context of high-density, however, these findings suggest that designers and urban planners should design dwellings to maximise resident privacy and neighbourhoods to maximise social engagement and adequate access within the neighbourhood to facilities such as walks, parks and restaurants that enable residents to easily socialise with known social contacts.

With few researchers specifically analysing residential satisfaction in higher-density dwellings, our findings provide planners and designers with a baseline account of the factors that IUHD Brisbane

residents considered important. Whilst providing invaluable insight to developers, designers and urban planners about the importance of specific dwelling features (such as privacy and design) and neighbourhood features (such as the mitigation of noise, lighted paths and more walks), the specific socio-demographic characteristics of the sample need to be emphasised. The majority of residents did not have families, were well-educated professionals and had lived in their current residence for over three years; whilst we did not explicitly explore their residential preferences for the future, on average residents intended to remain in their present accommodation for an additional four years and 10 months. This contradicts significantly with Howley's (2009) Dublin sample, who expressed a strong long-term preference for lower density housing, and highlights how our Brisbane sample enjoyed their inner city lifestyle. What remains unexplored, and is an important topic for future research, is the extent to which these residents perceive their IUHD residence and locality to be suitable for raising children. To better understand how higher-density living is viewed, future studies must further explore such issues and explicitly compare the views and experiences of high-density dwellers with residents in detached homes in the suburbs. Research is urgently needed to address and mitigate the growing dissonance between the community's individual aspirations (for a detached house in the suburbs) and policy/expert vision (for high density residences), and to inform best practice design guidelines. It is also important to acknowledge that the majority of our sample was not living in extremely high complexes, with most residing between the first and third floor; clearly, future research about the lived experience in different densities, neighbourhoods and contexts is needed to better understand and enhance the high-density residential experience (Gifford, 2007; Lewicka, 2010).

Our study seeks to contribute to the international debate on urban consolidation and better understand the factors that impact on residential satisfaction in IUHD environments. IUHD has the

potential to contribute to the reduction of the city's carbon footprint through encouraging greater public transport use, reduced urban sprawl and utilisation of land and sharing of resources. However, in order to be successful, high-density living must meet the dwelling and neighbourhood expectations of residents in order to be considered as a potential long-term housing option.

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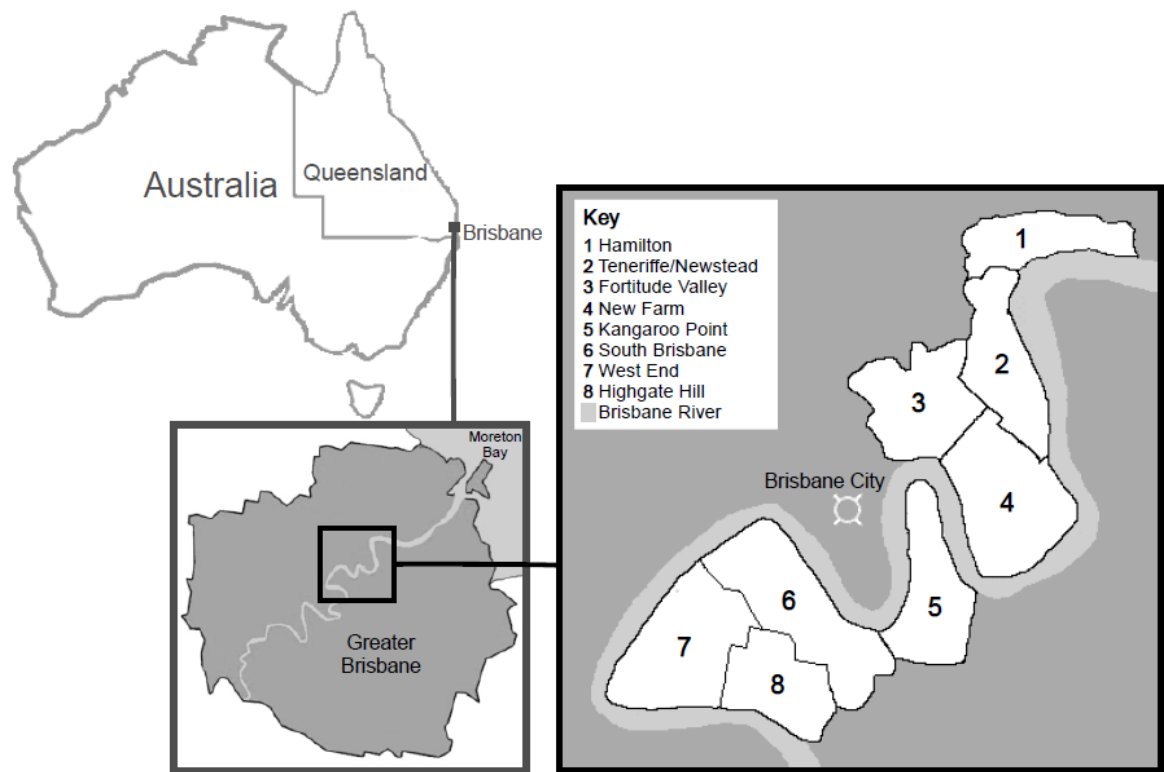*Figure 1: Location of study areas in Brisbane, Queensland, Australia*

Table 1: Socio-demographic characteristics of survey participants, compared to census

	Survey Respondents (n=636)		Resident Population *	
	Frequency	*Percentage*	*Frequency*	*Percentage*
Gender			*N=38,503*	
Male	252	40%	19,699	51%
Female	381	60%	18,804	49%
Age			*N=38,503*	
18-24	59	9%	6,607	17%
25-44	273	43%	17,078	44%
45-64	226	36%	9,858	26%
65-79	61	10%	3,241	8%
80 and over	15	2%	1,719	4%
Marital Status			*N=38,503*	
Single	197	31%	17,986	47%
Divorced/Widowed	107	17%	7,002	18%
Married/Defacto	329	52%	13,515	35%
Occupation			*N=38,503*	
Manager/Admin	149	23%	6,765	18%
Professional	260	41%	8,109	21%
Tradesperson / Labourer	14	2%	3,919	10%
Clerical/Sales	56	9%	4,226	11%
Student	36	6%	3,303	9%
Retired	94	15%	4,960	13%
Not Stated/ Other	17	3%	7,221	19%
Household			*N=17,961*	
1 Adult Household	200	31%	7,087	39%
2 Adult Household	367	58%	4,677	26%
3-5 Adult Household	57	9%	2,419	13%
1-4 Children Household	47	7%	3,778	21%
Household Income			*N=17,961*	
Negative/Nil Income			103	0.6%
<$30k	50	8%	548	3%
$30-80k	244	38%	2,606	15%
$80-120k	154	24%	1,313	7%
$120k +	166	26%	3,021	17%
N/A			9,415	52%
Ownership Type			*N=17,961*	
Fully Owned	169	27%	3,703	21%
Paying off Mortgage	179	28%	3,497	19%
Renting	276	43%	10,440	58%
Living Rent-free	7	1%	198	1%

**2006 Census of Population and Housing (Australian Bureau of Statistics)*

Table 2: Satisfaction with Dwelling Measures

Dwelling Attribute	Total Items	Example Items How satisfied are you with…
Facilities	4	facilities in your dwelling including sanitation, heating and communal facilities including pool, clothesline and laundry
Upkeep	3	internal upkeep of your dwelling, control of pests, insects and vermin
Size	4	spacious living/size of rooms, number of rooms and storage space
Cost	3	purchase price, management fees, cost of heating, cooling, water and electricity
Design	6	construction, position and design/layout of dwelling, location of dwelling in the complex, privacy, noise
Surroundings	3	natural surroundings, landscaping and gardens and view from the dwelling
Location	3	proximity to services, proximity to work, proximity to public transport
Climate	5	indoor climate of the dwelling, access to breezes, quality of outdoor air, natural light, design to suit local Brisbane climate
Environmental Management	3	water efficiency, energy efficiency, opportunities to recycle waste

Table 3: Satisfaction with Neighbourhood Measures

Neighbourhood Attribute	Total Items	Example Items
Noise	12	To what extent do you hear noise from: e.g. household appliances other than your own; neighbour's voices, music or sounds from animals; nightlife; trains
Odours	6	To what extent are you aware of unpleasant odours from: e.g. animals, garbage, traffic, industrial activity, sewage
Pollution	11	To what extent are you aware of pollution in your neighbourhood from: e.g. smog/air pollution, dust, soil pollution, garbage/litter, aural signal from pedestrian crossings
Safety Risks	7	To what extent are you worried about safety risks in your neighbourhood from: e.g. traffic, vandalism, burglary or theft, industrial activity, gangs
Growth Concern	8	To what extent are you concerned about: e.g. number of people in your neighbourhood, encountering strange or unfamiliar faces, increasing density of residential developments
Neighbourhood Attributes	16	To what extent are you satisfied with your neighbourhood in terms of: e.g., proximity to employment, parks and gardens, social contacts, general condition of area local services, noise, public transport, density, design and accessibility.
Facilities	16	To what extent are you satisfied with the following facilities in your neighbourhood: e.g. schools, shops, healthcare facilities, sport facilities, parking facilities, nightlife, greenery, playgrounds, illumination at night, walks, public transportation, arterial roads, cafes, community facilities

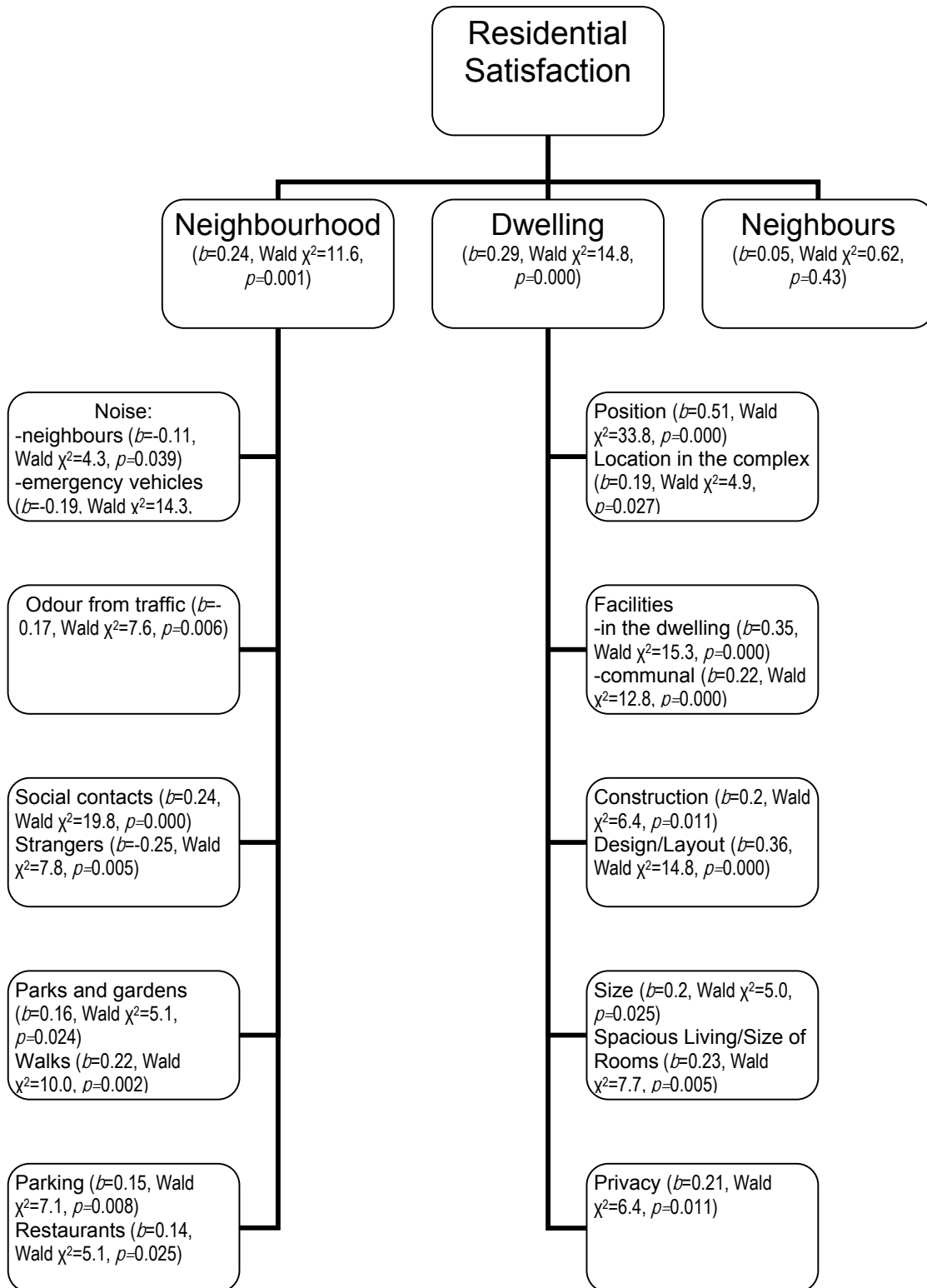*Figure 2: Ordinal regression model of high-density residential satisfaction*

Table 4: Significant attributes associated with Dwelling Satisfaction

	Dwelling b (Wald χ^2)	p
INTERNAL CHARACTERISTICS		
Dwelling Position	0.51***(33.8)	**p=0.000**
Location in the complex	0.19* (4.9)	*p*=0.027
FACILITIES		
Facilities in the dwelling (sanitation, heating)	0.35***(15.3)	**p=0.000**
Communal Facilities (pool, clotheslines, laundry)	0.22***(12.8)	**p=0.000**
DESIGN		
Construction	0.2* (6.4)	*p*=0.011
Design/Layout of dwelling	0.36***(14.8)	**p=0.000**
SPACE		
Spacious Living / Size of Rooms	0.23** (7.7)	**p=0.005**
Size of dwelling	0.2* (5.0)	*p*=0.025
PRIVACY		
Privacy	0.21* (6.4)	*p*=0.011

***p<.001, **p<.01, *p<.05, ^p<.10

Table 5: Significant attributes associated with Neighbourhood Satisfaction

	Neighbourhood b (Wald χ2)	p
SOCIAL		
Social contact (family, friends)	0.24*** (19.8)	p=0.000
Concern encountering strange or unfamiliar faces	-0.25** (7.8)	p=0.005
EXTERNAL		
Parks and gardens	0.16* (5.1)	p=0.024
Walks	0.22** (10.0)	p=0.002
Illumination at night	0.19** (7.4)	p=0.007
Parking	0.15** (7.1)	p=0.008
Restaurants	0.14* (5.1)	p=0.025
NOISE		
Emergency vehicles	-0.19***(14.3)	p=0.000
Neighbours' voices, music or sounds from animals	-0.11* (4.3)	p=0.039
ODOUR		
Traffic	-0.17** (7.6)	p=0.006

***p<.001, **p<.01, *p<.05, ^p<.10